Austria, Finland, and Sweden in the EU: Who performed better?

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2 January 2025

Abstract

30 years ago, on January 1, 1995, Austria, Finland, and Sweden joined the EU. The three countries share many similarities as small, open economies and have a comparable history after the Second World War, first regarding their integration into EFTA, then into the EEA and finally into the EU. Most of the numerous integration studies see Austria as the main beneficiary of EU membership. Since most estimates of integration effects are trade-based, Austria is favored because Austria has established much more intensive trade relations with the EU than Finland and Sweden through its EFTA membership and later through the opening-up of Eastern Europe and EU enlargement.

On the other hand, the overall macroeconomic performance in the Scandinavian countries - especially Sweden – has been better than in Austria in the last 30 years. In addition to these contradictory results of 30 years of EU membership, there is another "integration puzzle". While Austria is the main winner of the three countries from EU membership, the citizens of the three countries see things quite differently. For the Austrians, EU membership has apparently brought hardly any advantages, while for the other two countries the EU has been very beneficial.

These contradictions in the perception of EU membership are difficult to explain. This study attempts to do so by means of a comprehensive comparative analysis with macro- and microeconomic indicators as well as political economy insights. Ultimately, countries join the EU not only for economic reasons, but also to help build a better, common Europe that goes beyond mere prosperity.

Keywords: European Economic Integration; Open Economy Macroeconomics; Country Studies; Model simulations
JEL Classification: C54, F15; F41; O52.

Vienna, 12 June 2024 (2nd revised edition: 2 January 2025)

Contents

1. Introduction

EU integration is a complex thing. It started after World War II with the Jean-Monnet idea that economic cooperation would lead to political unification. Politically proclaimed was this with the Schuman Declaration on 9 May 1950 (today called "Europe day"). The "Jean Monnet effect" was then formally established in 1951 by the Treaty of Paris, founding the European Coal and Steel Community (ECSC). Again the "Jean Monnet effect" was triggered with the last grand unification project, the introduction of the common currency Euro in 1999. Since the beginning of European integration, the (now called) European Union has been based on a supranational foundation that would "make war unthinkable and materially impossible" and reinforce democracy amongst its members as laid out in the Schuman Declaration.

The official webpage of the European Union[1] proclaims the main aims of the EU as "Promote peace, its values and the wellbeing of its citizens". For the first part, the Nobel Peace Prize 2012[2] was awarded to the EU "on the grounds that the organization had advanced peace, reconciliation, democracy and human rights in Europe". Some historians, like Ferguson (2013) deny that the EU has anything to do with peace in Europe since World War II, because that has been the achievement of NATO. Furthermore, he sees the European project as a total failure, also from an economic, political, and geopolitical point of view. About the second part of EU's aims, economic prosperity there are numerous studies, mostly asserting that the EU has increased prosperity.

In this analysis, we study the economic performance of Austria, Finland, and Sweden since its accession to the EU in 1995. The three countries are comparable in size and political development. One should therefore expect a similar impact of EU membership (although Sweden has not yet introduced the Euro). However, there is a puzzle. Most studies evaluating EU membership of the three countries, assert that Austria has profited more than the two others. In contrast, however, the real performance – measured by the most important economic indicators as GDP growth etc. – see Sweden, and Finland leading Austria. It is the aim of this contribution to explain this contradiction.

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[1] https://european-union.europa.eu/principles-countries-history/principles-and-values/aims-and-values_en
[2] https://www.nobelprize.org/prizes/peace/2012/eu/facts/

2. The long way to Brussels

2.1 Why joining the EU?

For mostly political reasons (neutrality status) the three small countries Austria, Finland, and Sweden joined firstly the EFTA and not the European Economic Community (EEC). Austria declared its permanent neutrality on 26 October 1955 as a constitutional act of parliament (Neutrality law), following the Austrian State Treaty[3]. Finland, during the "Cold War" adopted an official policy of neutrality[4]. After the Russian invasion of Ukraine on 24 February 2022, Finland together with Sweden called for NATO membership "without delay". Finland became a member of NATO on 4 April 2023. Sweden was the first country in the world to declare neutrality in 1814[5]. On May 16, the Swedish government announced its decision to apply to join NATO after staying militarily neutral for 200 years. After a two-year long veto by Turkey and Hungary, Sweden became a member of NATO on 7 March 2024.

What are the main reasons of the three countries to become EU members? According to its own self-image, the EU is a community with two primary goals[6]: peace and prosperity. The second is expected from the full participating in the Single Market with its four freedoms. Being only an EEA (European Economic Area) member would not fulfil this goal. The first goal peace (and security) cannot be fully guaranteed by the EU although the Treaty on European Union (TEU) – the Lisbon Treaty – provides in Article 42 (7) a mutual assistance clause, similar to those of the NATO Treaty in Article 5. After the Russian invasion in the Ukraine on 24 February 2022 the Nordic states Finland (with a long border to Russia) and Sweden did not rely on the EU mutual assistance clause but pushed for immediate admission to NATO.

2.2 A brief history from EFTA to EU

After more than 10 years in EFTA the three countries approached the European Union (EU) (see Table 2.1). Firstly, by the EC-EFTA Free Trade Treaty (FTT) in 1973. This trade action already eliminated the tariffs in trade of industrial goods between the EC and EFTA until 1977. In 1995 the three countries entered the then European Union (EU). Austria and Finland also made the next step in EU integration by taking part in the EMU project with the introduction of the Euro in 2002. Sweden stayed out of the Eurozone after a referendum in 2003. Since then,

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[3] Declaration of Neutrality: https://en.wikipedia.org/wiki/Declaration_of_Neutrality
[4] Finland: https://en.wikipedia.org/wiki/Finland
[5] Swedish Neutrality: https://en.wikipedia.org/wiki/Swedish_neutrality
[6] See Aims and values of the EU: https://european-union.europa.eu/principles-countries-history/principles-and-values/aims-and-values_en

the three countries were part of a steady expanding EU, in 2004 by the grand enlargement towards Eastern Europe (from EU15 to EU25). After the accession of three further countries (Bulgaria and Romania in 2007) and Croatia in 2013 the EU grew to a community of 28 members. A setback in the EU integration process caused the Brexit, completed in 2021.

As an interim step the three countries participated one year (in 1994) as EFTA members in the European Economic Area (EEA). After they entered the EU only three EFTA countries, Iceland, Liechtenstein, and Norway remained EEA members. The EFTA country Switzerland refused to participate in EEA in a referendum on 6 December 1992 (50.3% no vote) and negotiated instead bilateral treaties with the EU.

Table 2.1: A brief European integration history of Austria, Finland, and Sweden

Integration history	**Time**	**Austria**	**Finland**	**Sweden**
European Free Trade Association (EFTA): Founding members: Austria, Denmark, Norway, Portugal, Sweden, Switzerland, and the United Kingdom.	1960	EFTA member		EFTA member
EFTA-Finland	1961	Application for association negotiations with EEC. Austrian "solo effort", followed by Italian boycott; result: Interim Agreement 1972	EFTA associated membership 1986	Application for association negotiations with EEC. 1963 withdrawal together with Switzerland
EFTA Free Trade Area	1966	No Intra-EFTA tariffs since 1967	No Intra-EFTA tariffs since 1969	No Intra-EFTA tariffs since 1967
Interim Agreement	1972	Start of FTT in 10/1972 instead 1/1973		
EC-EFTA Free Trade Treaty (FTT) EC6 1st enlargement by Denmark, Ireland, and the UK	1973	Stepwise elimination of EC-EFTA tariffs	Finland reaches FTT with EC; tariff reduction started in 1974	Stepwise elimination of EC-EFTA tariffs
EC-EFTA "Grand Free Trade Area" between EC's customs union and EFTA's Free Trade Area	1977	Since mid-1977: no tariffs on EC-EFTA trade with industrial products; exceptions for agricultural and sensible products		

Opening-up of Eastern Europe • End of communism • Dissolution of the Soviet Union (USSR)	1989/1991	New trade potential	Loss of former trade relations with Russia	No distinct new situation
Application for EU membership	1989-1992	17 July 1989	March 1992	July 1991
Agreement on the European Economic Area (EEA) between 12 EU and 7 EFTA countries (signed 1992)	1994	Member	Member	Member
Referenda on EU membership	1994	June: 66.6% yes	Oct.: 56.9% yes	Nov.: 52.3% yes
EU12's 4th enlargement: After Greece (1981), Portugal, and Spain (1986)	1995	EU member		
Schengen member	1997	1/12/1997		
Economic and Monetary Union (EMU) of the EU	1999	Founding member	Founding member	No fulfillment of the convergence criteria
Schengen member	2001		25/03/2001	25/03/2001
Euro legal tender with notes and coins	2002	Euro	Euro	no
Sweden's vote on Euro (non-binding referendum)	2003 14/9			55.9% voted against/42.0% in favour
EU15 starts 5th grand enlargement: 8 Eastern European countries plus Cyprus and Malta. EU25: Bulgaria and Romania enter EU27. EU28: Croatia EU member	2004 2007 2013	Austria benefited from the opening-up of the East in 1989 and the EU enlargement towards the East	After the Soviet Union collapsed in 1991 Finland's Eastern exports shrank	For Sweden EU's eastern enlargement was no big deal
Brexit: UK leaves the EU28 after a "no EU" vote in 2016	2021	1st January		

EEA = European Economic Area; EEC = European Economic Community; EC = European Community; EU = European Union; EFTA = European Free Trade Association.
Source: Breuss and Stankovsky (1988), chapter 2 plus several updates.

After the EU and the three countries (plus Norway) agreed upon the Accession Treaty[7] in 1994, each country decided about their EU membership in referenda. In Austria the EU referendum was held on 12 June 1994. 66.6% voted in favour, 33.4% against. An advisory

[7] Treaty of Accession of Austria, Finland, and Sweden (1994): https://eur-lex.europa.eu/collection/eu-law/treaties/treaties-accession.html

referendum on joining the EU was held in Finland on 16 October 1994. 56.9% approved the proposal, 43,1% voted no. In Sweden a non-binding referendum on membership in the EU was held on 13 November 1994. 52.3% voted for and 46.8% against the EU. After a no-EU membership vote in 1972 (53.5%), in a second approach, in 1994 Norway rejected again to become an EU member in a referendum on 27 and 28 November 1994, because the "no" side won with 52.2% of the vote.

In a sense the EU accession of the three countries is a logic consequence of the already strong trade integration via the EC-EFTA FTT. For Austria, which formerly apposed an EU membership for political reasons (Neutrality status), the opening up of Eastern Europe in 1989 made the concerns about Russia's opposition (based on the State Treaty) disappear[8]. As an alternative three EFTA countries (Iceland, Liechtenstein, and Norway) stayed in the EEA, Switzerland negotiated bilateral treaties with the EU.

All three countries are members of the Schengen Area[9]. Austria (1997) was first, then followed Finland and Sweden in 2001. Finland and Sweden, as members of the Nordic Council have close connections with other Nordic countries, Iceland, Norway, and Faroe Islands, Greenland, and Åland. The Nordic Council[10] was formed in 1952. In 1971, the Nordic Council of Ministers was established to cooperate with neighbouring areas in Northern Europe, including the German state Schleswig-Holstein, the Benelux countries, and the Baltic states.

3. Milestones of EU's economic integration

After the realization of the Customs Union in 1968, the then EC made only the next grand steps in economic integration with the creation of the Single Market (SM) in 1993.

3.1 Single Market

In 2023 the Single Market celebrated its 30th anniversary[11]. The Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, the European Commission[12] notes: *"The Single*

[8] For a legal justification for EU membership of Austria because of its Neutrality status, see: Hummer-Schweitzer (1987).
[9] See: Schengen Area: https://en.wikipedia.org/wiki/Schengen_Area
[10] See Nordic Council: https://en.wikipedia.org/wiki/Nordic_Council
[11] See: European Commission: "EU competitiveness beyond 2030. Looking ahead at the occasion of the 30th anniversary of the Single Market", 16 March 2023 (https://ec.europa.eu/commission/presscorner/detail/en/ip_23_1668).
[12] See: European Commission: "The Single Market at 30", Brussels, COM(2023) 162 final, 16.3.2023 (https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52023DC0162)

Market is one of the greatest achievements of the EU. Since its creation in 1993, citizens and businesses have benefitted from the free movement of people, services, goods and capital to an extent that exceeds even the most visionary expectations of three decades ago. Originally conceived as an area of free trade without tariff or non-tariff barriers among its members, the Single Market has developed into much more than that. It has successfully become the world's largest integrated single market area, while remaining one of the most outward oriented. Yet the Single Market is much more than a legal framework or indeed a market: it is an area of freedom, progress, opportunity, growth, shared prosperity, resilience and a means of geopolitical projection."[13]

The core elements of the Single Market project incepted in 1993, are the four freedoms (free movement of goods, services, persons, and capital), accompanied with common rules on competition, taxation, and approximation of laws (Article 101 of TFEU)[14]. All three countries entered the SM when they joined the EU.

The goal of the *free movement of goods* was already reached via the completion of the Customs Union in 1968 when all tariffs in bilateral trade (above all industrial goods) between the then six member states of the European Community (EC) were eliminated. Intra-EC trade of agricultural goods were rules by the Common Agricultural Policy (CAP) since 1962. The remaining non-tariff measures (NTMs) in goods trade were planned to be eliminated by harmonization of standards or mutual recognition rulings.

At the inception of the SM in 1993, the *services trade* was still disturbed by a big variety of barriers. The Services Directive (SD) of 2006 brought an improvement (see more in chapter 3.1.2).

The *free movement of persons* was promoted by the VISA free movement of people ruled in the "Schengen Agreement" of 1985[15]. All three countries are members of the Schengen area.

Concerning the *free movement of capital* several actions were taken to integrate the EU member states into a single financial market. One element is the Single European-Payment Area (SEPA), consisting of the 27 EU MS, the four EFTA countries (Iceland, Liechtenstein, Norway and Switzerland), and the United Kingdom (also after Brexit). Some microstates participate in the technical schemes: Andorra, Monaco, San Marino, and Vatican City. Other initiatives are the Capital Markets Union (CMU) and the Banking Union (BU; see Breuss, 2023B, p. 16 ff.).

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[13] A less political, but analytical view of "EU's Single Market at 30", can be found in Breuss (2023A, 2023B).

[14] Head and Mayer (2021) used a structural gravity model to analyse the achievements of the four freedoms. Above all, they found a significant reduction in trade costs over time.

[15] For a detailed overview of all information concerning the Schengen Area, see: https://home-affairs.ec.europa.eu/policies/schengen-borders-and-visa/schengen-area_en

3.1.1 Freedom of movement of goods

In the Treaty on the Functioning of the European Union (TFEU), Part Three (Union Policies and Internal Actions), Title I, 'The Internal Market' rules the respective provisions in Article 26. In Paragraph (1) *"The Union shall adopt measures with the aim of establishing or ensuring the functioning of the internal market, in accordance with the relevant provisions of the Treaties."* In Paragraph (2)*: "The internal market shall comprise an area without internal frontiers in which the free movement of goods, persons, services and capital is ensured in accordance with the provisions of the Treaties."*

To put into practice, the four freedoms fundamentally guaranteed in the TFEU, the EU institutions (European Parliament and Council)) must issue directives and regulations. The secondary law of EU's Single Market has now reached a considerable volume. This became evident in the case of Brexit. The UK had to transform around 20,000 types of EU law into national UK law.

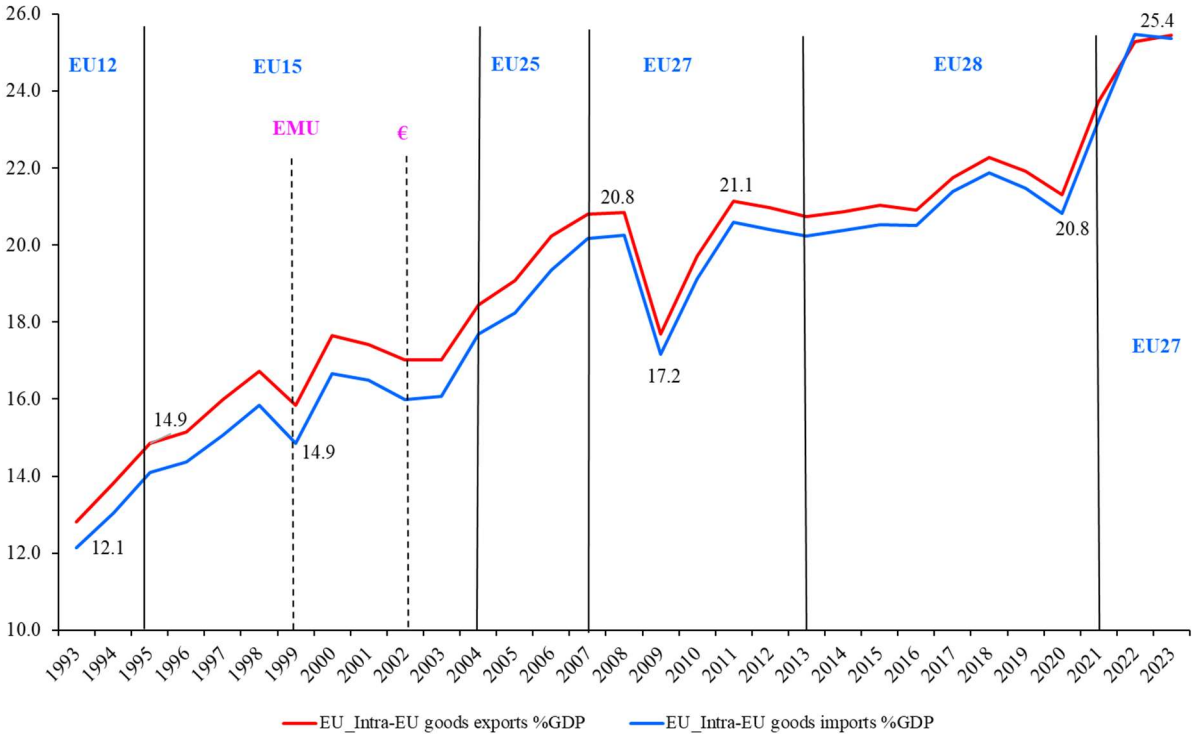
At the inception of the SM in 1993, the starting conditions of the postulated four freedoms in the Maastricht Treaty were quite different. The least barriers – due to the completion of the Customs Union in 1968 - remained in the case of the freedom of movement of goods. The three other freedoms had to be realized step by step with additional regulations.

In TFEU, Part Three, Title II, 'Free Movements of Goods' rules the respective provisions in Article 28. In Paragraph (1) *"The Union shall comprise a customs union which shall cover all trade in goods and which shall involve the prohibition between Member States of customs duties on imports and exports and of all charges having equivalent effect, and the adoption of a common customs tariff in their relations with third countries."* The Customs Union is rules in Chapter 1, Article 30.

The cross-border goods trade between the EU MS already were freed from tariffs through the Customs Union as of 1968. One of the major obstacles for bilateral EU trade were the costs of border controls. These hurdles were eliminated with the launch of the SM in 1993. Additionally, there are still some non-tariffs measures (NTMs). With the Brexit in 2021, border controls in trade EU-UK were reintroduced.

What remained the outstanding feature of the expansion of the SM is the strong increase in intra-EU trade (see Figure 3.1). Of course, there were setbacks in times of a recession (2009 and 2020).

Figure 3.1: Percentage of EU-wide Intra-EU exports and imports of goods to EU-wide GDP, 1993 to 2023



The EU labels EU12, EU15, EU25, EU27, EU28 refer to the number of MS included in the EU-wide aggregate during the period for which the label is shown in the figure. Due to Brexit the number of the EU labels are less one (e.g., EU12 = EU11, etc.)
Source: Own illustration with AMECO data of the European Commission

The increase of Intra-EU trade (in % of GDP) was strongest in the new EU MS. Whereas it increased by around ½% per year in the incumbent EU MS, it expanded by 1% or more in the new MS since 2004.

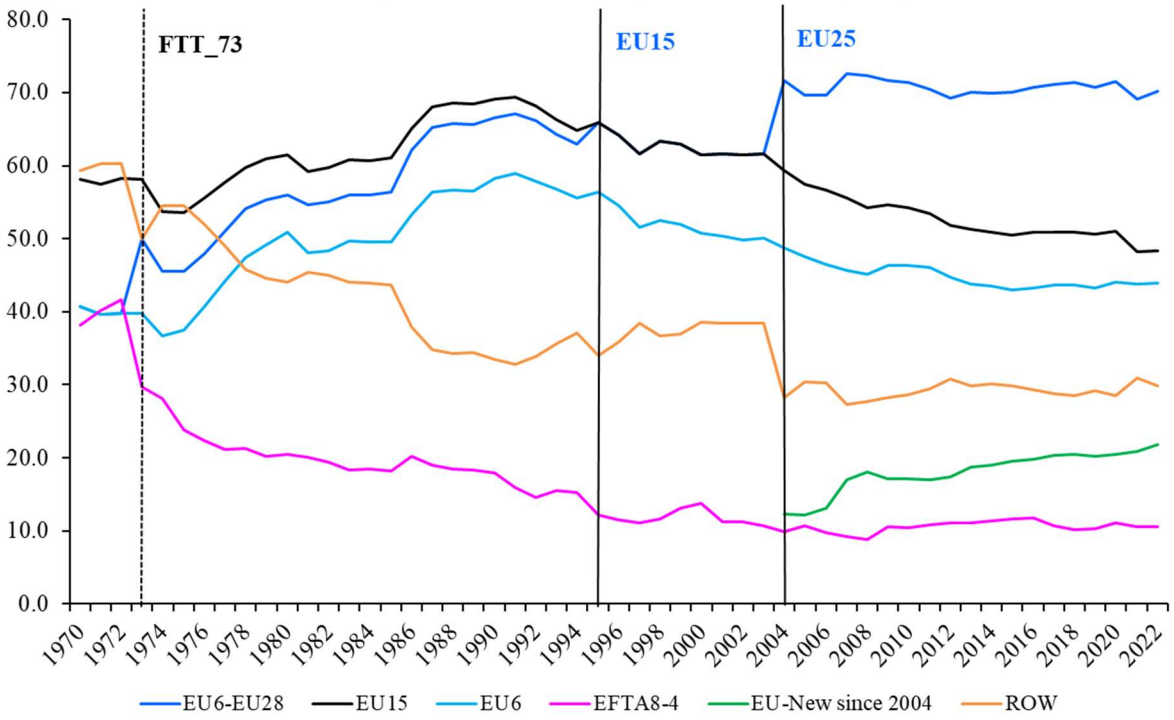
Openness to imports of goods (total goods imports in % of GDP) amounts to 32.7% in EU average (see The Single Market Scoreboard[16]). There is a wide range between EU MS: reaching from 88% in Slovakia to 22% in Italy (Austria 40%, Finland 25%, Sweden 30%, Germany 31%).

The COVID-19 crisis has shown that the assets of a SM market (four freedoms) are not given: disruptions in the SM, such as border closures and breaks in integrated value chains escalated, deeply affecting citizens and businesses. As documented in The Annual Single Market Report 2022 (European Commission, 2022B, p. 4), in the initial pandemic shock, intra-EU trade has been hit harder than extra-EU trade. The access of EU operators to Third Countries

[16] See: https://single-market-scoreboard.ec.europa.eu/_en; see also: https://ec.europa.eu/internal_market/scoreboard/_docs/2020/07/integration_market_openness/trade_goods_services_en.pdf

markets has helped the EU economy to cushion the impact of the crisis and helped the recovery both from a supply and demand perspective.

Figure 3.2: Austria Goods Exports with Partners (in % of total exports)



FTT_73 = Free Trade Treaty EC-EFTA.
Data source: IMF Direction of Trade Statistics (DOT)

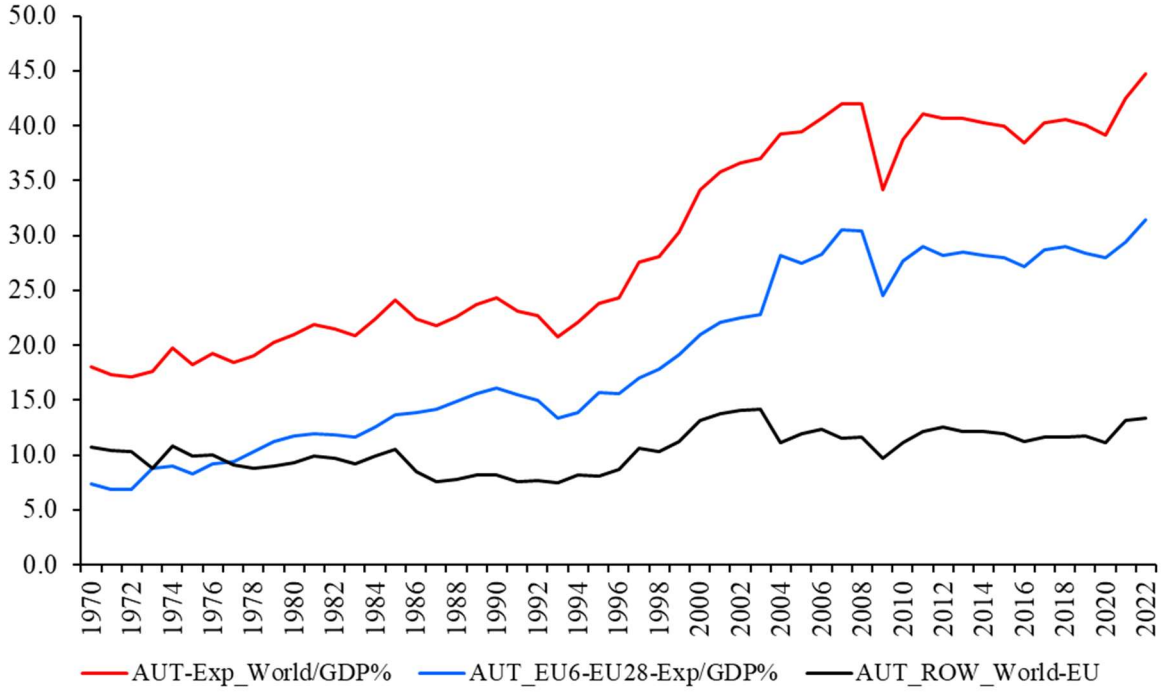
Trade performance Intra-EU and Extra-EU: Austria, Finland, and Sweden

Austria, Finland, and Sweden have gradually moved closer to the EU. First, trade policy convergence took place - as EFTA members - through the 1973 Free Trade Treaty (FTT) between the EC and EFTA. As a result, tariffs on bilateral trade in industrial goods with the EU were gradually eliminated by mid-1977. Still remaining were barriers to trade in agricultural products.

Austria:

Due to the FTT liberalization, the share of trade with the EU increased since the mid-seventies, particularly pronounced in the case of Austria. It started with an export share with EU6 of 40.7%, and those with EFTA of 38.2% (see Figure 3.2). While the share of exports to EFTA partners has been shrinking steadily since the peak in 1972 (30%), it has been rising with the EU countries since then. The reason for this is, on the one hand, that two EFTA partners joined the EU in 1973 (GB and DK) and, on the other hand, the EFTA-EU liberalization of trade through the FTT.

Figure 3.3: Austria: Goods Exports with EU and Rest of the World (Share in % of GDP)



Data source: IMF Direction of Trade Statistics (DOT)

It is interesting to note that *trade creation* with the EU was already taking place on a large scale before EU accession in 1995. In fact, the export share with the EU15 decreased from 1995 until the major EU enlargement in 2004. The grand EU enlargement in 2004 by 10 new Member States, primarily in Eastern Europe led to a jump in Austria's export share to the enlarged EU by around 10 percentage points. Consequently, *trade diversion* took place with the former integration block EFTA and the rest of the world.

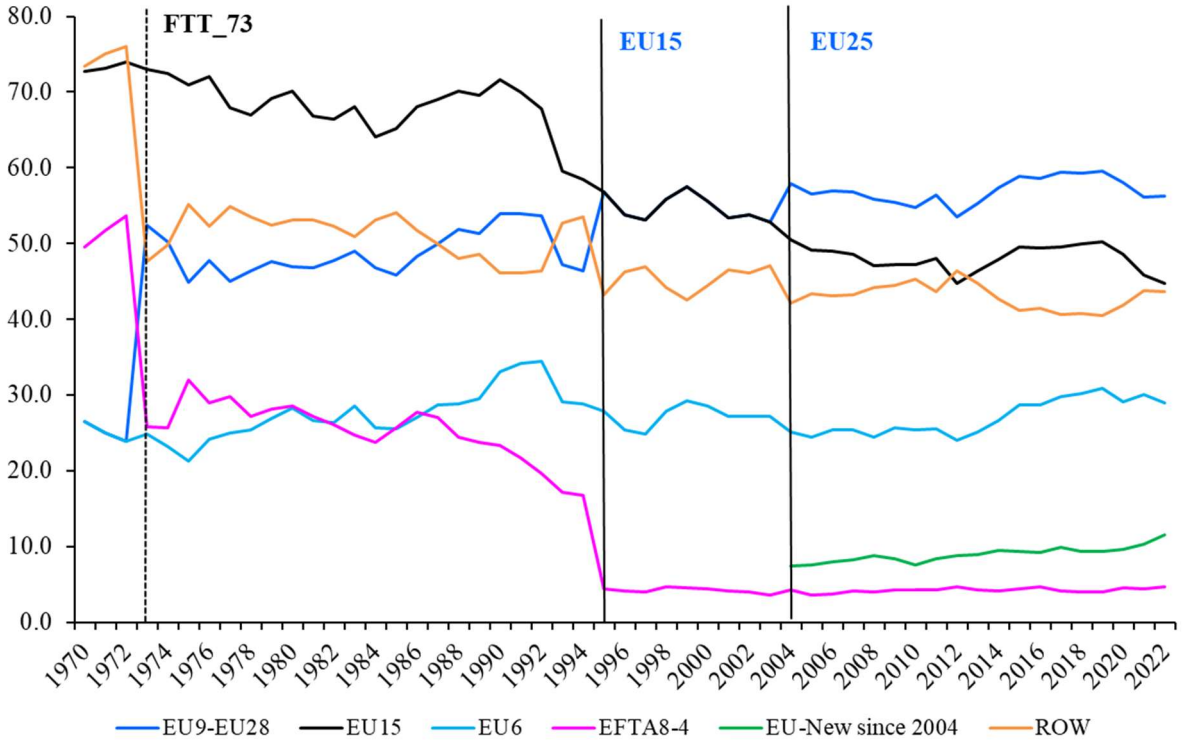
As in the case of the entire EU (Figure 3.1), the share of exports to the EU as a percentage of GDP has also increased in Austria (see Figure 3.3), especially since its accession to the EU in 1995. The goods export share in % of GDP with the EU increased by 0.6 ppts per year since 1995 in Austria, those of the ROW with 0.2 ppts, which gives a total annual increase by 0.8 ppts (see Table 3.1).

Finland:

Finland started in 1970 with export shares in trade with EU6 with 26.5% and those with EFTA with 49.5% (see Figure 3.4). After the EC enlargement by Denmark, Ireland, and UK in 1973, the EU9 export share jumped up to 52.4%, at the same time the EFTA share shrank to 25.9%. In contrast to the trade performance of Austria, due to European integration (EFTA, EEA, and EU), the share of Finland's exports to the EU either remained rather constant or even declined

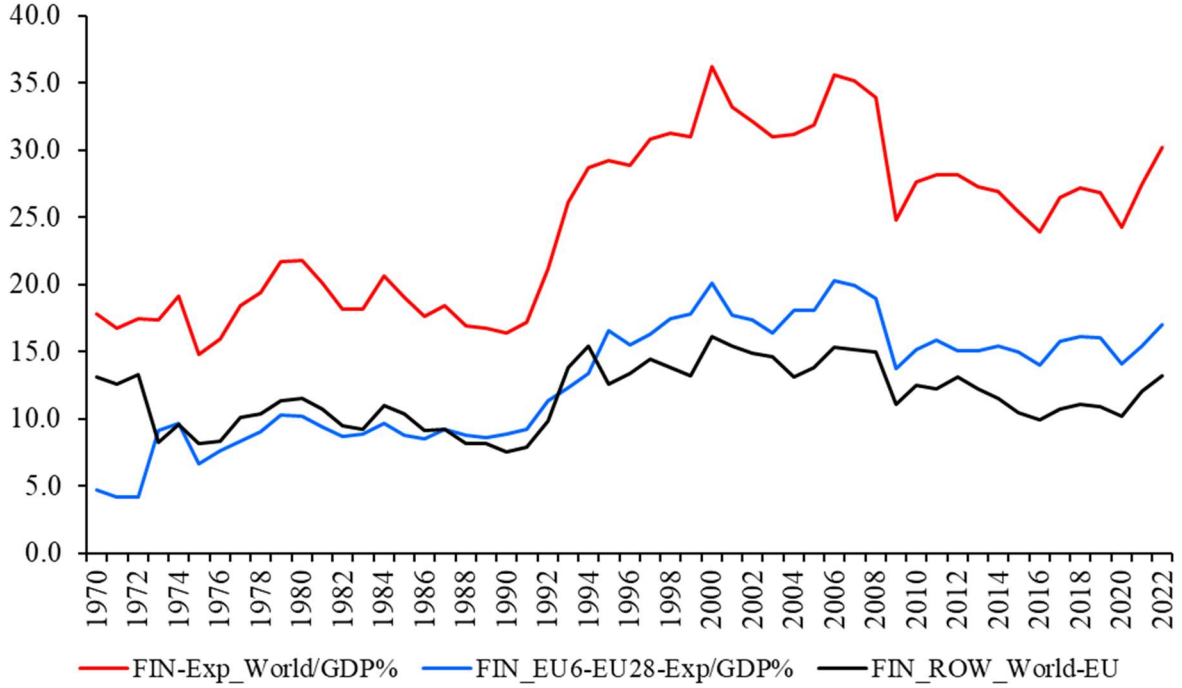
(in the constellation of EU15). The grand EU enlargement resulted only in a five percentages point increase in the EU export share.

Figure 3.4: Finland: Goods Exports with Partners (in % of total exports)



Data source: IMF Direction of Trade Statistics (DOT)

Figure 3.5: Finland: Goods Exports with EU and Rest of the World (Share in % of GDP



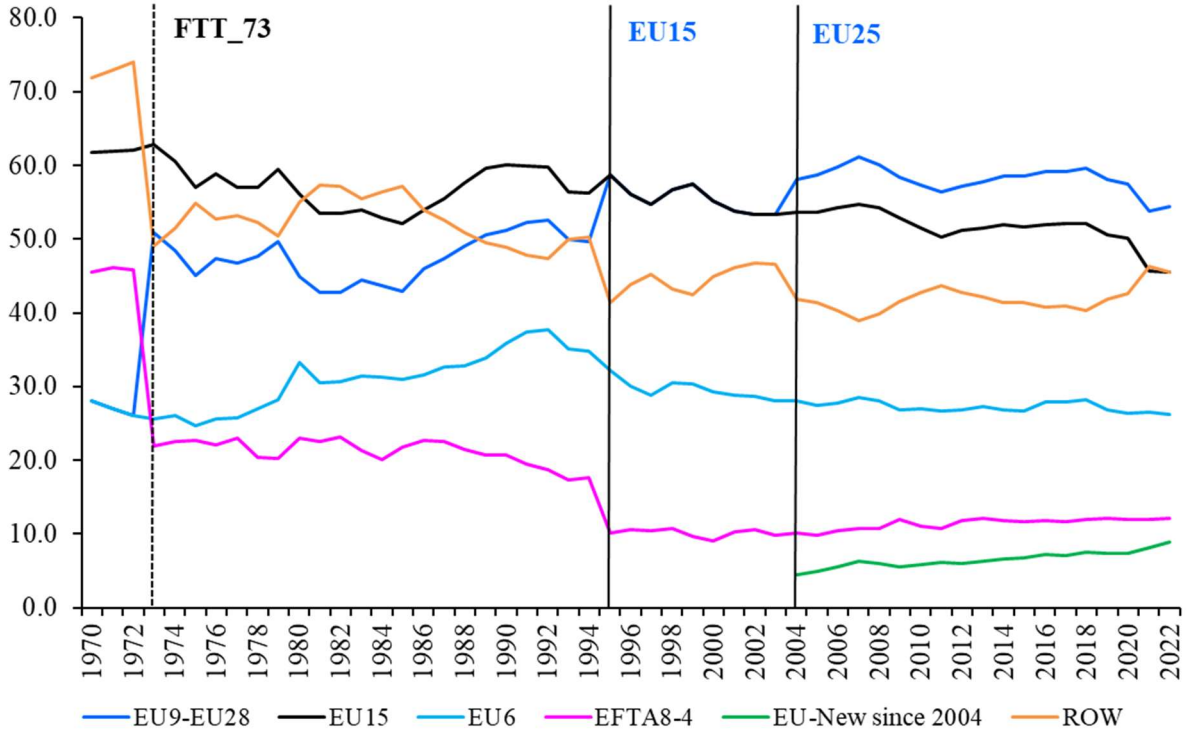
Data source: IMF Direction of Trade Statistics (DOT)

As in the case of the entire EU (Figure 3.1), the share of exports to the EU as a percentage of GDP has also increased in Finland (see Figure 3.5), however it started already before EU accession in 1995. Furthermore – in contrast to the development in Austria – the shares of exports with the EU and with Rest of the World developing parallel. The goods export share in % of GDP with the EU increase by 0.6 ppts per year since 1995 in Finland, those of the ROW with 0.5 ppts, which gives a total annual increase by 1.1 ppts (see Table 3.1).

Sweden:

The EFTA state Sweden started in 1970 with export shares in trade with EU6 with 28.1% and those with EFTA with 45.5% (see Figure 3.6). After the EC enlargement by Denmark, Ireland, and UK in 1973, the EU9 export share jumped up to 50.9%, at the same time the EFTA share shrank to 21.9%. In contrast to the trade performance of Austria, due to European integration (EFTA, EEA, and EU), the share of Sweden's exports to the EU increased only slightly until EU accession in 1995. Since then, the EU shares declined. The grand EU enlargement resulted only in a five-percentage point increase in the EU export share.

Figure 3.6: Sweden: Goods Exports with Partners (in % of total exports)

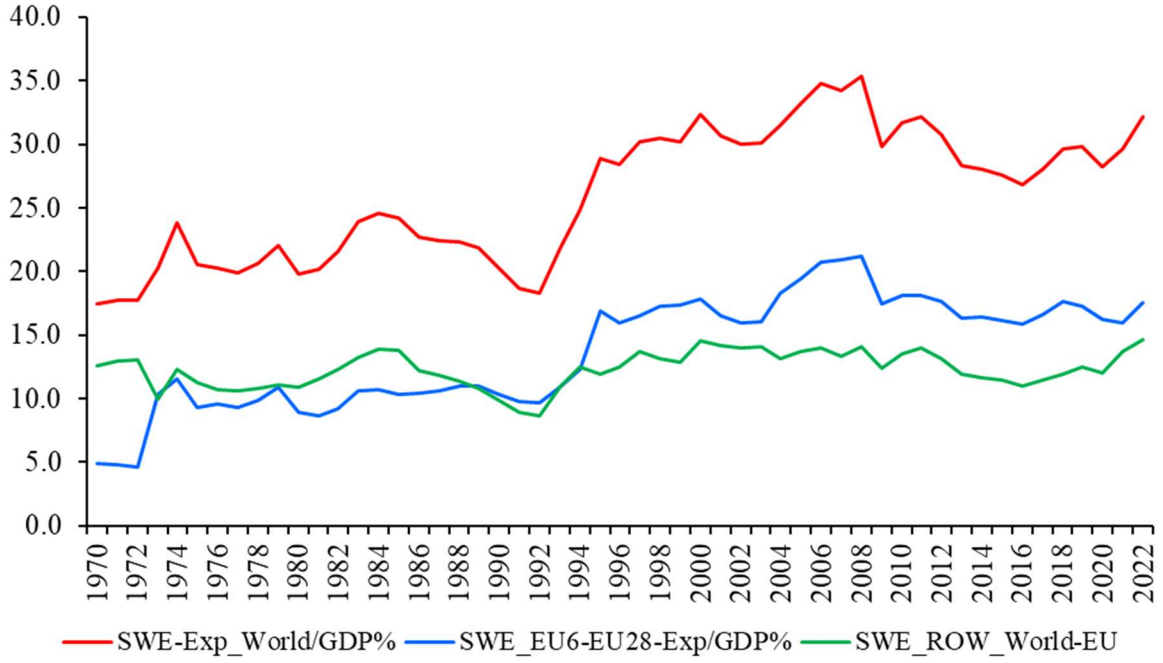


Data source: IMF Direction of Trade Statistics (DOT)

As in the case of the entire EU (Figure 3.1), the share of exports to the EU as a percentage of GDP has also increased in Sweden (see Figure 3.7), however it started already before EU

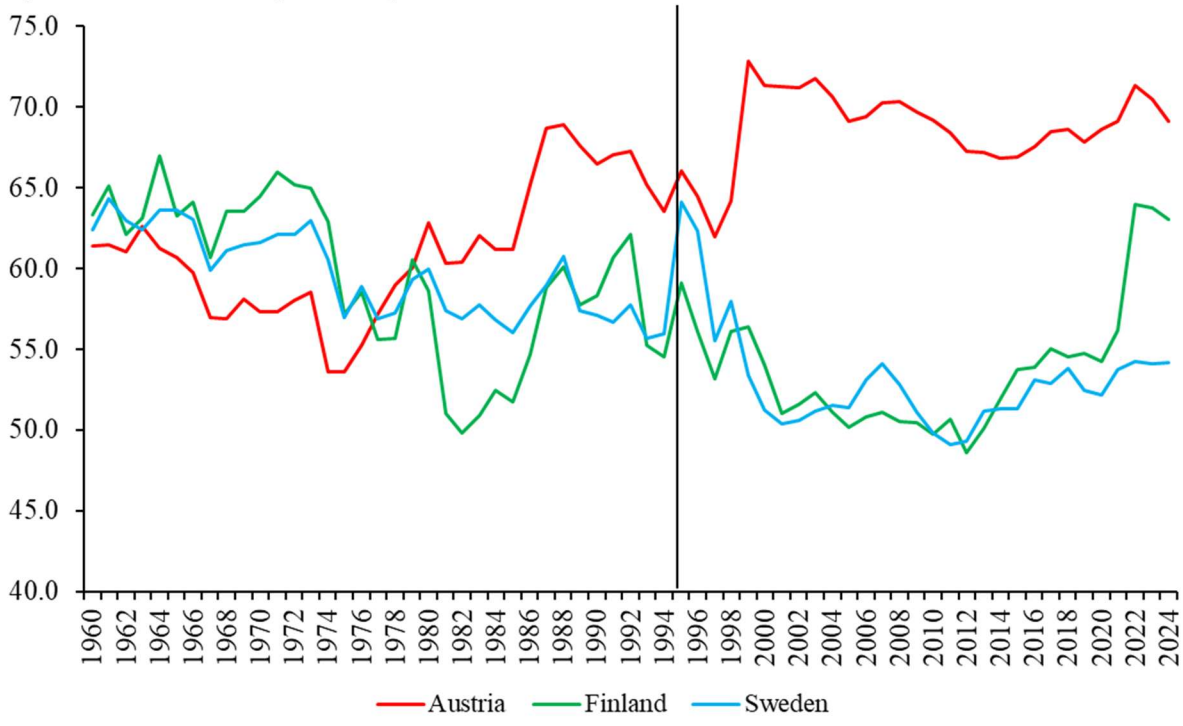
accession in 1995. The development of the export to GDP share was quite similar to those of Finland. The goods export share in % of GDP with the EU increase by 0.6 ppts per year since 1995 in Sweden, those of the ROW with 0.5 ppts, which gives a total annual increase by 1.1 ppts (see Table 3.1).

Figure 3.7: Sweden: Goods Exports with EU and Rest of the World (Share in % of GDP



Data source: IMF Direction of Trade Statistics (DOT)

Figure 3.8: Intra-EU goods exports in % of total



Source: AMECO database of the European Commission

A similar picture of the development of the export shares of the three countries with data from the IMF (DOT) as described before, emerges when data from the European Commission (AMECO database) is used. According to IMF-DOT data, in 2022, the intra-EU export shares in % of total exports was 70.2% in Austria, 56.3% in Finland, and only 54.5% in Sweden. This huge gap of around 15 percentage points is also confirmed with AMECO data (see Figure 3.8).

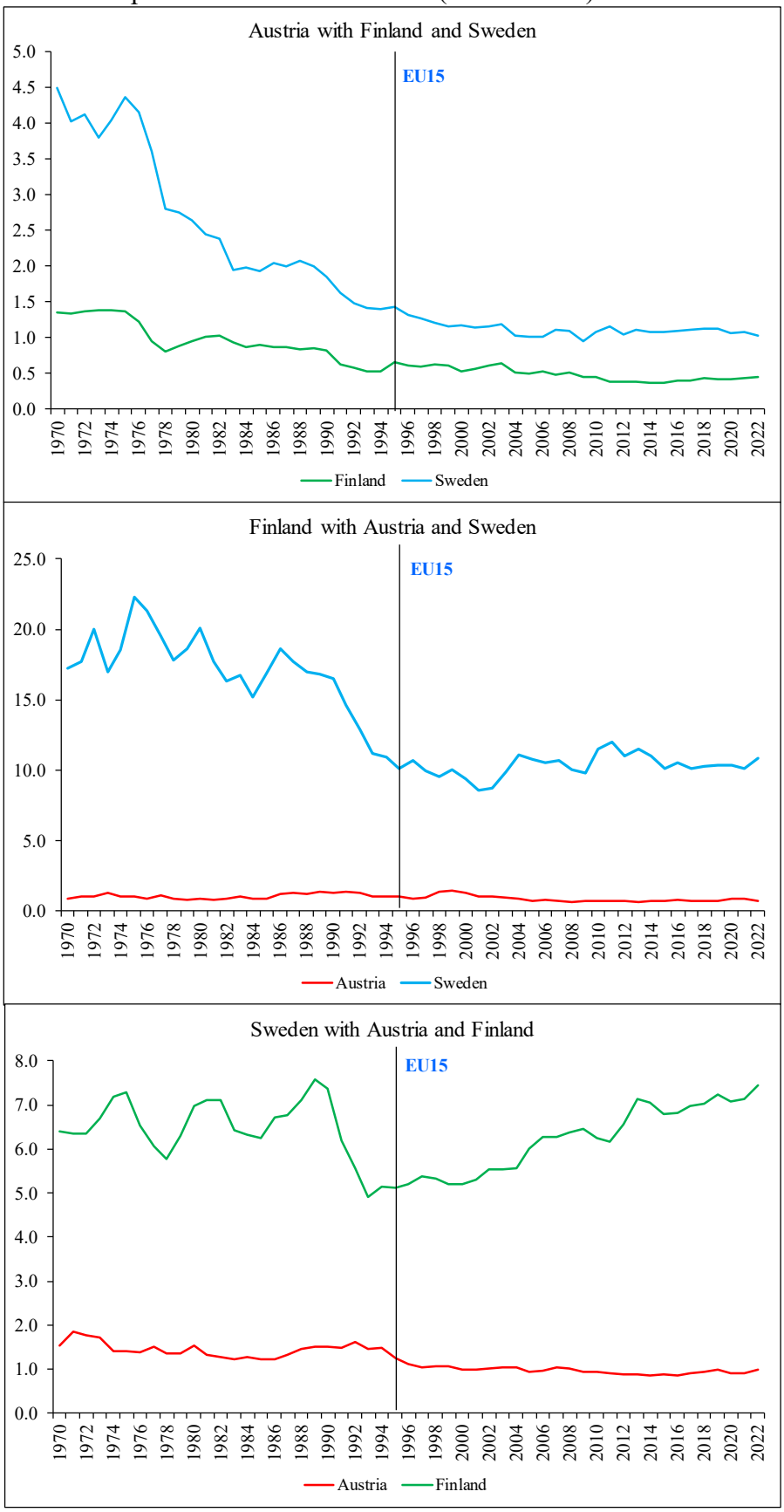
Table 3.1 summarizes the impact of EU integration on bilateral export development. In all three countries the exports (in USD) grew slower after EU accession (1995-2022) then in the period before (1970-1994). This is true for exports to the EU, to the ROW and hence also for total exports. The largest decrease occurred in Finland (-11.6%), followed by Austria (-9.2%), and Sweden (-8.8%). Interestingly, exports to the ROW fell less sharply than to the EU.

Table 3.1: Bilateral goods exports 1970-2022 (% changes)

	Goods exports (USD), % change per year		
	Austria		
	1970-1994	1995-2022	Difference
World	12.33	4.91	-7.42
EU6-EU28	14.38	5.15	-9.23
ROW	10.15	4.4	-5.75
	Finland		
World	11.84	2.91	-8.93
EU6-EU28	14.48	2.88	-11.6
ROW	10.38	2.95	-7.43
	Sweden		
World	9.36	3.48	-5.88
EU6-EU28	11.98	3.20	-8.78
ROW	7.75	3.85	-3.90
	Goods export shares in % GDP, ppts change per year		
	Austria		
World	0.16	0.75	0.59
EU6-EU28	0.26	0.56	0.30
ROW	-0.10	0.19	0.29
	Finland		
World	0.76	1.05	0.29
EU6-EU28	0.35	0.59	0.24
ROW	0.41	0.46	0.05
	Sweden		
World	0.84	1.09	0.25
EU6-EU28	0.38	0.62	0.24
ROW	0.46	0.46	0.00

Data source: IMF Direction of Trade Statistics (DOT)

Figure 3.9: Bilateral exports of the three countries (in % of total)



Data source: IMF Direction of Trade Statistics (DOT)

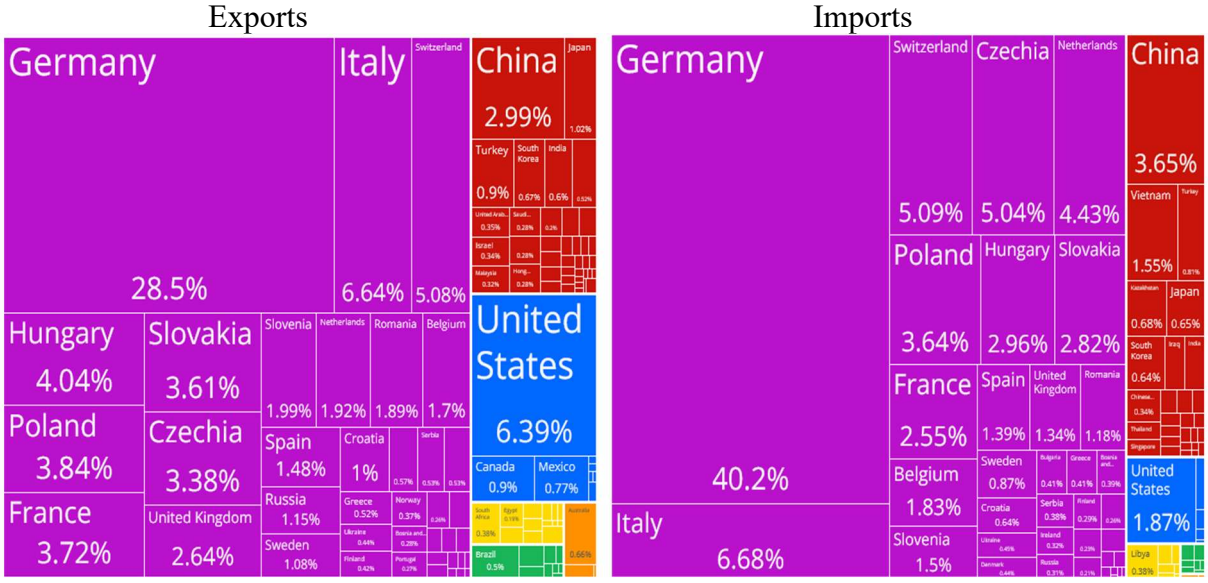
In contrast to the change of the absolute exports in USD, the export shares, measured in % of GDP increased after EU accession as well as with the EU and with the ROW. Austria's export to GDP share increased slightly faster than those of Finland and Sweden.

The bilateral exports of the three countries were strongly determined by neighbourhood and distance (see Figure 3.9). Whereas the Austria's export shares declined steadily with Finland from 1.3% to 0.5% and with Sweden from 4.5% to 1% since the mid-seventies, the bilateral trade of Finland and Sweden with its partners either stabilized (Finland with Sweden) or increased since 1995 in the case of Sweden with Finland.

Trade profiles of Austria, Finland, and Sweden

A visualization of the trade profiles can be found on the website of The Observatory of Economic Complexity (OEC[17]). OEC is an online data visualization and distribution platform focused on the geography and dynamics of economic activities. The OEC integrates and distributes data from a variety of sources to empower analysts in the private sector, public sector, and academia. The OEC is currently designed and developed by Datawheel, but it began as a research project at MIT's Collective Learning group (former Macro Connections Group). In 2012 the OEC was spun out of MIT as an open-source project. The OEC was refined throughout the years, expanding its technical and analytical capacities.

Figure 3.10: Austria: Goods trading partners in 2021 (in % of total exports/imports)



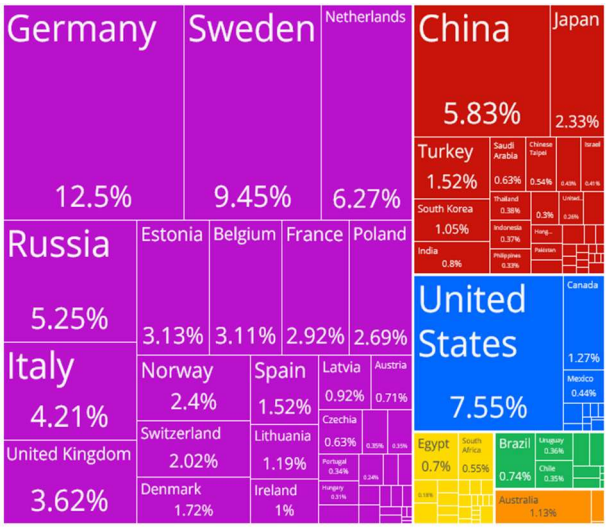
Source: OEC, Austria (https://oec.world/en/profile/country/aut)

[17] See: https://oec.world/en/profile/country/aut. The OEC was the Master Thesis of Alex Simoes (2012), directed by Professor Cesar A. Hidalgo.

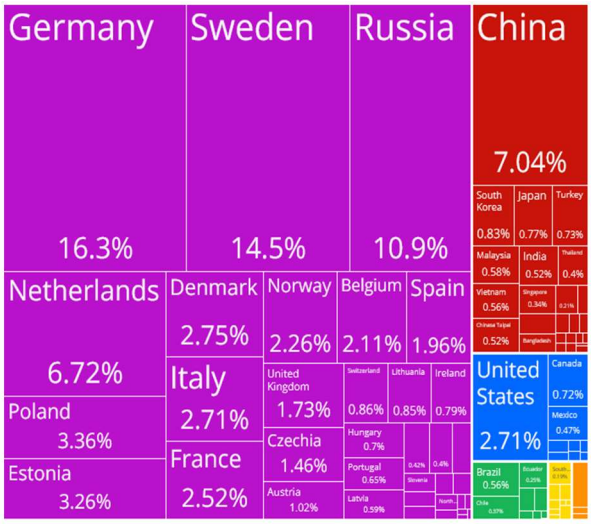
Germany is the main trading partner for all three countries. With an export share of 28.5% (40.2% import share), it plays a more important role for Austria (see Figure 3.10) than for Finland (export share 12.5%, import share 16.3%; Figure 3.11) and Sweden (10.3%, 17.6%; Figure 3.12).

Figure 3.11: Finland: Goods trading partners in 2021 (in % of total exports/imports)

Exports



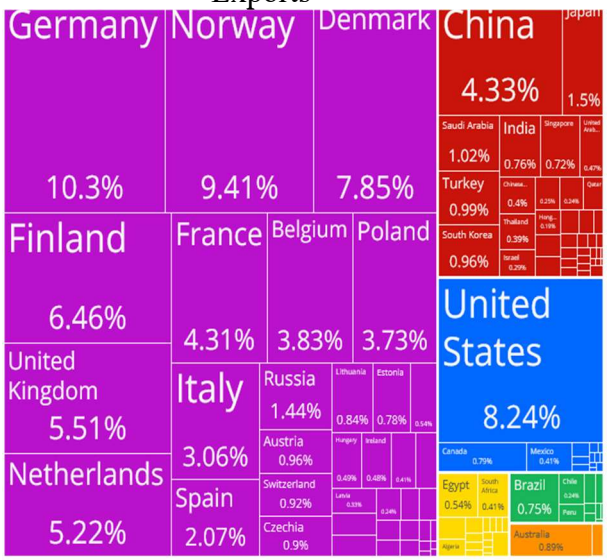
Imports



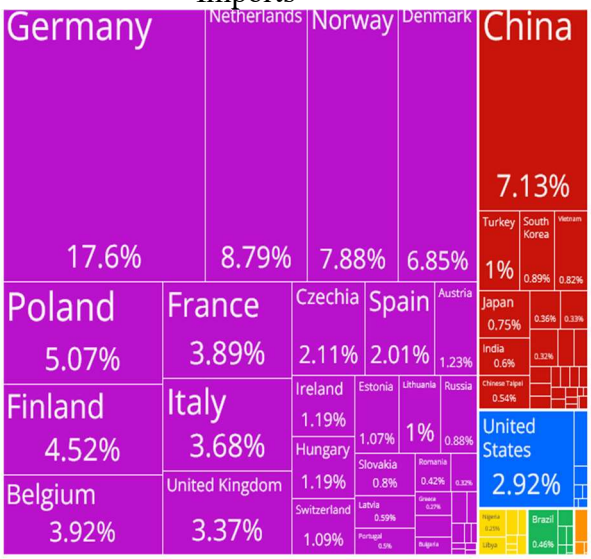
Source: OEC, Finland (https://oec.world/en/profile/country/fin)

Figure 3.12: Sweden: Goods trading partners in 2021 (in % of total exports/imports)

Exports



Imports



Source: OEC, Sweden ((https://oec.world/en/profile/countryswe)

The importance of the trading partners of the three countries in the year 2022 is also documented in the Tables 3.2, 3.3, 3.4.

Table 3.2: Ranking of the 30 most important goods trading partners of Austria 2022

Rank	Country	Export share in %	Rank	Counry	Import share in %	Rank	Country	Trade balance *) bn USD
	World (210.3 bn USD)	**100.00**		**World** (231.9 bn USD)	**100.00**		**World**	**-21.668**
	EU27 (145.5 bn USD)	**69.18**		**EU27** (172.4 bn USD)	**78.96**		**EU27**	**-26.917**
1	Germany	29.27	1	Germany	38.21	1	**USA**	**8.492**
2	Italy	6.64	2	Italy	6.00	2	France	3.218
3	**USA**	**6.34**	3	Czechia	4.95	3	Slovakia	2.537
4	Switzerland	5.20	4	Netherlands	4.89	4	United Kingdom	2.503
5	France	3.92	5	Switzerland	4.69	5	Hungary	2.280
6	Hungary	3.85	6	China	4.15	6	Romania	2.017
7	Poland	3.84	7	Poland	3.19	7	Canada	1.642
8	Slovakia	3.83	8	Special Categories	3.19	8	Russian Federation	1.622
9	Czechia	3.50	9	Hungary	2.50	11	Brazil	0.991
10	China	2.59	10	Slovakia	2.38	12	Croatia	0.782
11	United Kingdom	2.56	11	Belgium	2.25	13	Poland	0.670
12	Slovenia	2.42	12	France	2.17	14	Slovenia	0.640
13	Romania	1.97	13	**USA**	**2.09**	15	Norway	0.619
14	Netherlands	1.89	14	Slovenia	1.92	16	Greece	0.460
15	Belgium	1.53	15	United Kingdom	1.24	17	United Arab Emirates	0.414
16	Spain	1.48	16	Viet Nam	1.23	18	China, Hong Kong SAR	0.407
17	Sweden	1.03	17	Spain	1.21	19	Israel	0.393
18	Croatia	0.95	18	Türkiye	1.11	22	Rep. of Korea	0.385
19	Russian Federation	0.92	19	Romania	0.92	23	Spain	0.316
20	Türkiye	0.91	20	Sweden	0.91	24	Malaysia	0.312
21	Rep. of Korea	0.88	21	Kazakhstan	0.71	25	Japan	0.304
22	Canada	0.86	22	India	0.63	27	Bulgaria	0.266
23	Japan	0.84	23	Rep. of Korea	0.63	28	Denmark	0.219
24	Mexico	0.84	24	Japan	0.63	31	Finland	0.191
25	Australia	0.62	25	Other Europe, nes	0.63	32	Portugal	0.182
26	Bulgaria	0.59	26	Croatia	0.52	59	Sweden	0.049
27	India	0.59	27	Other Asia, nes	0.44	214	Czechia	-4.118
28	Brazil	0.57	28	Bulgaria	0.42	215	China	-4.169
29	Serbia	0.56	29	Bosnia Herzegovina	0.42	217	Netherlands	-7.372
30	Denmark	0.55	30	Denmark	0.40	218	Germany	-27.069

Finland exports share 0.44% (rank 33); import share 0.32% (rank 34)
*) Selected countries with largest surplus or deficit in trade balance. Trade balance = exports fob minus imports cif.
Source: UN Comtrade

For *Austria* (Figure 3.2), Germany is the top trading partner, more so on the import than on the export side. Unfortunately, Austria has also the biggest negative trade balance vis à vis Germany. It is even larger than the trade balance with the EU27. Here, plays distance - the most important explanatory variable in gravity equation analysis - an important role. The only outliers are the USA on the export side and China on the import side. On the export and import side 16 out of 27 EU member states are under the 30 most important trading partners of Austria. The largest trade surplus Austria achieved with the USA, followed by France, Slovakia, and the United Kingdom. As already mentioned, the other two countries, Finland, and Sweden play only a minor role for Austria. Finland ranks number 33 as export trading partner (0.44% export share) and on position 34 on the import side (0.32% import share). Sweden is a little bit more important for Austria, ranking at place 17 on the export side (1.03% share), and on place 20 (0.91% share) on the import side. In 2022, Austria had a trade surplus with both countries

(Finland +0.19 bn USD; Sweden +0.05 bn. USD). The United Kingdom, which left the EU in 2021, plays not an important role for Austria. Nevertheless, it is the eleventh most important export trading partner (share 2.56%) and ranks 15 on the import side (share 1.24%). Austria exports 69.2% of total exports to EU27 and imports from EU27 nearly 79%. That means, Austria is engaged more in a mini globalisation (concentrated on Europe) than the Scandinavian countries.

Table 3.3: Ranking of the 30 most important goods trading partners of Finland 2022

Rank	Country	Export share in %	Rank	Country	Import share in %	Rank	Country	Trade balance *) bn USD
	World (86.2 bn USD)	**100.00**		**World** (97.4 Mio.USD)	**100.00**		**World**	-11.146
	EU27 (47.2 bn USD)	**54.79**		**EU27** (51.4 Mio.USD)	**52.77**		**EU27**	-4.141
1	Germany	11.53	1	Sweden	12.47	1	USA	3.712
2	Sweden	10.73	2	Germany	12.33	2	Netherlands	1.611
3	USA	9.35	3	China	9.09	3	Belgium	1.045
4	Netherlands	7.12	4	Norway	6.87	4	United Kingdom	0.788
5	China	4.69	5	Russian Federation	6.64	5	Switzerland	0.673
6	Estonia	4.32	6	Netherlands	4.65	6	France	0.596
7	United Kingdom	3.54	7	USA	4.47	7	Japan	0.450
8	Belgium	3.18	8	Areas, nes	3.77	8	Latvia	0.412
9	France	3.06	9	Estonia	3.69	12	Australia	0.338
10	Poland	3.03	10	Poland	2.92	14	Saudi Arabia	0.281
11	Italy	2.92	11	Italy	2.54	15	Canada	0.253
12	Norway	2.77	12	United Kingdom	2.33	16	Lithuania	0.245
13	Russian Federation	2.53	13	France	2.10	18	South Africa	0.193
14	Areas, nes	2.44	14	Denmark	2.00	19	Türkiye	0.190
15	Switzerland	1.79	15	Spain	1.82	21	Algeria	0.138
16	Denmark	1.75	16	Belgium	1.74	22	India	0.136
17	Japan	1.66	17	Czechia	1.14	23	Israel	0.131
18	Spain	1.53	18	Türkiye	1.03	24	Rep. of Korea	0.129
19	Türkiye	1.38	19	Japan	1.00	25	Estonia	0.124
20	Canada	1.24	20	Austria	0.98	28	Greece	0.076
21	Lithuania	1.16	21	Other Asia, nes	0.98	198	Austria	-0.353
22	Rep. of Korea	1.05	22	Switzerland	0.89	199	Ireland	-0.426
23	Brazil	1.02	23	Canada	0.84	200	Denmark	-0.437
24	Australia	1.01	24	Brazil	0.83	201	Spain	-0.448
25	Latvia	0.99	25	Rep. of Korea	0.80	202	Czechia	-0.544
26	India	0.92	26	Lithuania	0.78	205	Germany	-2.061
27	Mexico	0.76	27	Viet Nam	0.71	206	Sweden	-2.884
28	Austria	0.70	28	Ireland	0.69	207	Russian Federation	-4.281
29	Czechia	0.66	29	India	0.68	208	Norway	-4.295
30	Egypt	0.58	30	Portugal	0.56	209	China	-4.811

*) Selected countries with largest surplus or deficit in trade balance. Trade balance = exports fob minus imports cif.
Source: UN Comtrade

The major trading partners for *Finland* are Germany on the export side (11.5%), followed by Sweden (10.7%), and USA (9.4%; see Table 3.3). On the import side the neighbour Sweden (12.5%) is slightly more important than Germany (12.3%). The third most important importer for Finland is China (9.1%). Finland exports to EU27 54.8% and imports from the EU27 52.8% of its total trade. The trade deficit with the world (-11.1 bn USD) is higher than those with EU27

(-4.1 bn USD). Surpluses with the USA, the Netherlands, and Belgium are offset by heavy deficits in trade with China, Norway, and the Russian Federation.

Table 3.4: Ranking of the 30 most important goods trading partners of Sweden 2022

Rank	Country	Export share in %	Rank	Country	Import share in %	Rank	Country	Trade balance*) bn USD
	World (197.7 bn USD)	**100.00**		**World** (202.1 Mio.	**100.00**		**World**	**-4.439**
	EU27 (104.3 bn USD)	**52.79**		**EU27** (127.1 Mio.	**62.87**		**EU27**	**-22.710**
1	Norway	10.73	1	Germany	15.29	1	USA	10.233
2	Germany	9.97	2	Norway	11.77	2	Finland	5.334
3	USA	8.88	3	Netherlands	10.60	4	United Kingdom	3.237
4	Denmark	7.44	4	China	7.02	5	Denmark	1.843
5	Finland	7.31	5	Denmark	6.36	7	Japan	1.324
6	United Kingdom	5.42	6	Belgium	4.66	8	Singapore	1.313
7	Netherlands	4.80	7	Finland	4.51	9	France	1.257
8	Poland	4.01	8	Poland	4.30	10	Saudi Arabia	1.164
9	France	3.92	9	United Kingdom	3.70	11	Australia	0.974
10	Belgium	3.62	10	USA	3.62	12	Canada	0.947
11	China	3.54	11	France	3.21	14	South Africa	0.765
12	Italy	2.98	12	Italy	3.21	15	Mexico	0.741
13	Areas, nes	2.19	13	Spain	1.82	16	United Arab Emirat	0.736
14	Spain	1.92	14	Czechia	1.50	17	Lithuania	0.474
15	Japan	1.37	15	Austria	1.09	18	Iceland	0.454
16	Lithuania	1.13	16	Estonia	0.94	20	Switzerland	0.420
17	Türkiye	0.99	17	Ireland	0.92	21	Türkiye	0.418
18	Austria	0.97	18	Lithuania	0.87	22	India	0.379
19	Czechia	0.87	19	Hungary	0.85	23	Greece	0.325
20	Estonia	0.86	20	Viet Nam	0.84	24	Chile	0.287
21	Switzerland	0.86	21	Rep. of Korea	0.78	27	Russian Federation	0.226
22	Rep. of Korea	0.85	22	Türkiye	0.77	28	Ukraine	0.215
23	Australia	0.82	23	Nigeria	0.74	215	Ireland	-1.046
24	India	0.80	24	Japan	0.68	216	Czechia	-1.312
25	Singapore	0.72	25	Switzerland	0.64	219	Belgium	-2.270
26	Canada	0.72	26	Slovakia	0.63	220	Norway	-2.575
27	Bunkers	0.71	27	India	0.59	221	China	-7.177
28	Brazil	0.71	28	Latvia	0.58	222	Germany	-11.193
29	Saudi Arabia	0.65	29	Other Asia, nes	0.58	223	Netherlands	-11.951
30	Russian Federation	0.51	30	Brazil	0.48	206	Austria	-0.284

*) Selected countries with largest surplus or deficit in trade balance. Trade balance = exports fob minus imports cif.
Source: UN Comtrade

Sweden's trade is more globalized than those of Austria. Only 52.8% of its exports go to EU27, in the first place to Norway (10.7%, then to Germany (10%), and USA (8.9%; see Table 3.4). Sweden, however, imports more (62.9%) from EU27 than it exports to the EU. Germany is the number one import country with a 15.3% share of total imports, followed by Norway (11.8%), and the Netherlands (10.6%). The trade balance with the world is negative with 4.4 bn USD, with the EU27 the deficit amounts to 22.7 bn USD. Surpluses with the USA, Finland, and the UK are confronted with high deficits with Germany, the Netherlands and China.

3.1.2 Freedom of movement of services

In TFEU, Part Three, Title II, Chapter 3 'Services' rules the respective provisions in Article 56: *"Within the framework of the provisions set out below, restrictions on freedom to provide services within the Union shall be prohibited in respect of nationals of Member States who are established in a Member State other than that of the person for whom the services are intended."*

Article 57 defines "Services" to include:

(a) activities of an industrial character;

(b) activities of a commercial character;

(c) activities of craftsmen;

(d) activities of the professions.

"Without prejudice to the provisions of the Chapter relating to the right of establishment, the person providing a service my, in order to do so, temporarily pursue his activity in the Member State where the service is provided, under the same conditions as are imposed by that State on its own nationals."

This last paragraph addresses the issue of posting. This was regulated by the "Posted Workers Directive" of 1996[18].

Services account for about 70% of the GDP of the European Union (EU), and a similar share of employment. Nevertheless, the postulated free movement of services is still far from being fulfilled. It needed a separate Services Directive (SD) to eliminate the still existing barriers.

The Single Market Scoreboard (Figure 3.13) analyses annually the performance of EU's Member States (MS) concerning their performance of the integration in the SM. The *Performance Indicator* of Figure 3.13 gives a quite heterogeneous picture. Even concerning the goods trade integration, founding members, like Germany, France, and Italy are below EU average. In the services trade most EU MS are below average.

Whereas *Intra-EU trade in goods* amount to 25% of GDP, this share in the *trade in services* is only 8% of EU's GDP on average. Some countries, like Austria reach higher values (13%), some, like Germany lower values (5%).

Openness to imports of services (total services imports in % of GDP) lies way below those of the openness to imports of goods. EU average is only 12.6% (see Single Market Scoreboard[19]). Three countries stand out: Luxembourg with 120%, Malta with 80%, and Ireland

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[18] Directive 96/71/EC of the European Parliament and of the Council of 16 December 1996 concerning the posting of workers in the framework of the provisions of services, OJ, L 18/1 of 21.1.1997.

[19] See: https://single-market-scoreboard.ec.europa.eu/integration_market_openness/trade-goods-and-services

with 70%. It follows Cyprus with 38%. Austria and Germany reach only EU average. The high outlier indicates that financial services (legal or illegal) play an important role in the three best-performing countries.

Overall ranks Austria better than Finland, and Sweden. Indicator 1 (EU trade integration in goods) sees Austria above EU average. Concerning Indicator 3 (EU trade integration in services) and Indicator 7 (Openness to imports in services) Austria ranks below average. In all other indicators, Austria is at EU average. Finland, and Sweden rank in three indicators below EU average, and in five indicators at EU average (see Figure 3.13).

Figure 3.13: Performance Indicators – Integration in EU's goods and services market

Perf. Ind.	AT	BE	BG	CY	CZ	DE	DK	EE	EL	ES	FI	FR	HR	HU	IE	IT	LT	LU	LV	MT	NL	PL	PT	RO	SE	SI	SK
indicator 1	27	42	32	16	45	20	20	38	12	15	16	13	26	51	22	14	37	28	36	15	35	33	24	24	21	51	63
indicator 2	26	41	31	8	52	22	20	35	10	16	16	12	16	53	38	14	35	27	31	15	43	35	21	21	20	52	70
indicator 3	12	17	8	23	8	5	12	16	7	4	8	6	12	12	25	4	13	96	10	60	14	7	9	8	8	12	9
indicator 4	13	16	11	30	8	5	13	18	12	7	7	6	20	13	34	4	17	116	12	71	15	8	12	10	7	14	9
indicator 5	38	58	52	35	58	31	29	51	30	26	26	24	43	66	30	22	58	34	51	37	53	43	35	36	30	63	84
indicator 6	28	42	32	23	39	18	20	42	15	14	16	14	35	49	17	13	39	30	40	20	28	30	27	27	21	50	56
indicator 7	15	23	9	38	10	10	22	18	10	0	14	10	9	14	83	6	14	118	10	82	20	7	8	8	14	12	10
indicator 8	12	18	6	20	7	6	12	14	6	0	9	6	5	11	61	4	9	77	7	49	12	6	6	7	9	9	9

	Above average	Average	Below average
[1] EU trade integration in **goods** (*levels*)	> 28.4%	28.4% – 14.2%	< 14.2%
[2] EU trade integration in **goods** (*change*)	> -1.4%	-1.4 % – -2.8%	< -2.8%
[3] EU trade integration in **services** (*levels*)	> 10.6%	10.6% – 5.3%	< 5.3%
[4] EU trade integration in **services** (*change*)	> 5.3%	5.3% – 2.7%	< 2.7%
[5] Openness to imports of **goods** (*levels*)	> 43.6%	43.6% – 21.8%	< 21.8%
[6] Openness to imports of **goods** (*change*)	> -1.1%	-1.1% – -2.2%	< -2.2%
[7] Openness to imports of **services** (*levels*)	> 16.7%	16.7% – 8.4%	< 8.4%
[8] Openness to imports of **services** (*change*)	> 9.3%	9.3% – 4.7%	< 4.7%

Source: Single Market Scoreboard[20]

Services Directive

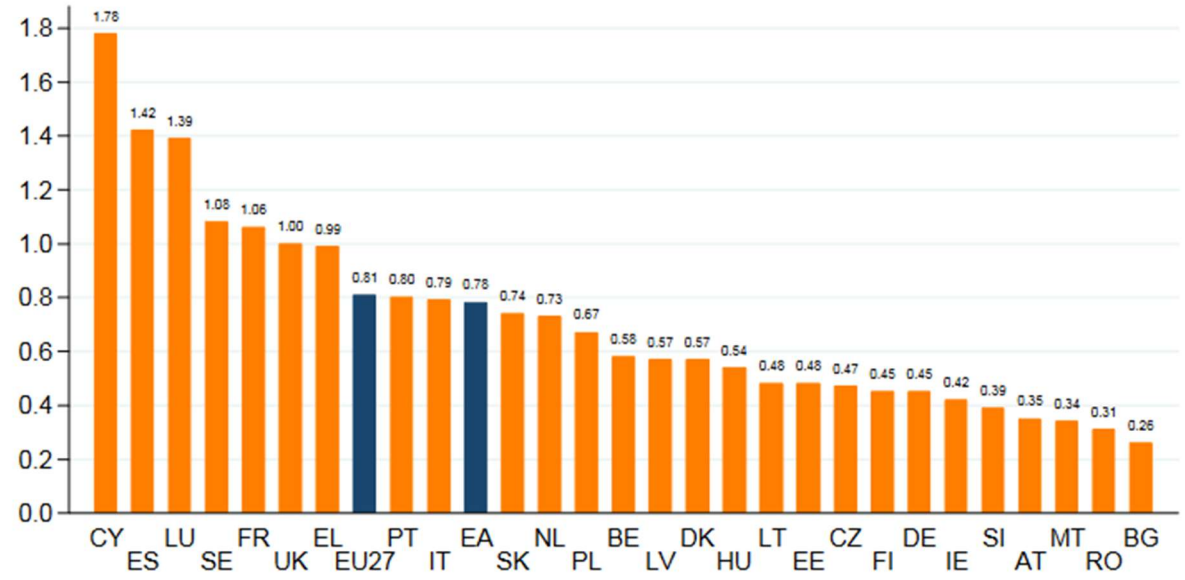
At the inception of the SM in 1993, the trade services were still disturbed by a big variety of barriers. Only after 16 years (in 2009), the implementation of the Services Directive (SD[21]) of 2006 brought an improvement (Breuss et al., 2008). However, the implementation varies from country to country, as well as the economic impact (see Breuss, 2023B, p. 13). Accordingly,

[20] See: https://single-market-scoreboard.ec.europa.eu/integration_market_openness/trade-goods-and-services

[21] Directive 2006/123/EC of the European Parliament and of the Council of 12 December 2006 on services in the internal market, OJ L 376/36 of 27.12.2006. After a long discussion between the European Parliament and the Commission, the EU was adopted in 2006 and implemented by all EU countries in 2009.

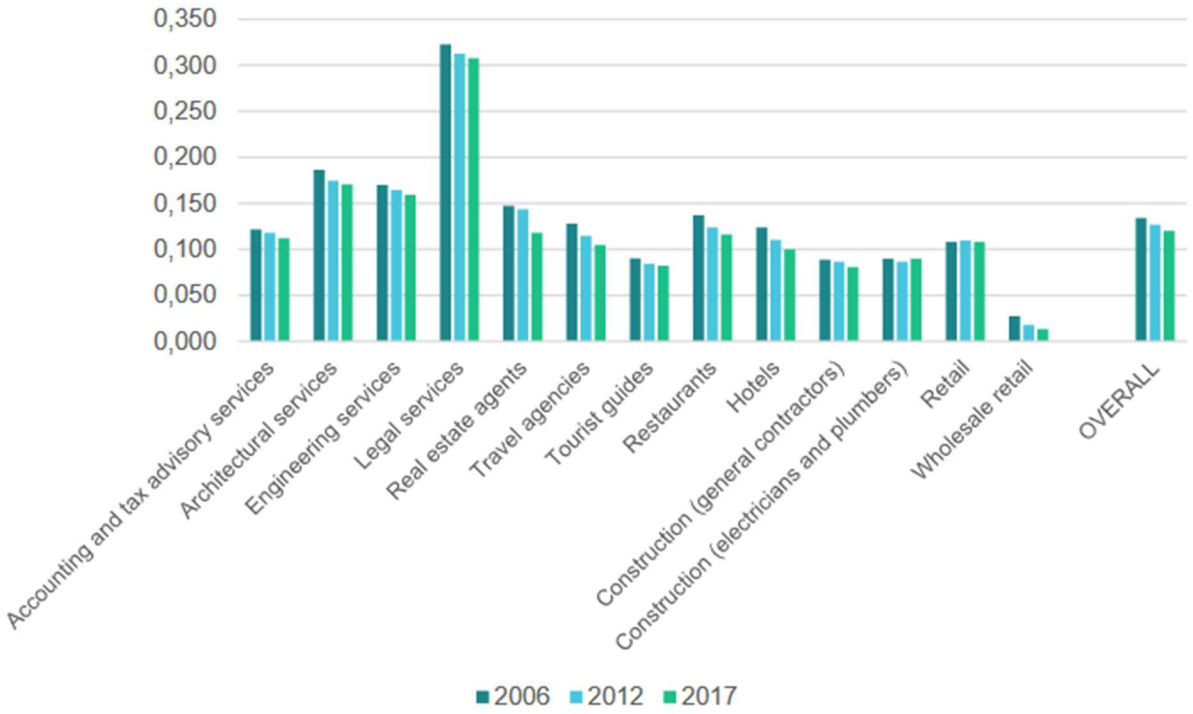
Austria should have profited by the implementation of the SD through an increase of real GDP of 0.35%, Finland of 0.45%, and Sweden of 1.08%.

Figure 3.14: The GDP impact of the implementation of the Services Directive



Source: Monteagudo et al., (2012), p. 30

Figure 3.15: Overall barriers evolution, EU27



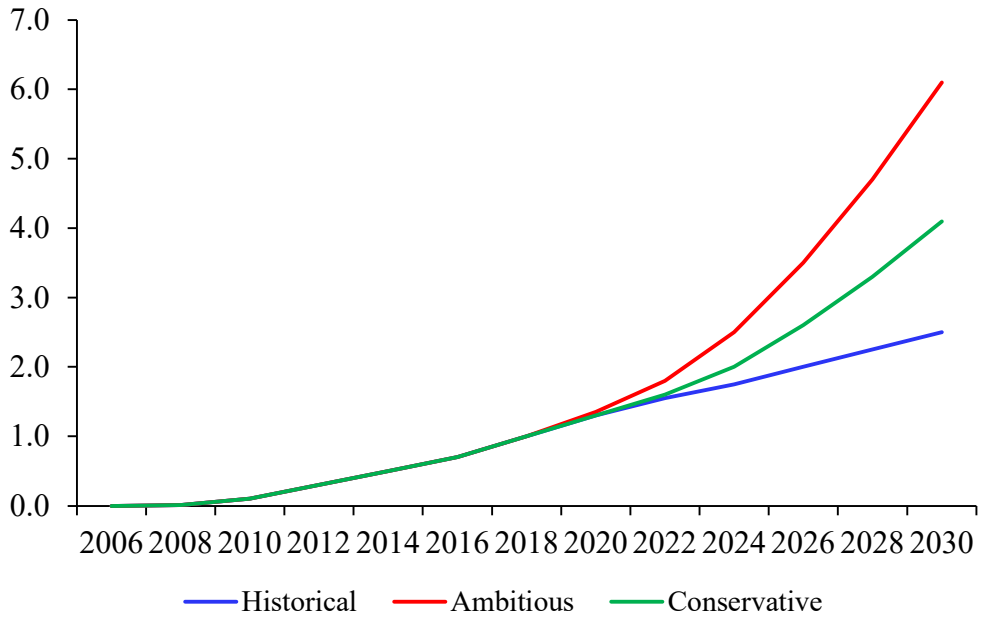
Source: European Commission (2021B), p. 5

According to a recent study by the European Commission (2021B), since the adoption of the Services Directive in 2006, there was only a small decrease in absolute level of barriers

and more reform efforts are needed to remove regulatory and administrative barriers faced by service providers when operating in the Single Market (see Figure 3.15).

Several studies were carried out to estimate the potential benefits of the implementation of the SD for trade and income. The EU study by Monteagudo et al. (2012), estimated with the EU Commission's QUEST model, find that the full implementation of the SD in all EU MS would lead to an increase of real GDP in the EU by 0.8 percentage points, The impact varies from below 0.4% in Bulgaria, Romania, Malta, Austria, and Slovenia, to about 1% in Greece, UK, France and Sweden, as well as 1.4% in Luxembourg, and 1.8% in Cyprus (see Figure 3.14).

Figure 3.16: Impact of removal of barriers in the services sector on EU GDP (Cumulative discounted GDP gains)



Sources: Barbero et al. (2022), p. 2 and European Commission (2022B), p. 20.

Wolfmayr and Pfaffermayr (2022) estimated the impact of the implementation of the SD with a structural gravity equation, applying two dummy variables (SD and SOLVIT[22]). Firstly, the authors state that the implementation of the SD in 2009 had already led to an increase in bilateral EU services trade (+7%) and income in the EU (+0.2% weighted in 2018). Secondly,

[22] The SOLVIT indicator (2010-2018) used by Wolfmayr and Pfaffermayr varies from 0.93 in Estonia to 0.82 in Portugal (Austria 0.84). A higher value of the indicator signals a lower frequency of problem cases in SOLVIT. SOLVIT (https://ec.europa.eu/solvit/index_en.htm) is a service provided by the national administrations. There is a SOLVIT centre in each EU Member State and in Iceland, Liechtenstein, and Norway. They work together via an online database. SOLVIT helps people and businesses who encounter difficulties in another EU Member State when public authorities do not apply EU legislation correctly. It is a faster, informal alternative to starting a court case, submitting a formal complaint to the Commission, or launching forward a petition. Due to the Brexit, the UK left SOLVIT.

the “best implementation” scenario of SD would lead to the following potential results in the EU: intra-EU trade +10%, weighted income +0.4%.

Nevertheless, the study by Barbero et al (2022) shows that the realized removal of barriers between 2006 and 2017 (in Figure 3.16 “Historical” in blue) results in discounted cumulative gains of 2.1% of GDP by the year 2027. Additional ambitious reforms (in Figure 3.16 “Ambitious” in red) could generate an additional growth potential of up to 2.5% of GDP by 2027, resulting in a total cumulative gain in GDP of up to 4.65% by 2027.

A study by ifo (see Dorn et al., 2024) makes model simulations with the ifo trade model to evaluate which gains in value added could be achieved by dismantling existing trade barriers in trade in services. The base their study partly also on the OECD Trade Restrictiveness Index (STRI; see below). A reduction of the barriers by 10% would result in an increase of gross value added in the EU in the medium run by 0.5% or EUR 77 billion. Luxembourg, Malta, and Ireland would profit the most (of around 3%). A reduction by 25% would result in the model simulation of value-added gains in the EU of 2.3% or EUR 350 billion. In the 10% (25%) scenario Austria would gain 0.9% (3.8%), Finland 0.7% (2.9%), and Sweden also 0.9% (and 3.1%).

Even if one recognizes the remarkably (although varying degrees depending on the study) positive assessment of the economic benefits of implementing the SD, it must be noted that the SD excludes essential sectors of the service sector. That means, a full liberalization – i.e., a complete implementation of the ‘freedom of movement of services” as postulated in the TFEU, Title IV, Chapter 3 - should have even greater growth potential than estimated in the above-mentioned SD studies.

After a bitter struggle between Commission and European Parliament over which services shall be included in the SD, according to the agreed upon text, the Services Directive (SD) of 2006, Article 2 (2) shall not apply to the following services:

- Non-economic services of general interest.
- Financial services (banking, credit, insurance and re-insurance, investment funds); respective regulations are reported under chapter 3.1.4 Freedom of movement of capital.
- Electronic communications services and networks.
- Services in the field of transport, including port services (Title V of the TFEU).
- Services of temporary work agencies.
- Healthcare services.
- Audiovisual services (cinematographic services; radio broadcasting).
- Gambling activities.

- Activity connected with the exercise of official authority of Article 45 of the TFEU (free movement of workers),
- Social services relating to social housing, childcare and support of families.
- Private security services.
- Services provided by notaries and bailiffs, who are appointed by an official act of government.
- The SD shall not apply to the field of taxation.

The OECD takes a more global view of restrictions on trade in services than just on EU's Single Market. The OECD produces regularly since 2014 reports on the restrictions to services trade. In its latest report (OECD, 2024A) it quantifies with the Services Trade Restrictiveness Index (STRI) services regimes across countries and over time to inform the decisions of policy makers and regulators, to convey transparent and accessible information to exporters, and to provide a source of data for academic research on drivers and impediments to services trade.

OECD Services Trade Restrictiveness Index (STRI) 2023 shows that barriers to services trade continue to be high across countries and sectors, influenced by global economic and geopolitical challenges. This was compounded by the introduction of new policies in 2023 affecting the supply of services through commercial presence and foreign investment. Several countries introduced new foreign investment screening mechanisms or revised existing ones, establishing tighter scrutiny of investment in sectors such as computer services, telecommunications, broadcasting, transport, and commercial banking. Moreover, the tightening of rules on cross-border data flows and introduction of entry limits for foreign e-commerce platforms (e.g. in Indonesia) added to the challenges faced by services providers, especially in ICT services sectors. Other more targeted tightening policies were identified in some sectors such as transport and telecommunications services.

Nonetheless, compared to 2022, the overall number of policy reforms identified in 2023 was fewer across all services sectors indicating a slowdown in regulatory activity. Moreover, changes in the index values show a slightly higher impact of trade liberalisation policies overall, suggesting moderate advancement on services reform policies. Liberalisation policies in 2023 included policies that affect trade in many services such as the removal of remaining travel restrictions imposed during the COVID-19 pandemic.

OECD Services Trade Restrictiveness Index (STRI) 2023 (see OECD, 2024A) quantifies the non-tariffs restrictive trade barriers in services trade and takes values between zero and one, one being the most restrictive. The OECD STRI covers 50 countries and 22 key services sectors

(see OECD, 2024A[23]). The STRI database records measures on a most favoured nation (MFN) basis towards third countries. Air transport and road freight cover only commercial establishment (with accompanying movement of people). The indices are based on laws and regulations in force on 31 October 2023. The STRI regulatory database covers the 38 OECD countries, Brazil, China, India, Indonesia, Kazakhstan, Malaysia, Peru, Singapore, South Africa, Thailand, and Viet Nam. The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities.

The top ten economies with the best regulatory performance in the 2023 STRI were Japan, Spain, the United Kingdom, Czechia, the Netherlands, Latvia, Denmark, Germany, Australia, and Chile. Thirty of the 50 economies covered in the sample have a higher average STRI than the OECD average. Thailand, Indonesia, and the Russian Federation have the highest average STRI among the countries. OECD on average has an index value of 0.17. Sweden with a value of 0.18 is nearest to the OECD average. Finland comes next with 0.19, and Austria with 0.21 is above OECD average (see OECD, 2024A, p. 11).

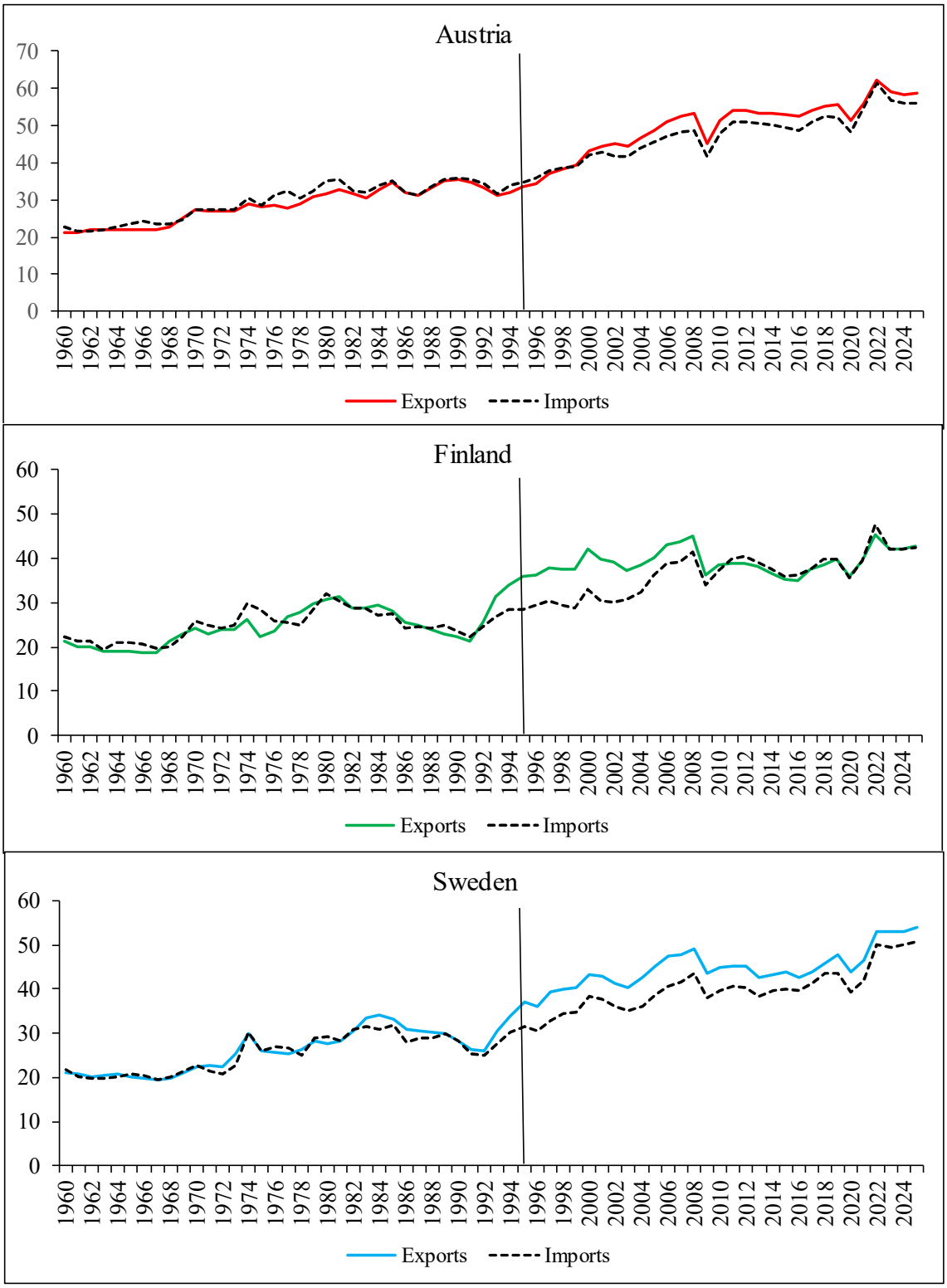
Trade in goods and services and its contribution to GDP growth

In the following, we look at the development of exports and imports of goods and services and their net contribution to GDP. A first picture (Figure 3.17) shows the development of exports and imports of goods and services in % of GDP over the period 1960-2025 for the three countries. In all three countries exports of goods and services exceeded imports after EU accession in 1995. Whereas in Austria and Sweden the gap increased steadily, in Finland this came to a standstill in 2010. Since then, exports and imports developed roughly similar.

How much of these developments are due to EU integration into EU's Single Market? At this stage, we analyse the developments without theoretical model tools but look only at the course of the trends before and after EU accession (see Figure 3.18). In Austria and Sweden, the trends of the development of exports and imports of goods and services (always measured in % of GDP) were steeper after 1995 than the trends before EU accession (1970-1994). In Finland, only the import trend was steeper after 1995 than before. The export trends were even slightly flatter after 1995 than before.

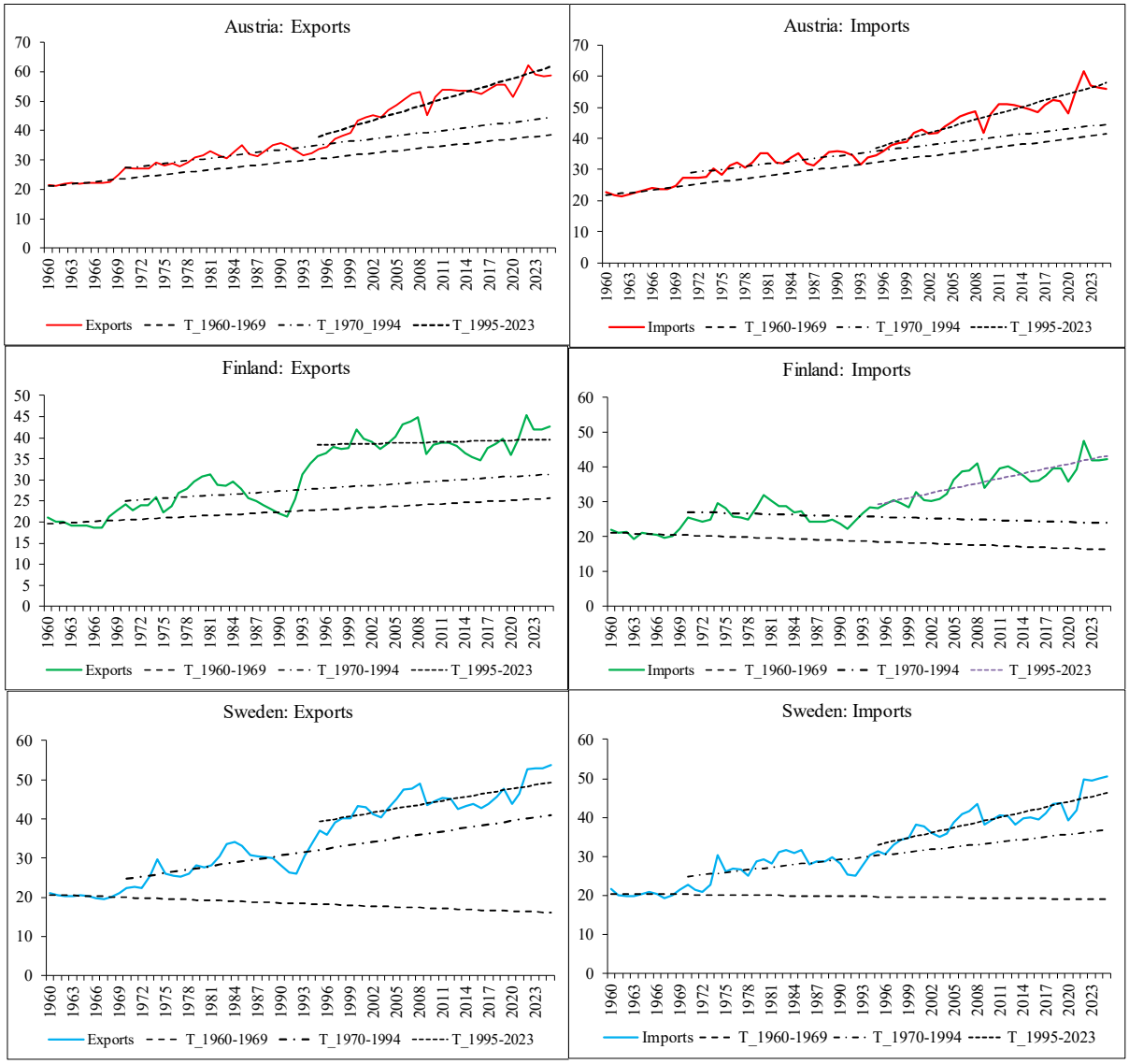
[23] Access to the STRI data, see: https://oe.cd/stri-db

Figure 3.17: Exports and imports of goods and services, in % of GDP



Source: AMECO database

Figure 3.18: Exports and imports of goods and services, in % of GDP (plus trends)



Source: AMECO database

Table 3.5: Comparison of trend growth of exports and imports of goods and services (in % of GDP): trend growth 1995-2023 (A) minus trend growth 1970-1994 (B) (average annual growth in ppts)

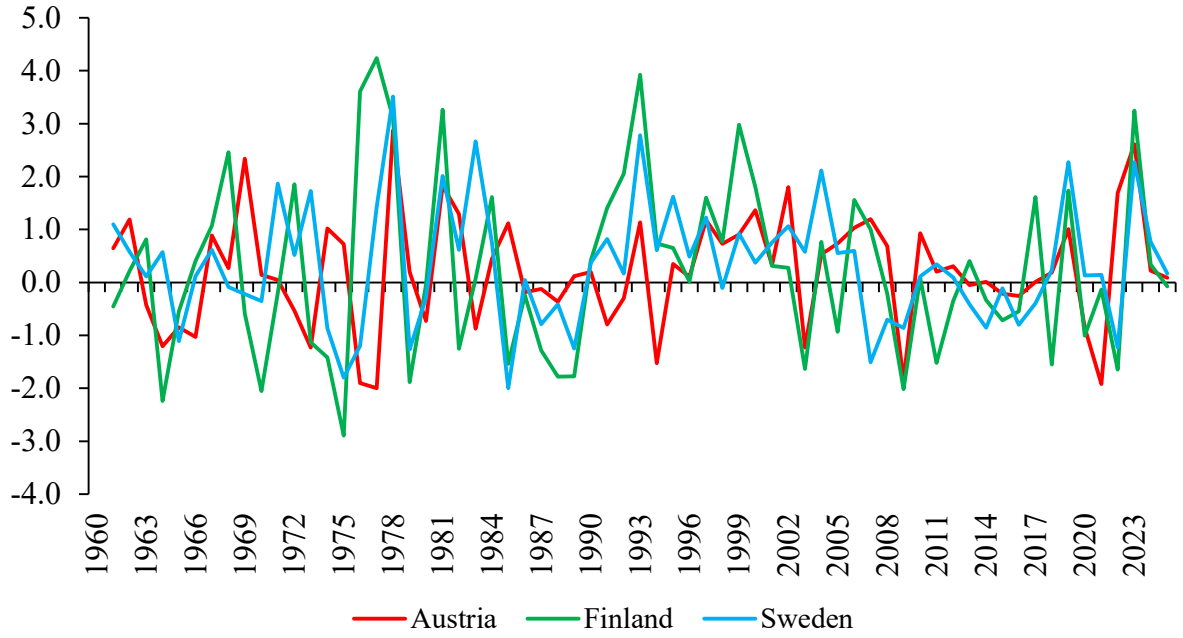
	Exports	Imports	Net exports
	1995-2023 (A)	1970-1994 (B)	C=A-B
Austria	1.29	0.98	0.31
Finland	0.93	2.62	-1.69
Sweden	0.71	0.86	-0.15

Source: AMECO database

If one quantifies these developments, the following results arise (see Table 3.5): In *Austria,* the trend growth of exports of goods and services was 1.3 ppts higher in the post-EU accession period (1995-2023) than in the pre-EU period (1970-1994). In case of import shares the difference was 1.0 ppts. This resulted in a positive net trade trend growth of 0.3 ppts. In the

Scandinavian countries the development was just the opposite: import trend growth exceeded that of exports between the two integration periods, resulting in a negative net trend growth, stronger in *Finland* (-1.7 ppts) than in *Sweden* (-0.2 ppts).

Figure 3.19: Contribution to GDP change of the balance of goods and services (net-exports): Austria, Finland, Sweden (Percentage of GDP of preceding year)



Source: AMECO database

Table 3.6: Contribution to GDP change of the balance of goods and services (net-exports): Austria, Finland, Sweden (average changes of the percentages of GDP of preceding year)

	1961-1969	1970-1994	1995-2025	Difference
	A	B	C	(C -B)
Austria	0.20	0.02	0.38	0.36
Finland	0.12	0.35	0.21	-0.14
Sweden	0.19	0.39	0.32	-0.07

Source: AMECO database

The statistical measure "contribution of the balance of goods and services" (net exports; in percentage of GDP of the preceding year) gives the right information how much EU membership of all three countries contributed to the growth of real GDP (see Figure 3.19).

Again, as in the trend growth analysis above, Austria profited most of net exports after EU accession. Net exports contributed by 0.4 ppts more to the growth of real GDP after 1995 compared to the period before. In the same period, Finland's (-0.1 ppts) and Sweden's (-0.1 ppts) net exports contributed negatively to GDP growth (see Table 3.6).

Globalisation in services trade

The basic pattern of globalisation of the three countries concerning goods trade (see Tables 3.2, 3.3, 3.4) becomes even clearer in relation to the services trade. Austria sticks to "mini-globalization", meaning it concentrates its trade relations to EU Member States, whereas the Scandinavian countries indulge in "maxi-globalization", meaning that their trade radius spans far outside the EU market.

Table 3.7: Ranking of the 30 most important services trading partners of Austria 2022

Rank	Country	Export share in %	Rank	Country	Import share in %	Rank	Country	Trade balance*) bn USD
	World (81.3 bn USD)	**100.00**		**World** (73.8 bn USD)	**100.00**		**World**	**7.43**
	EU27 (60.8 bn USD)	**74.80**		**EU27** (55.7 bn USD)	**75.50**		**EU27**	**5.08**
1	Germany	40.75	1	Germany	27.89	1	Germany	12.52
2	Switzerland	6.84	2	Italy	5.25	2	Switzerland	2.46
3	Italy	4.85	3	USA	4.69	3	Netherlands	1.19
4	Netherlands	4.39	4	Ireland	4.59	4	Czechia	0.34
5	United Kingdom	3.71	5	Switzerland	4.19	5	Denmark	0.22
6	USA	3.47	6	United Kingdom	4.15	6	Malta	0.21
7	Czechia	2.60	7	Poland	3.46	7	Luxembourg	0.18
8	Hungary	2.38	8	Netherlands	3.21	8	Italy	0.07
9	France	2.11	9	Romania	2.58	9	China	0.06
10	Ireland	1.90	10	Hungary	2.75	10	Japan	0.06
11	Poland	1.85	11	Croatia	2.54	11	Canada	0.05
12	Luxembourg	1.83	12	Slovakia	2.50	12	Estonia	0.00
13	Belgium	1.60	13	Czechia	2.41	**13**	Russian Federation	-0.02
14	Sweden	1.57	14	France	2.35	14	France	-0.02
15	Romania	1.56	15	Slovenia	2.09	15	Sweden	-0.03
16	Slovakia	1.50	16	Spain	2.07	16	Latvia	-0.04
17	Slovenia	1.00	17	Belgium	1.87	17	Cyprus	-0.05
18	Spain	0.94	18	Luxembourg	1.77	18	United Kingdom	-0.05
19	Russian Federation	0.91	19	Sweden	1.76	19	Belgium	-0.08
20	Denmark	0.77	20	Bulgaria	1.28	20	China, Hong Kong	-0.08
21	China	0.84	21	Greece	1.10	21	Hungary	-0.09
22	Finland	0.64	22	Finland	1.09	22	India	-0.13
23	Croatia	0.62	23	Lithuania	1.09	23	Brazil	-0.16
24	Bulgaria	0.45	24	Russian Federation	1.03	24	Portugal	-0.22
25	Malta	0.42	25	China	0.85	29	USA	-0.64
26	Canada	0.42	26	Denmark	0.55	31	Lithuania	-0.70
27	Greece	0.36	27	Portugal	0.47	32	Slovenia	-0.73
28	Cyprus	0.28	28	Canada	0.40	33	Spain	-0.76
29	Japan	0.27	29	India	0.40	34	Poland	-1.05
30	India	0.20	30	Cyprus	0.38	25	Finland	-0.28

*) Selected countries with largest surplus or deficit in trade balance. Trade balance = exports minus imports (cif values)
Source: UN Comtrade.

Austria trades ¾ of its services with EU Member States (see Table 3.7). *Finland* exports only 30% of total services to EU27, 42% of its services imports come from EU27 (Table 3.8). In *Sweden* the EU27 shares are similar (39% EU exports, 54% EU imports; Table 3.9). Whereas Germany is the most important trading partner for services in Austria, these are the United States for Finland and Sweden. Another significant difference concerns the services trade

balance. Austria – primarily due to its comparative advantage in tourism – shows a surplus (total and with the EU), whereas the services trade balance is negative in the Scandinavian countries.

Table 3.8: Ranking of the 30 most important services trading partners of Finland 2022

Rank	Country	Export share in %	Rank	Country	Import share in %	Rank	Country	Trade balance*) bn USD
	World (34.0 bn USD)	**100.00**		**World** (40.4 bn USD)	**100.00**		**World**	**-6.41**
	EU27 (10.1 bn USD)	**29.85**		**EU27** (17.1 bn USD)	**42.42**		**EU27**	**-6.99**
1	USA	20.06	1	USA	7.69	1	USA	3.71
2	Germany	8.66	2	Germany	9.60	2	Switzerland	0.67
3	China	3.87	3	Netherlands	6.69	3	Rep. of Kore	0.57
4	Switzerland	3.66	4	Ireland	6.31	4	Japan	0.28
5	Netherlands	3.50	5	China	3.98	5	Australia	0.19
6	Norway	3.37	6	Estonia	3.78	6	Brazil	0.16
7	Ireland	3.18	7	India	2.66	7	Austria	0.13
8	France	2.76	8	Norway	2.95	8	Saudi Arabia	0.06
9	Austria	2.04	9	Spain	2.58	9	South Africa	0.03
10	Estonia	2.20	10	Italy	2.42	10	Indonesia	0.02
11	Rep. of Korea	1.98	11	France	2.40	11	Malta	0.00
12	India	1.93	12	Belgium	1.67	12	China, Hong	0.00
13	Italy	1.50	13	Switzerland	1.42	**13**	Luxembourg	0.00
14	Belgium	1.48	14	Austria	1.40	14	Lithuania	-0.09
15	Spain	1.45	15	Czechia	0.78	15	Czechia	-0.13
16	Japan	1.44	16	Greece	0.73	16	Belgium	-0.17
17	Australia	1.03	17	Lithuania	0.65	17	Mexico	-0.02
18	Brazil	0.76	18	Hungary	0.56	18	Slovakia	-0.02
19	Luxembourg	0.64	19	Luxembourg	0.55	19	Cyprus	-0.03
20	Czechia	0.54	20	Japan	0.51	20	France	-0.03
21	Lithuania	0.52	21	Latvia	0.48	21	Slovenia	-0.03
22	China, Hong Kong SAR	0.49	22	Türkiye	0.46	29	Greece	-0.26
23	Latvia	0.46	23	Portugal	0.76	30	China	-0.29
24	Indonesia	0.33	24	Australia	0.40	31	India	-0.42
25	Mexico	0.28	25	China, Hong Kong SAR	0.40	32	Italy	-0.47
26	Türkiye	0.29	26	Romania	0.30	33	Spain	-0.55
27	South Africa	0.25	27	Mexico	0.28	34	Estonia	-0.78
28	Saudi Arabia	0.24	28	Rep. of Korea	0.26	35	Germany	-0.93
29	Hungary	0.19	29	Brazil	0.24	36	Ireland	-1.47
30	Portugal	0.18	30	Indonesia	0.23	37	Netherlands	-1.51

*) Selected countries with largest surplus or deficit in trade balance. Trade balance = exports minus imports (cif values)

Source: UN Comtrade: only 21 (19) EU partners of Finland concerning the services exports (imports) are covered in the statistics.

Table 3.9: Ranking of the 30 most important services trading partners of Sweden 2022

Rank	Country	Export share in %	Rank	Country	Import share in %	Rank	Country	Trade balance*) bn USD
	World (94.8 bn USD)	**100.00**		**World** (98.4 bn USD)	**100.00**		**World**	**-6.41**
	EU27 (39.1 bn USD)	**39.14**		**EU27** (54.2 bn USD)	**54.18**		**EU27**	**-6.99**
1.00	USA	12.73	1.00	USA	13.97	1.00	USA	3.71
2.00	Germany	6.83	2.00	United Kingdom	13.35	2.00	Switzerland	0.67
3.00	United Kingdom	8.77	3.00	Germany	8.90	3.00	Rep. of Kore	0.57
4.00	Denmark	6.54	4.00	Denmark	6.57	4.00	Japan	0.28
5.00	Finland	5.64	5.00	Ireland	6.23	5.00	Australia	0.19
6.00	Switzerland	5.55	6.00	Netherlands	5.63	6.00	Brazil	0.16
7.00	France	4.18	7.00	Finland	5.25	7.00	Austria	0.13
8.00	Netherlands	3.68	8.00	France	3.77	8.00	Saudi Arabia	0.06
9.00	Ireland	3.65	9.00	Spain	3.26	9.00	South Africa	0.03
10.00	China	2.64	10.00	Poland	2.39	10.00	Indonesia	0.02
11.00	Canada	1.94	11.00	Belgium	2.65	11.00	Malta	0.00
12.00	Belgium	1.56	12.00	China	2.49	12.00	China, Hong	0.00
13.00	Spain	1.56	13.00	Switzerland	2.24	**13.00**	Luxembourg	0.00
14.00	Poland	1.39	14.00	India	2.24	14.00	Lithuania	-0.09
15.00	Italy	1.33	15.00	Italy	1.99	15.00	Czechia	-0.13
16.00	Austria	1.08	16.00	Malta	1.16	16.00	Belgium	-0.17
17.00	Japan	1.05	17.00	Austria	1.09	17.00	Mexico	-0.02
18.00	Brazil	1.04	18.00	Canada	1.06	18.00	Slovakia	-0.02
19.00	Bulgaria	0.07	19.00	Luxembourg	0.95	19.00	Cyprus	-0.03
20.00	India	0.83	20.00	Lithuania	0.59	20.00	France	-0.03
21.00	Luxembourg	0.80	21.00	Japan	0.58	21.00	Slovenia	-0.03
22.00	Russian Federation	0.64	22.00	Russian Federation	0.56	29.00	Greece	-0.26
23.00	Lithuania	0.38	23.00	Cyprus	0.54	30.00	China	-0.29
24.00	Malta	0.36	24.00	Brazil	0.49	31.00	India	-0.42
25.00	China, Hong Kong SAR	0.34	25.00	China, Hong Kong SAR	0.68	32.00	Italy	-0.47
26.00	Estonia	0.34	26.00	Greece	0.66	33.00	Spain	-0.55
27.00	Czechia	0.31	27.00	Estonia	0.48	34.00	Estonia	-0.78
28.00	Portugal	0.26	28.00	Czechia	0.48	35.00	Germany	-0.93
29.00	Romania	0.25	29.00	Romania	0.42	36.00	Ireland	-1.47
30.00	Latvia	0.23	30.00	Croatia	0.41	37.00	Netherlands	-1.51

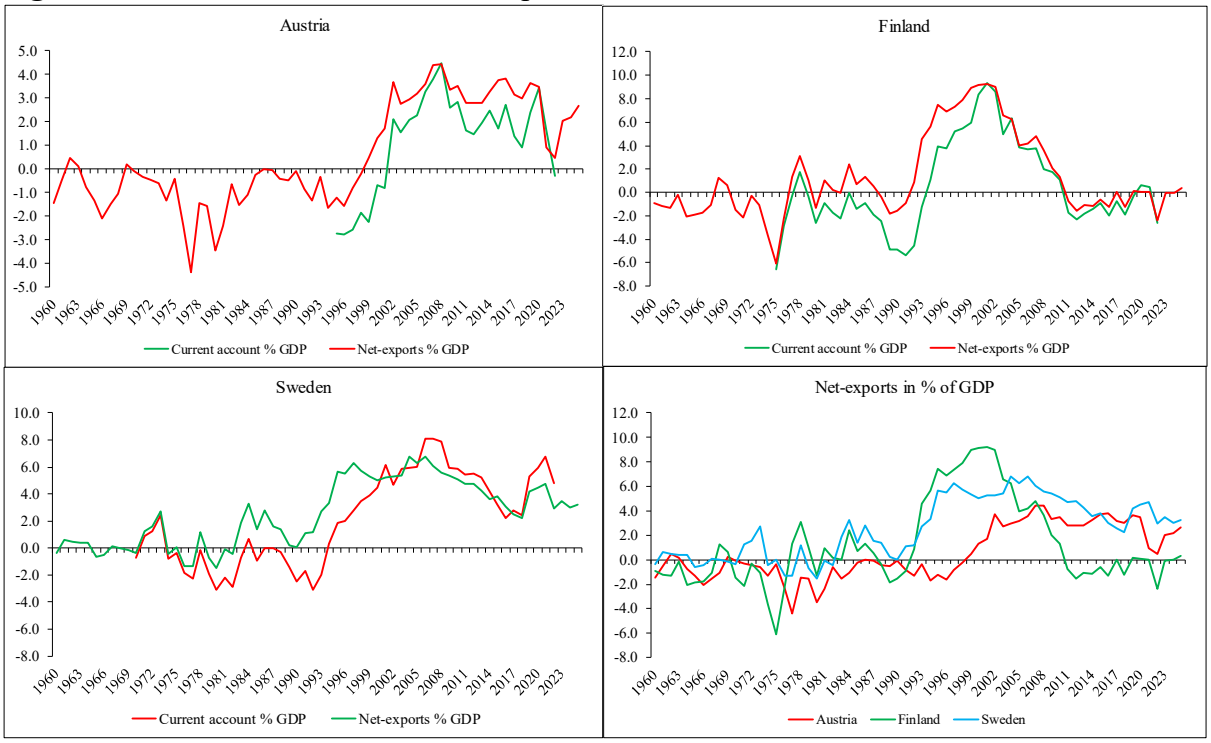
*) Selected countries with largest surplus or deficit in trade balance. Trade balance = exports minus imports (cif values)
Source: UN Comtrade.

Current account

Theoretically, the current account and the net exports according to the System of National Accounts (SNA) should be the same[24]. The current account includes trade of goods and services, primary income (compensations of employees, investment incomes) and secondary income (government transactions). In practice both concepts – current account according to the balance of payments statistics and net-exports according to National Accounts statistics diverge for different reasons (see Figure 3.20). In all three countries, the balance of current account and net-exports improved since their EU accession in 1995.

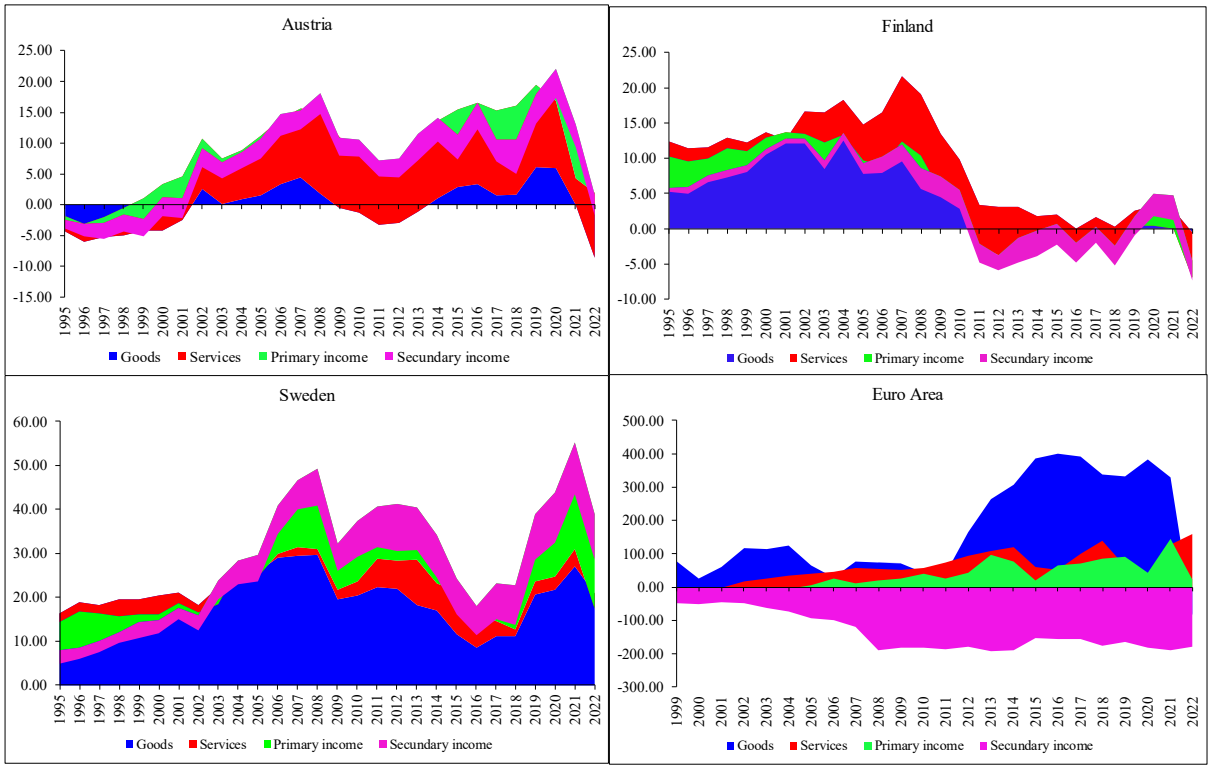
[24] See the Balance of Payments Manual of the IMF (p. 13): https://www.imf.org/external/pubs/ft/bopman/bopman.pdf

Figure 3.20: Current account and net-exports, in % of GDP: Austria, Finland, and Sweden



Sources: Current account: IMF Balance of Payments (BOP) Statistics; OeNB; Net-exports: AMECO database of the European Commission.

Figure 3.21: Composition of the current account, bn USD: Austria, Finland, Sweden, Eurozone



Source: Current account: IMF Balance of Payments (BOP) Statistics; OeNB.

Figure 3.21 shows the composition of the current account in the three countries. It shows that the current account improvement in *Austria* was primarily due to the good development in the services balance (mainly a result of the well performing tourism business). In *Sweden*, in contrast, the goods trade balance supports the good results of the balance of payments. In *Finland*, also the goods trade contributed to the good performance of the current account shortly after EU accession. However, in 2011, the current account turned from a surplus to a deficit. The Global Financial Crisis hit Finland particularly hard[25].

Bilateral export shares: goods and services

Table 3.10 reports the bilateral export shares of goods and services according to GTAP11B database for the year 2017. Accordingly, Austria exported 75.4% to EU27, Finland 63%, and Sweden 63.6%. These shares are higher than those for Germany and UK.

Table 3.10: Shares of bilateral exports of goods and services in % of total (2017)

	Oceania	Asia	North America	Latin America	**Austria**	**Finland**	**Sweden**	Germany	UK	EU23	EFTA	ROW	Total
Oceania	7.74	4.50	0.74	0.68	0.18	0.25	0.33	0.45	1.22	0.32	0.59	0.87	1.89
Asia	51.71	51.38	32.34	24.67	7.25	9.42	10.63	14.74	18.13	12.23	13.41	28.68	30.83
North Americ	14.69	11.88	35.52	32.17	3.17	4.65	5.92	7.28	14.01	8.04	11.59	8.35	15.45
Latin Americ	1.39	3.82	4.90	18.38	0.42	1.45	0.94	1.61	1.43	2.00	2.64	2.81	3.69
Austria	0.47	0.29	0.38	0.32	0.00	**1.02**	**1.22**	4.87	0.70	1.64	2.32	0.64	0.99
Finland	0.27	0.24	0.24	0.23	**0.35**	0.00	**4.43**	0.70	0.47	0.55	0.79	0.47	0.42
Sweden	0.70	0.38	0.49	0.53	**1.13**	**14.78**	0.00	1.46	1.51	1.53	5.01	0.70	0.98
Germany	4.03	3.91	4.78	3.83	39.46	14.91	17.57	0.00	12.96	16.25	16.32	6.53	7.79
UK	3.99	1.69	3.80	1.64	2.11	3.86	6.52	5.33	0.00	6.21	7.87	3.72	3.62
EU23	9.87	6.31	9.42	11.39	34.49	32.33	40.36	48.82	37.65	36.34	29.82	19.90	20.04
EFTA	1.14	2.09	1.91	1.42	5.72	3.45	6.48	5.80	4.55	3.19	0.70	1.89	2.60
ROW	4.00	13.51	5.49	4.75	5.73	13.88	5.59	8.93	7.37	11.71	8.95	25.44	11.71
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
EU27	15.35	11.13	15.31	16.29	75.43	63.04	63.58	55.86	53.29	56.30	54.26	28.24	30.22
EU28	19.34	12.81	19.11	17.93	77.54	66.90	70.10	61.19	53.29	62.51	62.13	31.96	33.84

Columns = exporters; rows = importers.
Source: GTAP Version 11B

3.1.3 Freedom of movement of capital

In TFEU, Part Three Title IV, Chapter 4 'Capital and Payments' rules the respective provisions in Article 63. In Paragraph (1) *"... all restrictions on the movement of capital between MS and between MS and third countries shall be prohibited"*. In paragraph (2), the same prohibitions apply to the payments between MS and third countries.

Interestingly, relatively late, namely only after the global financial crisis 2008 and the following Great Recession in 2009 as well as the Euro crisis in 2010 – the EU introduced secondary EU legislation to implement the provisions of the Treaty as mentioned above.

[25] See: European Commission: Macroeconomic imbalances Finland, European Economy, Occasional Papers 104-July 2012: https://ec.europa.eu/economy_finance/publications/occasional_paper/2012/pdf/ocp104_en.pdf

Payment Area: SEPA

With the Regulation[26] of 14 March 2012 the EU established a Single European Payment Area (SEPA). The project aims to develop common Union-wide payment services to replace current national payment services[27].

Currently, there were 36 members in SEPA[28], consisting of the 27 EU MS, the four EFTA countries (Iceland, Liechtenstein, Norway and Switzerland), and the United Kingdom (also after Brexit). Some microstates participate in the technical schemes: Andorra, Monaco, San Marino, and Vatican City.

SEPA was introduced for credit transfers in 2008, followed by direct debits in 2009, and fully implemented by 2014 in the euro area (and by 2016 in non-euro area SEPA countries).

The legal framework for SEPA – which the ECB[29] helped to draw up in close cooperation with the European Commission – is based mainly on the Cross-border payments regulation, the Payment Services Directive (PSD/PSD2) of 2015[30] , the SEPA migration end-date Regulation, and the Interchange Fee Regulation.

Thanks to the Single Euro Payments Area (SEPA), customers can now make cashless euro payments – via credit transfer and direct debit – to anywhere in the European Union, as well as several non-EU countries, in a fast, safe and efficient way, just like national payments.

The payment integration triggered by SEPA has contributed to the efficiency and competitiveness of the European economy by eliminating differences between national and cross-border payments by harmonizing standards in all the participating countries.

On 26 October 2022 the Commission adopted a legislative proposal to make *instant payments* in euro, available to all citizens and businesses holding a bank account in the EU and in EEA countries. Instant payments allow people to transfer money at any time or any day within ten seconds[31].

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[26] Regulation (EU) No 260/2012 of the European Parliament and of the Council of 14 March 2012 establishing technical and business requirements for credit transfers and direct debits in euro and amending Regulation (EC) No 924/2009, OJ, L 94/22 of 30.3.2012.

[27] See also: https://europa.eu/youreurope/citizens/consumers/financial-products-and-services/payments-transfers-cheques/index_en.htm

[28] See: https://en.wikipedia.org/wiki/Single_Euro_Payments_Area

[29] See: https://www.ecb.europa.eu/paym/integration/retail/sepa/html/index.en.html

[30] Directive (EU) 2015/2366 of the European Parliament and of the Council of 25 November 2015 on payment services in the internal market, amending Directives 2002/65/EC, 2009/110/EC and 2013/36/EU and Regulation (EU) No 1093/2010, and repealing Directive 2007/64/EC, OJ L 337/35 of 23.12.2015.

[31] See: https://ec.europa.eu/commission/presscorner/detail/en/IP_22_6272

The Digital Euro

In the face of strong pressure from private payment platforms (Apple pay, PayPal, etc.), the European Central Bank (ECB[32]) has started to introduce a digital euro. It is to be equivalent to euro cash and available both online and offline. However, with upper limits (most recently mentioned, EUR 3000). The Digital Euro should be Central bank money in digital form, available for any electronic payments in shops, online or from person to person. According to the announcement of the ECB, a digital euro would offer a pan-European payment solution, available throughout the euro area, under European governance. It could therefore help reduce Europe's dependence on private, non-European payment providers, while acting as a counterweight to their market dominance. In turn, a digital euro would make the European payments landscape more competitive and innovative by offering a platform that makes it easier for payment service providers to offer pan-European solutions of their own.

On 28 June 2023, the European Commission presented a draft legislative proposal for a possible digital euro[33]. The purpose of the legislation is to ensure that any future digital euro would give people and businesses an additional choice to pay digitally using a widely accepted, cheap, secure, and resilient form of public money anywhere in the euro area.

The Commission's legal proposal on the legal tender of euro banknotes and coins, to safeguard the role of Euro cash, which must be accepted as a means of payment everywhere in the EU and accessible for citizens and businesses codifies and clarifies the judgment by the European Court of Justice in January 2021 which sets out the principles of legal tender.

In view of the establishment and potential issuance by the ECB of a digital euro with legal tender status, it is also important to regulate the meaning of legal tender for the existing physical form of the euro to ensure consistency among the two forms of public money. In addition, this proposal seeks to address issues concerning the acceptance of cash that have emerged, which can lead to difficulties for citizens wanting to pay in cash, as well as concerns which have been raised in several Member States about difficulties in accessing cash, such as closures of ATMs and bank branches.

The main objective of the proposal is to safeguard euro cash as a means of payment, so that people will continue to be able to use it for their payments if they so wish. Indeed, although the use of cash has declined, the 2022 ECB SPACE study[34] confirms that it still represents 59% of

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[32] See: https://www.ecb.europa.eu/paym/digital_euro/html/index.en.html
[33] See The Digital Euro Package: https://finance.ec.europa.eu/publications/digital-euro-package_en
[34] See: https://www.ecb.europa.eu/stats/ecb_surveys/space/html/ecb.spacereport202212~783ffdf46e.en.html

the number of retail payment transactions and 42% of the value of these transactions. 60% of European consumers consider it important to keep the option to pay by cash.

To achieve this, the proposal clarifies what legal tender means, and sets out the rules for the mandatory acceptance of euro cash and possible exceptions to it. In addition, it also sets out what Member States need to do to ensure that cash is widely accepted and that it can be easily accessed by its users.

To clarify the legal status of the legal tender of the Euro (in cash and digital), the European Commission established ELTEG, an expert group of Member States' experts (national central banks and ministries of finance) and the European Central Bank (ECB) that meets annually. Its main purpose is to discuss euro cash acceptance and availability. ELTEG identified a range of issues of acceptance and availability of cash on the ground are identified, and its final report includes a set of 25 principles on the legal tender of cash which have been considered in the drafting of the legislative proposal on the legal tender of banknotes and coins.

A digital euro would have a dedicated legislative framework. It will be for European co-legislators to ensure that it replicates key characteristics of cash in the digital sphere. A possible decision by the Governing Council of the ECB to issue a digital euro would be taken only after this legislation has been adopted. And the ECB will consider any changes to the design of a digital euro that may result from the legislative deliberations.

On 18 October 2023, the ECB issued a report on the status of the preparation of the digital euro[35]. This report describes the work done so far. Meanwhile, based on the findings of the investigation phase, the Governing Council of the ECB has decided to move to the next phase of the digital euro project. The first stage of the preparation phase, beginning in November 2023, will last for two years, during which the Euro system will focus on further testing and experimenting and will continue to consult with all stakeholders, including the public, to ensure a digital euro meets the highest standards of quality, security, and usability. Possible subsequent steps would be decided by the Governing Council after two years based on the results of the first stage and developments in the legislative process. So, the digital euro will not be functioning until 2025[36].

The digital euro is – like the euro cash – legal tender in the Euro countries (Austria, Finland). The non-Euro countries (Sweden) can only participate if they make an agreement with the ECB.

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[35] See: "A stocktake on the digital euro", European Central Bank, 18 October 2023: https://www.ecb.europa.eu/paym/digital_euro/investigation/profuse/shared/files/dedocs/ecb.dedocs231018.en.pdf

[36] In a critical study, Bofinger and Haas (2023) ask the question whether it is necessary at all to introduce the digital euro, given that enough private digital paying systems already exist.

Banking Union

The banking union (BU)[37] is the biggest milestone in the integration of EU economies and institutions since the Economic and Monetary Union (EMU) was launched. The BU was initiated in 2012 as a response to the Euro crisis in 2010. It provides the essential underpinnings for financial stability and helps build crisis resilience and enhance risk monitoring and assessment. Moreover, the banking union addresses the fragmentation of financial markets within the euro area and contributes to breaking the negative feedback loop between bank debt and sovereign debt ("bank-sovereign vicious circle"). The banking union benefits above all smaller countries with a large share of cross-border banking activities, such as Austria.

The BU was planned to have three pillars, of which the third pillar is still pending[38]:

1) *Single Supervisory Mechanism (SSM)* – grants ECB[39] a leading supervisory role over banks in the euro area. SSM Regulation (EU), No 1024/2013 of 15 October 2013. Enter into force: 4 Nov 2013.
2) *Single Resolution Mechanism (SRM)* – including a Single Resolution Fund (SRF), filled by 31.12.2023. A Single Resolution Board. SRM Regulation (EU) 806/23014, of 15 July 2014. Entry into force on 19 August 2014
3) *European Deposit Insurance Scheme (EDIS)* – no consensus yet reached.

Breuss et al. (2015) confirmed with simulations with the QUEST model of the European Commission the stabilizing properties of the BU in case of financial shocks in the Euro area.

Capital Markets Union

Already the then new European Commission (President Jean-Claude Juncker) proposed in 2015 (European Commission, 2015A) as one of its goals to "upgrade the single market" the creation of a Capital Markets Union (CMU). In 2020 the Commission already published an CMU Action Plan. The goal of the Capital Markets Union (CMU) is to create a truly single market for capital across the EU. It aims to get investment and savings flowing across all Member States, benefitting citizens, investors and companies, no matter where in the European Union they are based.

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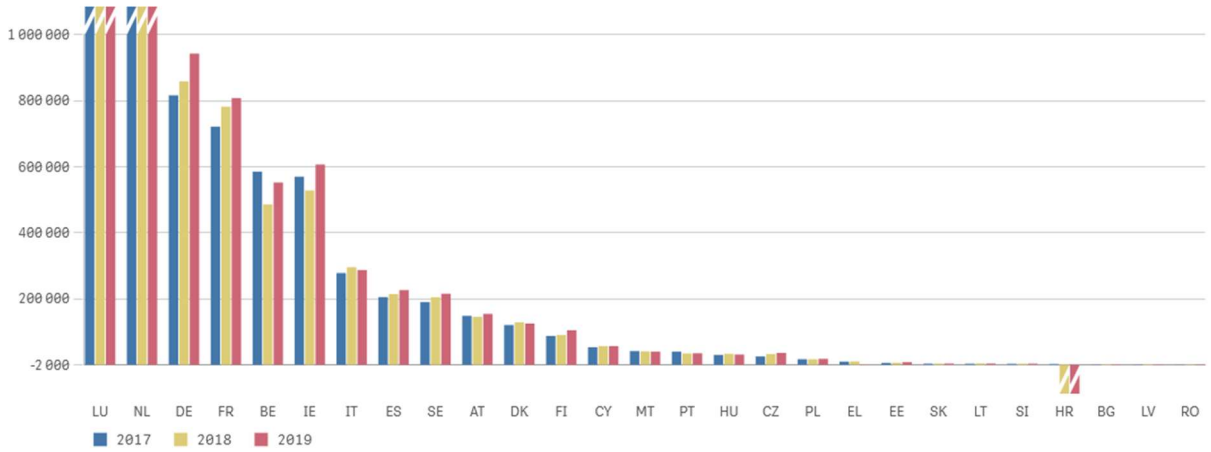
[37] See: https://www.oenb.at/en/financial-market/three-pillars-banking-union.html
[38] See: https://en.wikipedia.org/wiki/European_banking_union, and: https://www.oenb.at/en/financial-market/three-pillars-banking-union.html
[39] See: https://www.bankingsupervision.europa.eu/about/bankingunion/html/index.en.html

Deepening the CMU is a complex task and there is no single measure that will complete it. Therefore, the rulings must make progress in all areas where barriers to the free movement of capital still exist.

In 2020 the Commission proposed the "Capital Markets Union Action Plan" in which it formulated four objectives[40]

1) Support a green, digital, inclusive, and resilient economic recovery by making financing more accessible to European companies
2) Make the EU an even safer place for individuals to save and invest long-term
3) Integrate national capital markets into a genuine single market.

Figure 3.22: EU capital integration 2017, 2018, and 2019 (Outward intra-FDI stocks in Euro)



Source: Single Market Scoreboard[41]

On 25 November 2021 the European Commission adopted a package of measures to improve the ability of companies to raise capital across the EU and ensure that Europeans get the best deals for their savings and investments. Based on the 2020 Capital Markets Union Action Plan, the Commission issued four legislative proposals for this purpose[42].

(1) The European Single Access Point (ESAP): putting data at investors' fingertips
(2) Review of the European Long-Term Investment Funds (ELTIFs) Regulation: encouraging long-term investment, including by retail investors
(3) Review of the Alternative Investment Fund Managers Directive (AIFMD)

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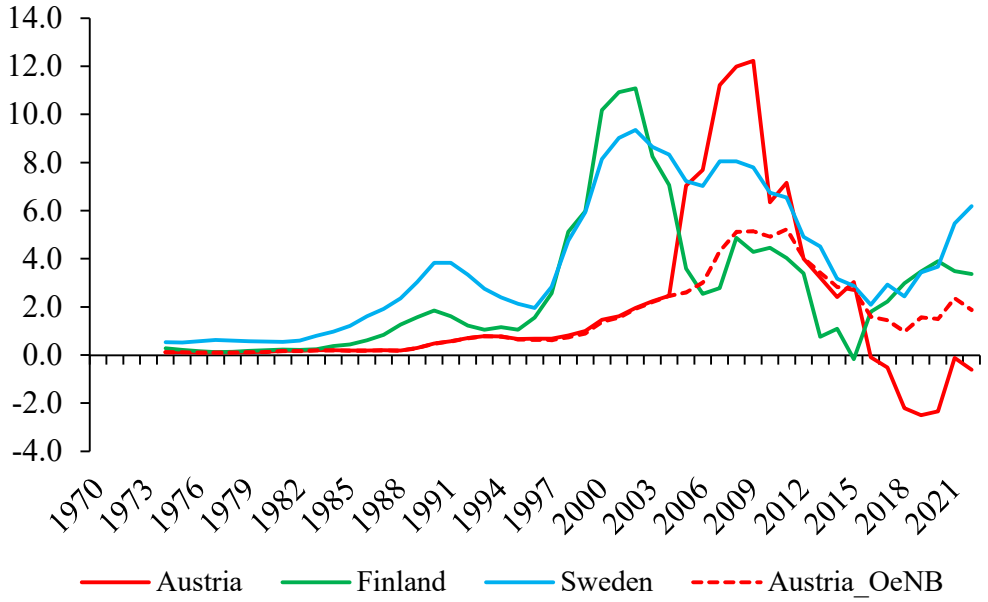
[40] See: https://finance.ec.europa.eu/capital-markets-union-and-financial-markets/capital-markets-union/capital-markets-union-2020-action-plan_en
[41] See: https://single-market-scoreboard.ec.europa.eu/integration_market_openness/foreign-direct-investments-fdi
[42] See: https://ec.europa.eu/commission/presscorner/detail/en/ip_21_6251

(4) Review of the Markets in Financial Instruments Regulation (MiFIR): enhancing transparency by introducing a "European consolidated tape" for easier access to trading data by all investors.

According to the data of the Single Market Scoreboard Luxembourg, the Netherlands and Germany invest absolutely the most in other EU MS (see Figure 3.22).

Figure 3.23: FDI net outward flows: Austria, Finland, Sweden
(in % of GDP, 5-year moving averages)



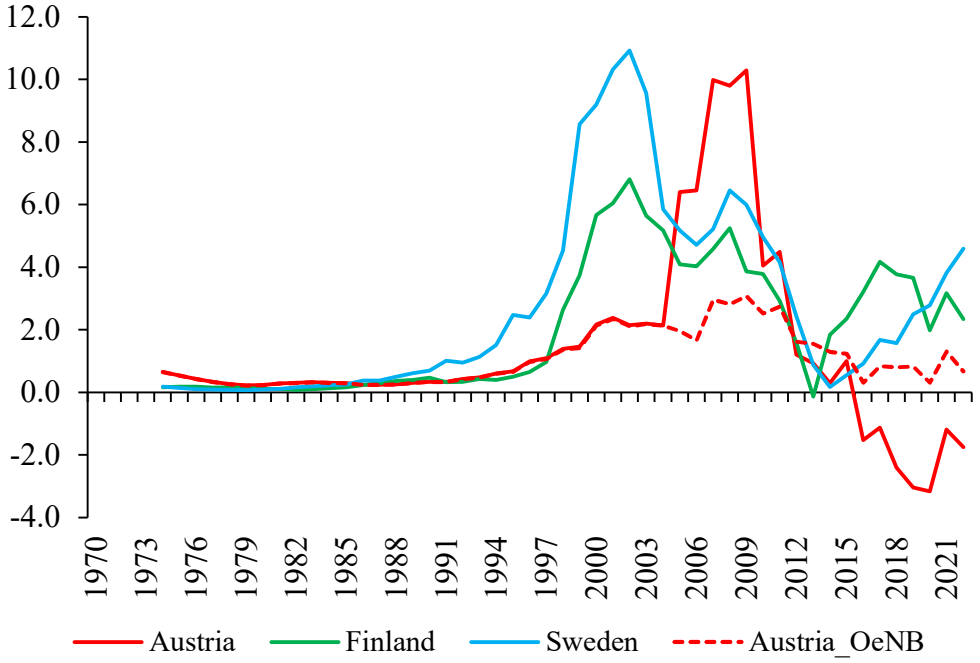
Sources: The World Bank: World Development Indicators, Foreign Direct Investment; Austria – dashed line – data from OeNB: Oesterreichische Nationalbank.

The international capital movements, measured by *foreign direct investments* (FDI flows) of the three countries are documented in the following figures. Figures 3.23, 3.24, and 3.25 show the outward, and inward flows and the balance of both flows.

All three countries experienced a boom in the development of FDIs at the beginning of the 21st century. Finland, and Sweden experienced a peak in *FDI outflows* as early as 2002, Austria only in 2010. According to data of the Oesterreichische Nationalbank (OeNB), this was not as pronounced shortly after the global recession in 2009 as indicated with data of the World Bank (see Figure 3.23). While Austria experienced a slump in FDI flows during the COVID crisis, they increased in the Scandinavian countries.

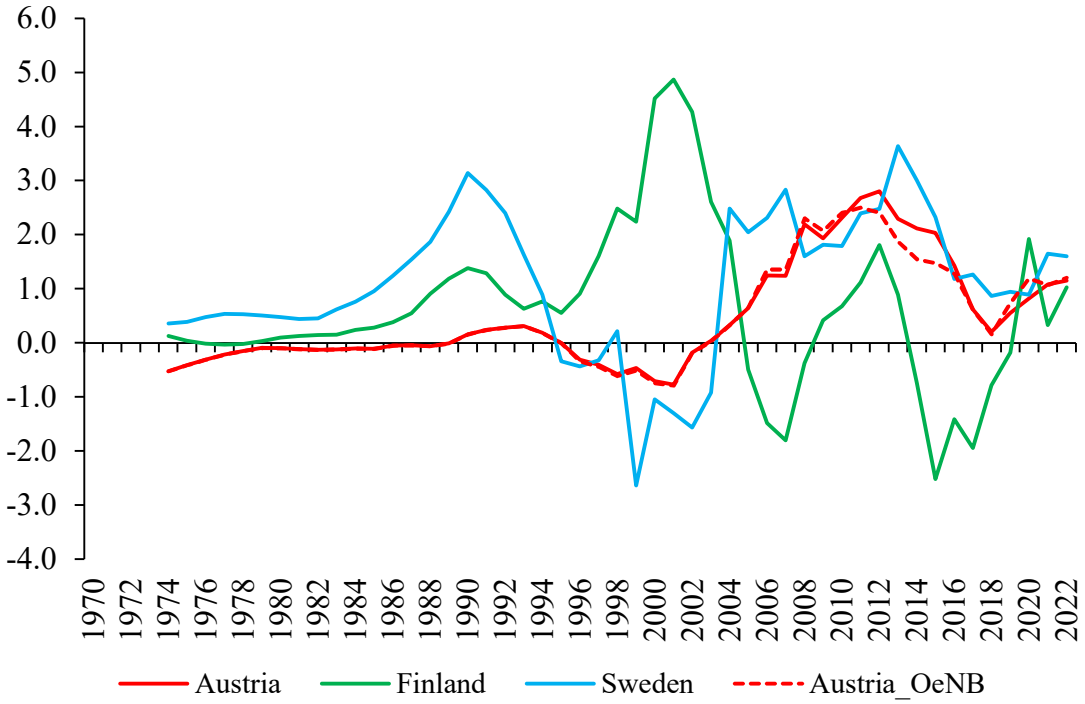
A similar pattern as shown for the outward flows of FDIs of the three countries can be seen in the development of *inward flows of FDI* (see Figure 3.24).

Figure 3.24: FDI net inward flows: Austria, Finland, Sweden
(in % of GDP, 5-year moving averages)



Sources: The World Bank: World Development Indicators, Foreign Direct Investment; Austria – dashed line – data from OeNB: Oesterreichische Nationalbank

Figure 3.25: FDI balance – outward minus inward flows: Austria, Finland, Sweden
(in % of GDP, 5-year moving averages)

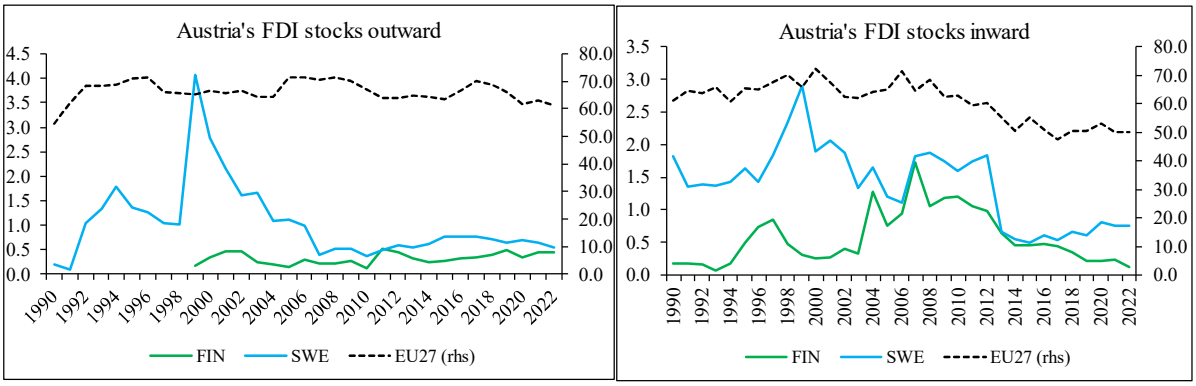


Sources: The World Bank: World Development Indicators, Foreign Direct Investment; Austria – dashed line – data from OeNB: Oesterreichische Nationalbank

On balance (FDI outflows minus inflows; see Figure 3.25) *Finland* experienced a peak in 2001, followed by one in 2012. *Sweden* had a long-lasting trough between 1995 and 2002. Since 2004 followed a peak in the net FDI flows. *Austria* showed a long period of zero balance of FDI flows, a trough at the beginning of the 21st century. Since then, the net FDI flows improved until the COVID crisis.

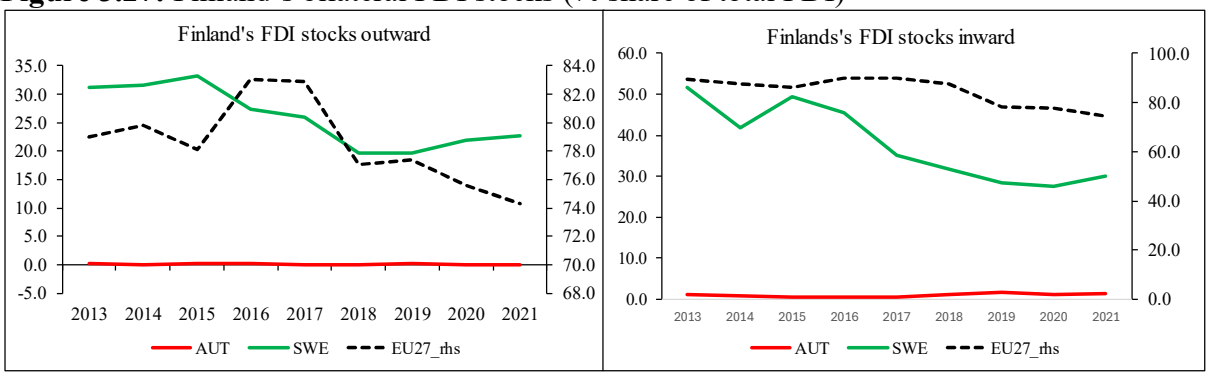
The bilateral FDI engagement of the three countries reached similar levels as the trade with goods and services. For *Austria*, Finland and Sweden are not very much important as FDI targets. Inward stocks of FDI are a little bit higher than outward stocks of FDI with both countries. Since the beginning of the 21st century, the Austria's bilateral FDI development with the Scandinavian countries declined. FDI stocks with EU27 (60% outward; 50-60% inward) are dominant in Austria (see Figure 3.26).

Figure 3.26: Austria's bilateral FDI stocks (% share of total FDI)



Source: OeNB: Oesterreichische Nationalbank; FDI with EU27 right scale.

Figure 3.27: Finland's bilateral FDI stocks (% share of total FDI)



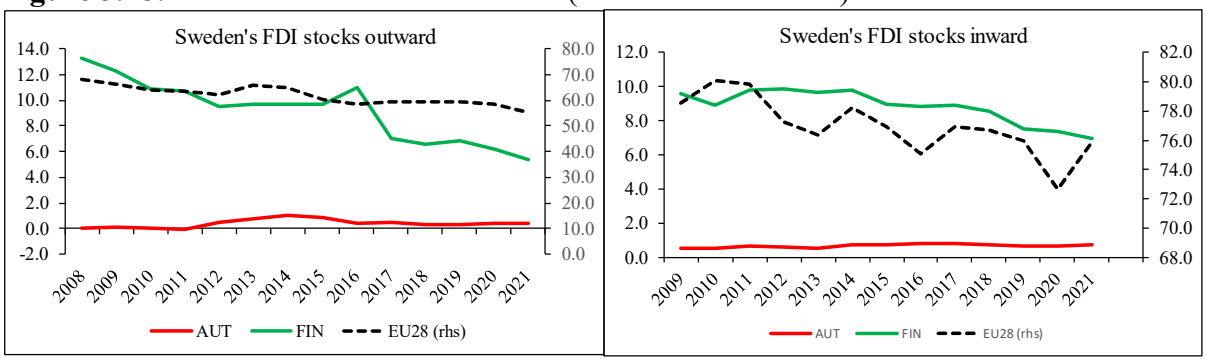
Source: Statistics Finland; FDI with EU27 right scale.

The share of *Finland's* FDI outward stock with the neighbour Sweden reached around 30% until 2015 (see Figure 3.27). Since then, a declining trend occurred. The share of Finland's FDI inward stock with Sweden also declined but starting from a high level of around 50%. Finland

invests very strongly in the EU, with a share of total FDI stocks of around 80% outward and inward. Austria plays practically no role as targeting country for their FDIs.

Sweden also invests directly heavily in its neighbour country Finland (see Figure 3.28) but not as much as Finland in Sweden. But on both sides, outward and inward the FDI shares declined since 2008. Sweden invested directly in Finland around 13% in 2008 but the share decline to below 6% in 2021. FDIs from Finland also decline but at a lower level (from 10% to 7%). FDI stocks with the EU28 are lower than those of Finland, although UK is included in the Swedish FDI shares. The share of FDI outward stocks amount to around 55% of total FDI stocks. The share of FDI inward stocks from EU28 is higher, in 2021 around 76% of total.

Figure 3.28: Sweden's bilateral FDI stocks (% share of total FDI)



Source: Sveriges Riksbank; FDI with EU28 right scale.

TARGET2

A specific instrument for the efficient capital movements within the Euro area is TARGET2, a real-time gross settlement (RTGS) system owned and operated by the Eurosystem[43]. Central banks and commercial banks can submit payment orders in euro to TARGET2, where they are processed and settled in central bank money, i.e., money held in an account with a central bank. TARGET2 settles payments related to the Eurosystem's monetary policy operations, as well as bank-to-bank and commercial transactions.

Every five days, TARGET2 processes a value close to the entire euro area GDP, which makes it one of the largest payment systems in the world. More than 1,000 banks use TARGET2 to initiate transactions in euro, either on their own behalf or on behalf of their customers. Considering branches and subsidiaries, more than 52,000 banks worldwide and all their customers can be reached via TARGET2.

[43] See ECB: https://www.ecb.europa.eu/paym/target/target2/html/index.en.html

3.1.4 Freedom of movement of people

In TFEU, Part Three, Title IV, Chapter 1 'Workers' rules the respective provisions in Article 45. In Paragraph (1) *"Freedom of movement for workers shall be secured within the Union" Paragraph (2) specifies: "Such freedom of movement shall entail the abolition of any discrimination based on nationality between workers of the Member States as regards employment, remuneration and other conditions of work and employment."*

But (Paragraph 4) these provisions shall not apply to employment in the public service. In each case of the four freedoms guaranteed by the TFEU law, the EU institutions had to issue directives and regulations to transform the fundamental provisions of TFEU law into practice. In case of the freedom of movement of people, Article 46 says: *"The European Parliament and the Council shall, acting in accordance with the ordinary legislative procedure and after consulting the Economic and Social Committee, issue directives or make regulations setting out the measures required to bring about freedom of movement for workers, as defined in Article 45, in particular:*

(a) By ensuring close cooperation between national employment services;

(b) By abolishing those administrative procedures and practices ... which would form an obstacle to liberalization of the movement of workers;

(c) By abolishing all restrictions provided for either under national legislation or under agreements previously concluded between Member States ...;

(d) By setting up appropriate machinery to bring offers of employment into touch with applications for employment and to facilitate the achievement of a balance between supply and demand in the employment market ...;"

The realized freedom of people (workers, students) in the Single Market is reinforced – at least within the Euro area – by the introduction of the Euro.

EU Charter of Fundamental Rights

Additionally, to the basic rights of free workers movements in the Single Market guaranteed by the TFEU, in the case of workers, also the law declared in the "Charter of the Fundamental Rights of the European Union"[44] is important in the implementation of the workers freedoms. Only to pick out some articles of the EU Charter of Fundamental rights may illustrate this:

[44] See: https://ec.europa.eu/info/aid-development-cooperation-fundamental-rights/your-rights-eu/eu-charter-fundamental-rights_en; and: Charter of Fundamental Rights of the European Union, 2012/C 326/02, OJ C 326/391 of 26.10.2012.

Article 15: Freedom to choose an occupation and right to engage in work

Article 16: Freedom to conduct a business

Article 18: Right to asylum

Article 31: Fair and just working conditions.

Schengen Area

An additional impulse or improvement for the realization of the free movement of people is also the "Schengen Agreement" of 1985[45]. In the Lisbon Treaty (TFEU), Protocol No 19 says: *"NOTING that the Agreements on the gradual abolition of checks at common borders signed by some Member States of the European Union in Schengen on 14 June 1985 and on 19 June 1990, as well as related agreements and the rules adopted on the basis of these agreements, have been integrated into the framework of the European Union by the Treaty of Amsterdam of 2 October 1997."*

The border-free Schengen Area guarantees free movement to more than 400 million EU citizens, along with non-EU nationals living in the EU or visiting the EU as tourists, exchange students or for business purposes (anyone legally present in the EU). Free movement of persons enables every EU citizen to travel, work and live in an EU country without special formalities. Schengen underpins this freedom by enabling citizens to move around the Schengen Area without being subject to border checks.

Today, the *Schengen Area* consists of 27 European countries. Of the 27 EU member states, 23 participate in the Schengen Area. Croatia joined the Schengen Area on 1 January 2023[46]. Of the four EU members that are not part of the Schengen Area, three — Bulgaria, Cyprus and Romania — are legally obligated to join the area in the future. Bulgaria and Romania are acceding members with air and maritime controls between the two countries, and the rest of the Schengen Area to be lifted on 31 March 2024. Austria is blocking the full Schengen membership of Bulgaria and Romania[47]. Ireland maintains an opt-out, and instead operates its own visa policy. The four EFTA member states, Iceland, Liechtenstein, Norway, and Switzerland, are not members of the EU, but have signed agreements in association with the Schengen Agreement. Also, three European microstates - Monaco, San Marino, and Vatican

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[45] For a detailed overview of all information concerning the Schengen Area, see: https://home-affairs.ec.europa.eu/policies/schengen-borders-and-visa/schengen-area_en

[46] At EU's Justice and Home Affairs Council meeting on 8 December 2022, Croatia became full member of Schengen. The applications of Bulgaria and Romania, however, were blocked by Austria and the Netherlands (See: https://www.consilium.europa.eu/de/meetings/jha/2022/12/08-09/)

[47] See also Schengen Area at Wikipedia: https://en.wikipedia.org/wiki/Schengen_Area

City - maintain open borders for passenger traffic with their neighbours, and are therefore considered *de facto* members of the Schengen Area.

Freer movement of Students and Researchers

Accompanying the measures for the free movement of workers, numerous initiatives were also started for students and scientists to use the free EU area more efficiently.

For the students ERASMUS[48] is a program for education, training youth and sport. In the area of Universities, a European Higher Education Area (EHEA[49]) was launched in March 2010, during the Budapest-Vienna Ministerial Conference, on the occasion of the 10th anniversary of the Bologna Process.

At the Western Balkan Summit in Berlin on 3 November 2022 in the context of the Berlin Process (started in 2014) progress was reached on[50]: (1) an energy support packages of €1 billion; and (2) three new Common Regional Market agreements, facilitating freedom of movement and employment across the Western Balkan region of six states: Albania, Bosnia and Herzegovina, Kosovo, Montenegro, North Macedonia, and Serbia.

On 27 March 2024, the European Commission rolled out plans for a European degree[51]. It should comprise a new type of joint programmes, delivered on voluntary basis at national, regional, or institutional level, and based on a common set of criteria agreed at European level. The three initiatives tackle the legal and administrative barriers to partner universities setting up competitive joint degree programmes at Bachelor, Master or Doctoral levels. The proposals build on universities' institutional autonomy and academic freedom. They fully respect the competences of Member States and regional governments in the area of higher education.

In 2025, the Commission plans to launch 'European degree pathway projects' within Erasmus+ programme to provide financial incentives for Member States, together with their accreditation and quality assurance agencies, universities, students, economic and social partners, to engage in the pathway towards a European degree.

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[48] See: https://erasmus-plus.ec.europa.eu/
[49] See: http://ehea.info/page-full_members
[50] See: https://ec.europa.eu/commission/presscorner/detail/da/ip_22_6478
[51] See: https://ec.europa.eu/commission/presscorner/detail/en/ip_24_1741

Struggle for a common EU migration and asylum policy

The huge influx of migrants in 2015, following a new wave in 2022, partly caused by the Russian invasion of the Ukraine revealed the weaknesses of EU's policy concerning migrants and asylum seekers.

On the website of the European Commission "Policy: Migration and asylum"[52] all aspects of the respective policy problems are mentioned. The main problem is the still nationalistic attitudes of the MS when it comes to the distribution of migrants.

Here, Schengen plays a role together with the "Dublin Regulation" which establishes which country is responsible for the asylum application process.

The Dublin Regulation (Regulation No. 604/2013; sometimes the Dublin III Regulation; previously the Dublin II Regulation and Dublin Convention) is a European Union (EU) law that determines which EU Member State is responsible for the examination of an application for asylum, submitted by persons seeking international protection under the Geneva Convention and the EU Qualification Directive, within the European Union.

The Commission is permanently trying to reform Schengen and Dublin in view of the efficient process of asylum policy[53]. On the respective website it states:

"The EU has developed a new approach to better manage all aspects of migration. It aims to combat irregular migration and smuggling, save lives and secure the EU's external borders while still attracting talent and skills."

In December 2023, the *New Pact on Migration and Asylum*, proposed by the European Commission in September 2020, has been agreed between the European Parliament and the Council[54]. The Pact is a set of regulations and policies to create a fairer, efficient, and more sustainable migration and asylum process for the European Union. The Pact is designed to manage and normalize migration for the long term, providing certainty, clarity and decent conditions for people arriving in the EU. It also establishes a common approach to migration and asylum that is based on solidarity, responsibility, and respect for human rights.

The agreement covers five key proposals of the Pact:

- *Screening Regulation:* Creating uniform rules concerning the identification of non-EU nationals upon their arrival, thus increasing the security within the Schengen area.

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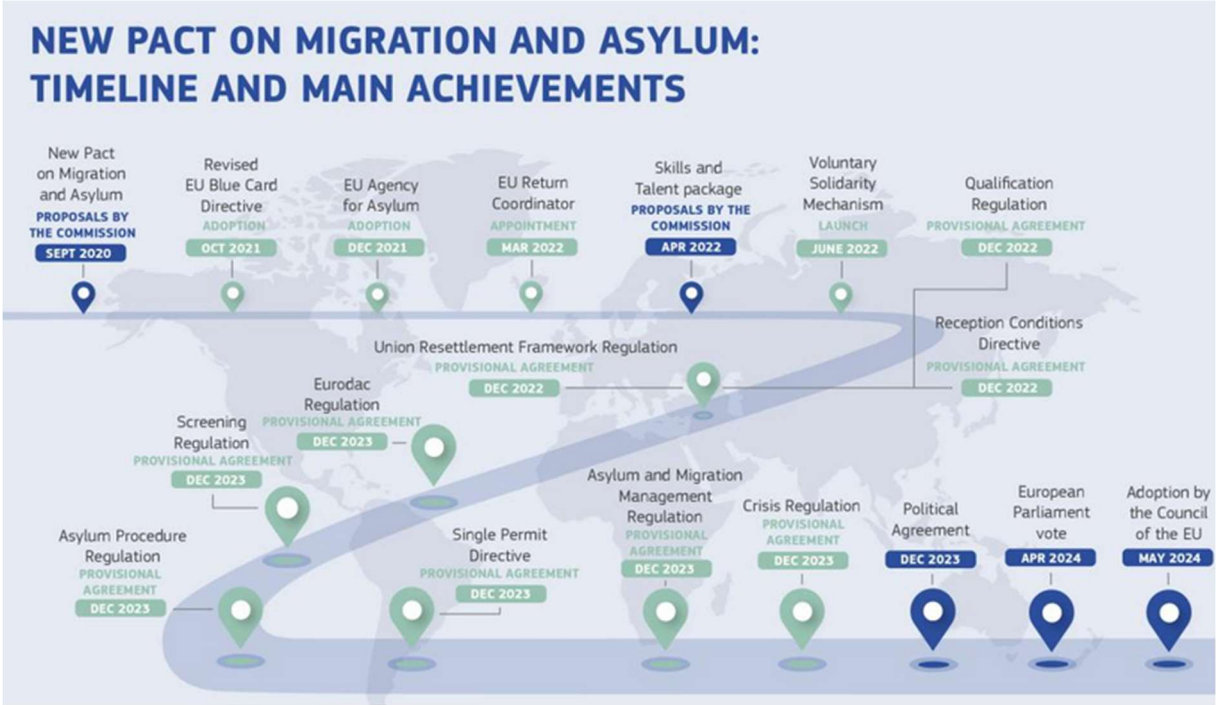
[52] See: https://ec.europa.eu/info/policies/migration-and-asylum_en

[53] See the Common European Asylum System (CEAS): https://home-affairs.ec.europa.eu/pages/glossary/common-european-asylum-system-ceas_en

[54] See: https://home-affairs.ec.europa.eu/policies/migration-and-asylum/new-pact-migration-and-asylum_en; see also more details on the *EU Pact on Migration and Asylum* on: https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/promoting-our-european-way-life/migration-and-asylum/new-pact-migration-and-asylum/delivering-eu-pact-migration-and-asylum_en

- *Eurodac Regulation:* Developing a common database gathering more accurate and complete data to detect unauthorised movements.
- *Asylum Procedures Regulation:* Making asylum, return and border procedures quicker and more effective. A major new feature is the mandatory border procedure. People in the asylum procedure are not authorised to enter the territory of the EU[55].
- *Asylum Migration Management Regulation:* Establishing a new solidarity mechanism amongst Member States to balance the current system, where a few countries are responsible for the vast majority of asylum applications, and clear rules on responsibility for asylum applications.
- *Crisis and Force majeure Regulation:* Ensuring that the EU is prepared in the future to face situations of crisis, including instrumentalising of migrants.

Figure 3.29: New Pact on Migration and Asylum: Timeline and Main Achievements



Source: European Commission: Migration and Home Affairs: https://home-affairs.ec.europa.eu/policies/migration-and-asylum/new-pact-migration-and-asylum_en

[55] Der Standard, 1./2. Juni 2024, p. 5, reports about the new reception center for migrants in Dugi Dol (Croatia). Migrants who want to enter the EU for the first time will be screened according to the new Asylum Procedures Regulation of the New Pact on Migration and Asylum. In November 2023, the Italian government concluded an asylum agreement with Albania, which provides for two reception camps to be set up in Albania. These camps are intended to accommodate migrants who are intercepted by the Italian coastguard in international waters. There is currently only one camp in Shenjin (see KURIER, June 5, 2024, p. 9 and ORF.at, 6 June 2024: https://orf.at/stories/3359735/).

Figure 3.29 summarizes the history of the Pact since ins proposal in September 2020. Prior to political agreement, the Pact had already delivered various outcomes:

- *Early warning:* Recommendation on an EU mechanism for preparedness (early warning) and management of crises related to migration**:**
- *Cooperation:* Recommendation on cooperation among EU Member States on search and rescue and guidance on non-criminalisation of search and rescue. Managing private vessels involved in Search and Rescue (SAR) operations (regular meetings; prevention of the criminalisation of SAR humanitarian operations).
- The *European Union Agency for Asylum (EUAA)* replaced the European Asylum Support Office (EASO) with more tools to support Member States in bringing greater convergence to asylum and reception practices at the EU's high standards.
- *Return Coordinator**:*** The EU Return Coordinator was appointed on 2 March 2022 to establish an effective and common European return system and improve the coordination of actions between the EU and the Member States.
- *Voluntary Solidarity Mechanism:* 23 EU Member States and associated countries have agreed since 22 June 2022 to support Member States under pressure, including by pledging to relocate some of their asylum seekers and through financial contributions. With relocations ongoing, more than 1000 asylum seekers have been relocated from Cyprus, Greece, Italy, Malta, and Spain by early 2023.

On 10 April 2024, the European Parliament adopted ten legislative texts to reform European migration and asylum policy as agreed with EU member states and hence approved EU's new Migration and Asylum Pact[56]. On 14 May 2024 the European Council adopted the EU's Pact on Migration and Asylum[57].

In a special report the European Court of Auditors (2024D), critically analysed the efficiency of the EU Emergency Trust Fund for Africa (EUTF). After the migration flows from Africa to the EU have fluctuated over the years, and peaking in 2014-2016, in 2015, the European Commission created the EUTF to address various crises in three African regions: the Sahel and Lake Chad, the Horn of Africa, and North Africa. While internal displacements in Africa are

[56] See: https://www.europarl.europa.eu/news/en/press-room/20240408IPR20290/meps-approve-the-new-migration-and-asylum-pact

[57] See: https://www.consilium.europa.eu/en/press/press-releases/2024/05/14/the-council-adopts-the-eu-s-pact-on-migration-and-asylum/

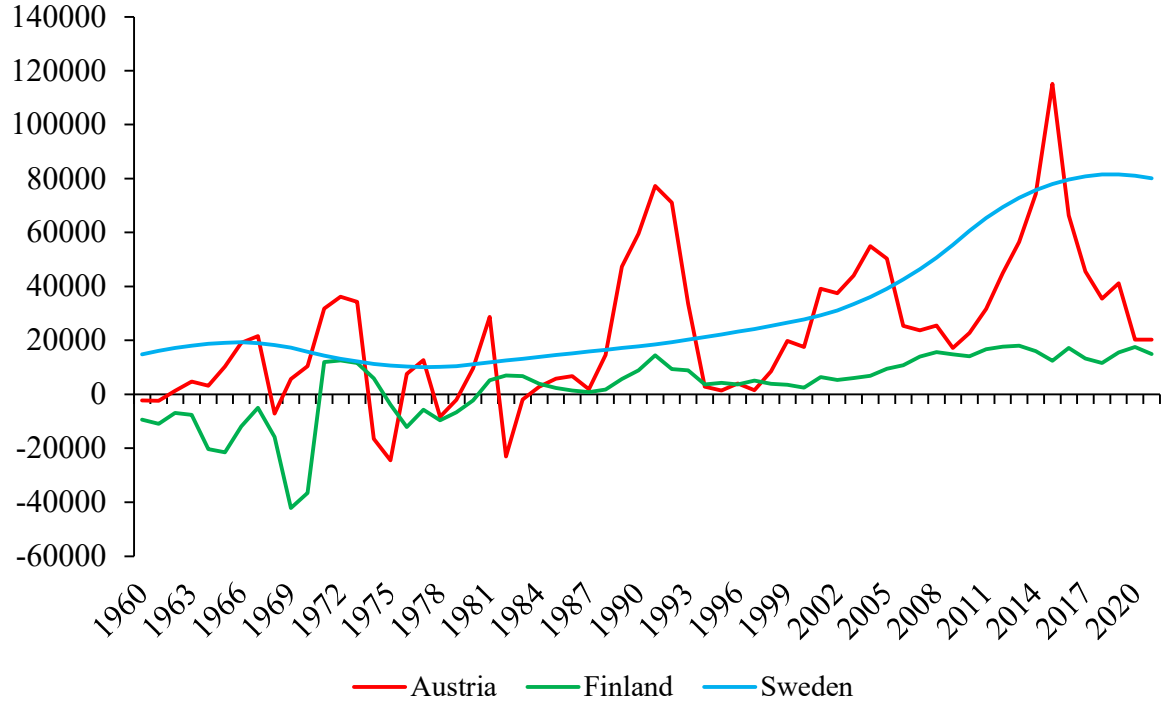
common, the Sahel is also one of the transit routes most frequently used by migrants travelling towards Europe. According to the report by the European Court of Auditors (ECA) report, the €5 billion EUTF is not concentrating enough on priorities to tackle the root causes of instability, irregular migration, and displacement on the African continent. Despite the auditors' previous call in 2018 to focus EUTF support, the special funding to deal with migration continues to be spread too thinly on the ground as it finances too broad a range of actions in the areas of development, humanitarian aid, and security. In addition, the reported results lack accuracy, and human rights risks are not properly addressed. The ECA summarizes its critique of the EUTF on three points:

- The EUTF is flexible, but still not properly focused on priorities
- Monitoring system lacks accuracy, leading to overstatement of achievements
- Risks of human rights violations are not thoroughly addressed.

Migration data

Based on net migration data of the United Nations Population Division, Figure 3.30 shows that Sweden has the largest net migration flow. Net migration measures the inflow minus the outflow of migrants. It is closely followed by Austria with a higher fluctuation. The biggest peak was in 2015. Finland has the smallest migration problem.

Figure 3.30: Net Migration: Austria, Finland, and Sweden (inflows minus outflows)



Source: The World Bank: World Development Indicators (WDI): Net Migration based on United Nations Population Division: World Population Prospects: 2022 Revision

(https://population.un.org/wpp/); World Bank Data: https://data.worldbank.org/indicator/SM.POP.NETM?locations=FI-AT-SE

The regular International Migration Outlook by the OECD identifies where the migrants come from and where they go. The latest report (OECD, 2023A) shows the following pictures for the three countries.

Austria

Most foreigners come from Germany. At the beginning of 2023 225.106 came from Germany (compared to 216.7 thousand in 2022; see Table 3.11)[58]. The second country from which foreigners are in Austria, is Romania (2023 147.400), followed by Serbia (122.016) and Turkey (119.720). The share of foreigners in % of population increased from 11.3% in 2012 to 17.5% in 2022. At the same time, the share of non-EU foreigners decreased from 60.1% to 54%.

Table 3.11: Austria: Stocks of foreign population by nationality (Thousands)

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	Of which: Women 2023 (%)
Germany	157.8	164.8	170.5	176.5	181.6	186.8	192.4	200.0	208.7	216.7	225.0	50
Romania	53.3	59.7	73.4	82.9	92.1	102.3	112.7	123.5	131.8	138.4	147.5	50
Serbia	111.3	112.5	114.3	116.6	118.5	120.2	121.3	122.1	122.0	121.6	121.9	49
Türkiye	113.7	114.7	115.4	116.0	116.8	117.3	117.2	117.6	117.6	117.6	119.7	49
Croatia	58.6	62.0	66.5	70.2	73.3	76.7	80.0	83.6	89.0	95.3	101.8	46
Hungary	37.0	46.3	54.9	63.6	70.6	77.1	82.7	87.5	91.4	94.4	99.7	52
Bosnia and Herzegovina	89.9	91.0	92.5	94.0	94.6	95.2	95.8	96.6	97.0	97.3	98.5	47
Syria	2.7	4.3	11.3	33.3	41.7	48.1	49.8	51.5	55.4	68.4	82.2	34
Ukraine	6.8	7.5	8.6	9.7	10.2	10.7	11.2	11.6	11.9	12.7	79.6	67
Poland	46.0	50.3	54.3	57.6	60.1	62.2	63.4	64.4	65.6	66.1	67.2	47
Slovak Republic	25.3	28.6	32.1	35.3	38.1	40.2	42.0	43.6	45.4	46.7	48.5	59
Afghanistan	12.4	14.0	16.8	35.6	45.3	45.7	44.4	43.7	44.0	45.1	47.4	36
Bulgaria	14.1	15.9	19.6	22.4	24.9	27.4	29.9	32.5	34.2	35.9	38.5	50
Italy	17.8	20.2	22.5	25.3	27.3	29.2	30.9	32.5	34.3	35.7	37.7	43
Russia	27.3	28.8	30.0	31.2	32.0	32.4	32.6	32.9	33.3	33.9	35.6	58
Other countries	230.2	245.7	263.5	297.4	314.9	324.4	332.5	342.7	349.5	360.8	360.1	
Total	**1004.3**	**1066.1**	**1146.1**	**1267.7**	**1341.9**	**1395.9**	**1438.9**	**1486.2**	**1531.1**	**1586.7**	**1710.7**	**49**
Population	8 477.2	8 543.9	8 629.5	8 739.8	8 795.1	8 837.7	8 877.6	8 916.9	8 951.5	9 052.9	9 130.7	
Total/Population in %	11.85	12.48	13.28	14.50	15.26	15.79	16.21	16.67	17.10	17.53	18.74	
EU Foreigners	409.9	447.8	493.8	533.8	568.0	601.9	634.0	667.6	700.4	729.2	765.9	
Non-EU Foreigners, %share	59.19	58.00	56.91	57.89	57.67	56.88	55.94	55.08	54.26	54.04	55.23	

Source: OECD (2024B), p. 339

Finland

In Finland dominate foreigners from the neighbourhood. At the first place from Estonia. At the beginning of 2023, 51.805 (2022 51.800; see Figure 3.12) came from Estonia, 30.049 from Russia[59]. The next places cover Iraq (15.075) and China (11.405). The total share of foreigners in % of population increased from 3.4% to 5.3%, those of on-EU foreigners from 76.8% to 79.9%.

[58] See: https://de.statista.com/statistik/daten/studie/293019/umfrage/auslaender-in-oesterreich-nach-staatsangehoerigkeit/

[59] See: https://de.statista.com/statistik/daten/studie/1031882/umfrage/top-20-staatsangehoerigkeiten-von-auslaendern-in-finnland/

Table 3.12: Finland: Stocks of foreign population by nationality (Thousands)

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	Of which: Women 2023 (%)
Estonia	39.8	44.8	48.4	50.4	51.5	51.5	51.5	50.9	50.9	51.8	51.8	47
Russia	30.2	30.8	30.6	30.8	31.0	29.2	28.7	28.5	28.9	30.0	33.4	52
Iraq	5.9	6.4	6.8	7.1	9.8	11.7	13.1	13.9	14.7	15.1	15.3	37
China	6.6	7.1	7.6	8.0	8.5	8.7	9.2	9.8	10.5	11.4	12.3	53
India	4.0	4.4	4.7	5.0	5.0	5.2	5.7	6.8	7.2	8.2	10.5	42
Ukraine	2.5	2.7	3.0	3.4	3.8	4.0	4.6	5.1	5.8	7.2	8.4	44
Afghanistan	3.0	3.2	3.5	3.7	5.3	5.8	6.2	6.7	7.1	7.7	8.4	37
Philippines	1.7	2.0	2.4	2.7	3.0	3.3	3.5	4.2	4.7	5.4	8.1	64
Thailand	6.0	6.5	6.9	7.2	7.5	7.5	7.6	7.8	7.9	7.9	8.1	84
Sweden	8.4	8.4	8.3	8.2	8.0	8.0	8.0	8.0	8.0	7.9	7.9	40
Syria	0.3	0.5	1.0	1.6	3.4	5.3	6.0	6.6	6.9	7.2	7.9	47
Viet Nam	3.3	3.6	4.0	4.6	5.3	5.6	5.9	6.4	6.6	7.2	7.8	51
Türkiye	4.3	4.4	4.5	4.6	4.7	4.7	4.8	5.2	5.7	6.1	6.7	38
Somalia	7.5	7.5	7.4	7.3	7.0	6.7	6.4	6.4	6.5	6.6	6.7	49
Serbia and Montenegro	3.0	3.2	3.4	3.5	3.6	3.8	4.0	4.3	4.7	5.4	6.5	37
Other countries	68.9	72.3	77.2	81.7	86.4	88.4	92.2	97.1	102.9	111.3	123.8	
Total	**195.5**	**207.5**	**219.7**	**229.8**	**243.6**	**249.5**	**257.6**	**267.6**	**278.9**	**296.5**	**323.7**	**45**
Population	5 439.0	5 462.5	5 480.5	5 495.3	5 508.2	5 516.2	5 521.6	5 530.7	5 541.5	5 556.9	5 577.4	
Total/Population in %	3.59	3.80	4.01	4.18	4.42	4.52	4.67	4.84	5.03	5.34	5.80	
EU Foreigners	48.200	53.200	56.700	58.600	59.500	59.500	59.500	58.900	58.900	59.700	59.700	
Non-EU Foreigners, %share	75.35	74.36	74.19	74.50	75.57	76.15	76.90	77.99	78.88	79.87	81.56	

Source: OECD (2024B), p. 342

Sweden

In Sweden dominate foreigners from Syria. At the beginning of 2023, 95.080 (2021 95.100; 2022 68.500; see Figure 3.13) came from Syria, 54.000 from Poland[60]. The next places cover Afghanistan (46.700) and Finland (43.1000). But already Eritrea and India came in places five and six. The share of foreigners in % of population increased from 6.9% in 2012 to 8.4% in 2022. In the meantime, those of the non-EU foreigners increased sharply from 70% to 78.4%.

Table 3.13: Sweden: Stocks of foreign population by nationality (Thousands)

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	Of which: Women 2023 (%)
Poland	44.6	46.1	48.2	50.8	52.5	54.0	54.9	55.5	53.8	54.0	56.2	42
Syria	9.1	20.5	42.2	70.0	116.4	132.1	137.1	116.4	95.1	68.5	53.7	45
Afghanistan	16.7	20.3	23.6	26.0	28.0	37.4	45.4	49.6	48.5	46.7	45.1	35
Finland	65.3	62.8	59.7	57.6	55.8	53.8	51.0	48.7	46.1	43.1	40.2	58
India	8.4	9.2	10.4	11.4	13.5	17.1	22.2	27.0	28.3	31.7	36.3	42
Eritrea	10.0	12.8	18.0	25.1	32.1	36.4	39.7	43.0	43.5	42.4	36.2	43
Germany	28.0	28.1	28.2	28.2	28.7	29.0	29.2	29.5	29.0	29.9	32.2	50
Norway	34.8	34.6	34.5	34.4	34.6	34.7	34.5	34.5	32.6	30.7	29.3	51
Denmark	40.2	39.3	38.4	37.1	35.2	33.4	31.5	30.2	29.1	27.4	26.4	42
Romania	11.2	12.0	13.0	14.4	15.5	16.9	18.2	19.3	18.9	19.6	20.9	41
Iraq	43.2	31.2	25.9	23.2	22.7	25.3	26.4	25.9	23.4	22.2	20.2	41
Somalia	36.1	45.0	47.1	46.2	41.3	36.4	32.4	30.9	28.9	24.8	19.3	48
Pakistan	7.2	7.2	7.3	7.3	7.8	8.3	9.4	11.7	13.2	15.7	18.2	41
Lithuania	8.7	9.5	10.4	11.3	12.2	13.6	14.6	15.5	15.6	16.0	16.9	44
Iran	14.5	14.8	14.9	14.1	14.2	14.6	15.2	15.9	15.6	16.3	16.8	45
Other countries	289.3	301.3	317.7	325.8	341.5	354.4	370.8	386.9	370.8	379.2	397.3	
Total	**667.2**	**694.7**	**739.4**	**782.8**	**851.9**	**897.3**	**932.3**	**940.6**	**892.3**	**868.2**	**865.3**	**46**
Population	9598.95	9697.03	9799.19	9923.08	10057.7	10175.21	10278.89	10353.44	10415.81	10512.12	10592.7	
Total/Population in %	6.95	7.16	7.55	7.89	8.47	8.82	9.07	9.08	8.57	8.26	8.17	
EU Foreigners	198.0	197.8	197.9	199.4	199.9	200.7	199.4	198.7	192.5	190.0	192.8	
Non-EU Foreigners, %share	70.32	71.53	73.24	74.53	76.53	77.63	78.61	78.88	78.43	78.12	77.72	

Source: OECD (2024B), p. 352

[60] See: https://de.statista.com/statistik/daten/studie/1031889/umfrage/top-20-staatsangehoerigkeiten-von-auslaendern-in-schweden/

International migration agreements

Following the example of the EU-Turkey Deal on migration[61], further bilateral agreements with African states are being sought between the EU and African countries. The most recent agreement was reached with Tunisia. It concerns the possible repatriation of illegal migrants or those who are not entitled to asylum. In support of the implementation of the Memorandum of Understanding (MoU) on a strategic and comprehensive partnership between the EU and Tunisia, the Commission announced €60 million in budget support for Tunisia and an operational assistance package on migration worth around €67 million on 22 September 2023[62]. As a first reaction, the Tunisian government refused to accept the EU money.

Although the EU has repeatedly tried new approaches to persuade African states to take back illegal migrants in the EU, the successes have been modest. This is astonishing, as existing partnership agreements already provide for such deals. In particular the migration question is already ruled in the agreements with the ACP (African, Caribbean and Pacific) countries, in the Lome agreement of 2000, the follower Cotonou Agreement of 2021, and in the latest updated agreement, the Samoa Agreement.

The *Lomé Convention* was an agreement between the EC states and 77 developing countries in Africa, the Caribbean, and the Pacific (ACP states), named after the Togolese capital Lomé. It was signed on 28 February 1975 as the successor to the *Yaoundé Convention* and was supplemented on 31 October 1979 by Lomé II, on 8 December 1984 by Lomé III and on 15 December 1989 by Lomé IV. On June 23, 2000, the treaty was replaced by the subsequent Cotonou Agreement.

The *Cotonou Agreement* is a treaty between the European Union and the ACP countries. This Partnership Agreement was signed in June 2000 in Cotonou, Benin's largest city, by 78 ACP countries (Cuba did not sign) and the then fifteen Member States of the European Union. It entered into force on 1 April 2003 and was subsequently revised in 2005 and 2010.

Negotiations on a Cotonou follow-up agreement between the EU and the ACP countries began in September 2018, as the term of the Cotonou Agreement was limited and was due to end in 2020. In April 2020, the ACP Group of States became an international organization: the Organization of African, Caribbean and Pacific States (OACPS). The OACPS consists of 79

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[61] See more details on the EU-Turkey Deal as of March 2016, after the wave of immigrants to the EU in the year 2015. The EU paid 6 billion euros in aid to Turkey for Syrian migrant communities against an update of the customs union, and re-energizing stalled talks regarding Turkey's accession to the European Union: https://www.migrationpolicy.org/article/eu-turkey-deal-five-years-on. See also the EU-Turkey joined action plan of 2015: https://ec.europa.eu/commission/presscorner/detail/en/MEMO_15_5860

[62] See: https://neighbourhood-enlargement.ec.europa.eu/news/commission-announces-almost-eu127-million-support-implementation-memorandum-understanding-tunisia-2023-09-22_en

member states, all of which (except Cuba) have signed the Cotonou Agreement. On 15 April 2021, negotiations on a new partnership agreement (Post Cotonou Agreement) between the EU and the OACPS were concluded and signed by the chief negotiators. The application of the Cotonou Agreement was extended until November 30, 2021.

On 15 November 2023, in Apia, Samoa, the EU and its Member States signed a new Partnership Agreement with the Members of the African, Caribbean and Pacific States (OACPS) that will serve as an overarching legal framework for their relations for the next twenty years. This agreement succeeds the Cotonou Agreement and will be known as the *"Samoa Agreement"*[63]. The agreement covers subjects such as sustainable development and growth, human rights and peace and security.

The denomination of the Agreement was agreed at the 46th session of the ACP-EU Council of Ministers, which took place right before the signature ceremony, also in Samoa.

The new partnership agreement will serve as the new legal framework for EU relations with 79 countries. This includes 48 African, 16 Caribbean and 15 Pacific countries.

The new Partnership Agreement lays down common principles and covers the following priority areas:

- human rights, democracy and governance
- peace and security
- human and social development
- inclusive, sustainable economic growth and development
- environmental sustainability and climate change
- migration and mobility

The agreement includes a common foundation, which applies to all Parties, combined with three regional protocols for Africa, the Caribbean and the Pacific with a focus on the specific needs of each region.

The 27 EU member states and the 79 African, Caribbean and Pacific countries together represent around 2 billion people and more than half of the seats at the United Nations.

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[63] See the website of the European Commission: https://ec.europa.eu/commission/presscorner/detail/en/ip_23_5723; and the website of the Council: https://www.consilium.europa.eu/en/press/press-releases/2023/11/15/samoa-agreement-eu-and-its-member-states-sign-new-partnership-agreement-with-the-members-of-the-organisation-of-the-african-caribbean-and-pacific-states/; and the content of the Samoa Agreement, see: https://www.consilium.europa.eu/de/policies/samoa-agreement/

The provisional application of the Agreement started on 1 January 2024. The Agreement will enter into force upon consent by the European Parliament and ratification by the Parties, i.e. all EU Member States and at least two thirds of the OACPS Members.

Right of Establishment

In TFEU, Part Three, Title IV, Chapter 2 'Right to Establishment' rules the respective provisions in Article 49:

"...restrictions on the freedom of establishment of nationals of a Member State in the territory of another Member State shall be prohibited. Such prohibition shall also apply to restrictions on the setting-up of agencies, branches or subsidiaries by nationals of any Member State established in the territory of any Member State."

"Freedom of establishment shall include the right to take up and pursue activities as self-employed persons and to set up and manage undertakings, in particular companies or firms within the meaning of the second paragraph of Article 54 (...constituted under civil or commercial law ...), under the conditions laid down for its own nationals by the law of the country where such establishment is effected, subject to the provisions of the Chapter relating to capital.

The Right of Establishment is complementary to the other freedoms, particularly those of services, capital, and persons.

3.2 Macropolitical options in the EU

As a result of the global financial crisis (GFC) in 2008, followed by the Great Recession in 2009 and in the Euro area, since 2010 the Euro area crisis, various reforms were started to plug the gaps in the economic governance of the EU, and in particular the Economic and Monetary Union (EMU).

With the Treaty of Maastricht of 1992 (entering into force on 1 November 1993) the EU established the architecture of the Economic and Monetary Union (EMU) as a prelude to the creation of the euro. Economic governance refers to the system of institutions and procedures established to coordinate economic policies to achieve Union objectives in the economic field. The framework comprises an elaborate system of policy coordination and surveillance of member states' economic policies. It relies on the principles of monitoring, prevention and the correction of imbalances that could pose risks for member states' economies.

The basic idea of EMU is the asymmetric policy design. There is a central institution, the ECB which gears the monetary policy for the Euro area members. As one could not agree on a

central fiscal policy (which would enhance the United States of Europe), fiscal policy is still in the competence of the member states. In order not to counteract the central monetary policy by country-wise fiscal shocks, a strong regime of policy coordination has been implemented (Stability and Growth Pact, European Semester, Macroeconomic Imbalance Procedure etc.).

Economic governance refers to the system of institutions and procedures established to coordinate economic policies to achieve Union objectives in the economic field. The framework comprises an elaborate system of policy coordination and surveillance of member states' economic policies. It relies on the principles of monitoring, prevention and the correction of imbalances that could pose risks for member states' economies[64]. Functioning in tandem with the single currency in the euro area and its associated single monetary policy, the EU's economic governance framework should have contributed to economic stability, growth and higher employment**.**

Overall, the European Union's economic governance framework aims to monitor, prevent, and correct problematic economic trends that could weaken national economies or negatively affect other EU countries[65].

In the good weather period from 1999 to 2002, the governance of the EMU worked quite well. However, the shocks of the GFC and the Great Recession revealed the weaknesses of the Economic Governance regime of the EMU. Reforms were urgently needed.

3.3 New EMU Economic Governance

3.3.1 Fiscal Policy in need for coordination

The Great Recession of 2009 and more so the following Euro area crisis made it clear that the policy design of EMU and hence its Economic Governance had to be overhauled. Since 2010 the EU, by EU law (community method) and partly only the Euro area member states (intergovernmental) have developed new instruments for a "New Economic Governance" of EMU which can be grouped into measures in the context of the (A) *"European Semester"* and (B) *"Rescue measures"* for states and banks (see the overview in Table 3.14)[66].

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[64] See: https://www.consilium.europa.eu/en/policies/economic-governance-framework/

[65] See: https://economy-finance.ec.europa.eu/economic-and-fiscal-governance_en

[66] The time line of the reform steps of EMU economic governance can be found on the website of the European Commission: https://economy-finance.ec.europa.eu/economic-and-fiscal-governance/timeline-evolution-eu-economic-governance_en; see also Breuss (2016B).

(A) European Semester

The European Semester[67] is now the major instrument of economic policy coordination for short-term (fiscal policy of EU member states) and medium-term issues (the "growth and job programme" of "*Europe 2020*"; see European Commission, 2010A). It is a six-month cycle of economic policy coordination in the first half of each year (it started in spring 2011) which covers all 27 EU Member States. It relates to a procedure for the *ex-ante* assessment of Member States' structural reforms, budget plans, and macroeconomic imbalances. The main innovation introduced by the European Semester is that the enforcement of economic policy coordination is now being extended right through to the budgetary process of all the Member States. The tools of the European Semester are firmly rooted in the jointly agreed Europe 2020 Strategy and in the reformed Stability and Growth Pact (SGP). The SGP requires euro area member states to deliver stability programs (Austria and Finland), whereas the non-euro countries (Sweden) must provide convergence programs.

Table 3.14: New economic governance of EMU since 2020

European Semester			**Rescue of States and Banks**	
"Six-Pack" *Fiscal policy coordination* **SGP-III** **Macro-economic imbalances** **"Two-Pack"** additional national budget monitoring	**"Fiscal Compact"** (TSCG) * medium-term benchmark of structural budget deficit is 0.5% of GDP * ***"Debt brakes"*** in national law ***Euro Plus Pact*** * Competitiveness * Employment * Financial market stable	**Europe 2020** ***Growth & Job programme*** * smart * sustainable * inclusive growth ***Single Market Act***	**Rescue Measures** *Member States* (Greece, Ireland, Portugal, Spain, Cyprus) **EFSF** (2010-2012) **ESM** (2012+)	**Financial Supervision System** *** ESFS** **ESRB - ECB** *3 agencies:* * EBA London * EIOPA Frankfurt * ESMA Paris **European Banking Union (EBU)** (2014 +)

SGP = Stability and Growth Pact; EFSF = European Financial Stability Facility; ESFS = European System of Financial Supervision; ESM = European Stability Mechanism; ESRB = European Systemic Risk Board; EBA = European Banking Authority; EIOP = European Insurance and Occupational Pension Authority; ESMA = European Securities and Markets Authority; TSCG = Treaty on Stability, Coordination and Governance in the EMU ("Fiscal Compact").
Source: Breuss (2016B), p. 343.

- The *public debt crisis* has being fought by a reform of the fiscal policy coordination mechanism: the Stability and Growth Pact (SGP-III) within the legal framework of the "Six-

[67] For further details see the website of the European Commission (Economic and Financial Affairs): "The European Semester": https://commission.europa.eu/business-economy-euro/economic-and-fiscal-policy-coordination/european-semester_en.

Pack[68]" and additionally an early monitoring of Euro area countries in the "Two-Pack" arrangements. An intergovernmental treaty, the "Fiscal Compact" complements the reform of the SGP in targeting a reduction of the structural budget deficits and in slowing down the public debt dynamic by installing a "debt break".

- The *macro-imbalances crisis* (the diverging development of competitiveness and performance in the current account) is for the first time monitored by a Macroeconomic Imbalance Procedure.

(B) Rescue of States and Banks

The EMU policy design did not foresee any rescue measures for Member States in danger of insolvency because of over indebtedness. In contrast, Article 125 of the TFEU prohibits Member States of the EU/Euro area to bail-out other Member States. This "no-bail out" clause had to be overruled during the Euro crisis, starting with the Greek crisis in 2010. New rescue instruments had to be created (EFSF and the permanent ESM[69]) to help failed Euro area members. Furthermore, the financial sector, one of the originators of the crisis had to be stabilized.

The *banking crisis* has been addressed by the installation of a financial supervision system (ESFS with three agencies since 2011; see Table 3.14). Finally, the banking sector should be better supervised and in case of failure more efficiently liquidated within the framework of the "European Banking Union" (EBU). By switching from the principle of "bail-out" to "bail-in" one hopes to break the vicious circle of bank failures and public intervention at the expense of the taxpayer.

"More Europes" or "More Europe"?

The Euro crisis has led to a diversification of the EU in several respects: (i) the burden of the Euro crisis was shouldered solely by the Euro Member States (primarily by the core countries); (ii) most of the new crisis instruments (EMS) and the main elements of the new EMU governance (Fiscal Compact; EBU) refer only to members of the Euro zone. In this sense the Euro crisis has further enhanced the already existing EU as a "Europe à la carte" (ins and outs

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[68] The "Six-Pack" consists of 5 Regulations and 1 Directive and entered into force on 13 December 2011.

[69] The ESM – signed finally on 2 February 2012 by the heads of state or government of the Euro area member states - is a permanent crisis resolution mechanism for the countries of the euro area. In order to make the ESM in conformity of EU law Article 136 of the TFEU was amended by two lines ("*The member states whose currency is the euro may establish a stability mechanism to be activated if indispensable to safeguard the stability of the euro area as a whole. The granting of any required financial assistance under the mechanism will be made subject to strict conditionality"*). It was signed by 27 EU member states on 25 March 2011.

of the Euro and Schengen). This raises the question whether we may live furthermore in an EU with "more Europes" or whether not more Europe, a further centralization towards the "United States of Europe" is needed.

Saving the Eurozone and the Euro – "Whatever it takes"

Shortly after the outbreak of the Euro crisis, triggered by the Greek public debt crisis in 2010 the break-up of the Euro zone stood at the brink. The no-bail out clause of the Lisbon Treaty (Article 125 TFEU) was thought to be enough to avoid an insolvency of a Euro area Member State. The succession of crises (GFC, Great Recession) which led to the Euro crisis taught the opposite. But the EMU envisaged no rescue instruments and no procedure to bail-out a failing country. Step by step new rescue instruments were created, firstly only on a bilateral basis (EFSF), later the ESM (see Table 3.14). With these new instruments the Euro area partner countries could stabilize the debt crisis in Greece, Ireland, and Portugal. Later Cyprus and Spain was supported in their banking crises.

The rescue operations started first for Greece, then followed by those for Ireland, Portugal, Cyprus and Spain, each under different targets, either to avoid sovereign default (Greece, Ireland and Portugal) or to rescue the banking system (Cyprus and Spain). The biggest bail-out was executed for Greece, followed by Portugal, Ireland, Spain, and Cyprus.

The rescue operation for the PIIGS (Portugal, Ireland, Italy, Greece, and Spain) and three important political statements stopped the expectation that the Euro zone could break. Commissions President José Manuel Barroso (in November 2011) and German Chancellor Angela Merkel (in August 2012) declared to do whatever they can do to keep the Euro area in its present dimension of 19 Member States. These commitments and the most important message by ECB President Mario Draghi made off the record in his speech at the Global Investment Conference in London, 26 July 2012 (*"Within our mandate, the ECB is ready to do whatever it takes to preserve the euro". "And believe me, it will be enough")* helped to reduce the probability of a breaking-up of the Eurozone.

New features of EU's Economic Governance

After the crisis in the eurozone was overcome and the reformed instruments of EMU economic governance were implemented, new elements were added. The website of the European

Commission "Economic and fiscal governance"[70] lists the following elements which form the new design of Economic Governance:

- The European Semester
- Stability and Growth Pact
- Monitoring national economic policies
- Macroeconomic Imbalance Procedure
- Economic governance review after the GFC (26 April 2023)
- Green budgeting in the EU
- National Productivity Boards
- European Fiscal Board (EFB) – independent advisory body
- Fiscal frameworks in the EU Member States
- European Growth Model – towards a green, digital and resilient economy

The suspension of fiscal rules during the Coronavirus crisis

Shortly after the outbreak of the COVID-19 crisis, on 23 March 2020, the Ministers of Finance of the Member States of the EU agreed with the assessment of the European Commission, that the conditions for the use of the general escape clause of the EU fiscal framework – a severe economic downturn in the euro are or the Union as a whole – are fulfilled[71].

Shortly after the Russian invasion of Ukraine on 24 February 2022, on 2 March 2023, The European Commission in its "Fiscal policy guidance for 2023", decided to suspend further the fiscal rules applying the general escape clause of the SGP until the end of 2023[72] as the reaction to the COVID-19 crisis and the Russian-Ukraine war. The Pandemic-related temporary emergency measures were mostly phased out in 2022. However, the invasion of Ukraine is expected to have a negative impact on the economic outlook (increased inflation with a downturn of the economy). The so called "general escape clause" of the Stability and Growth Pact (SGP) which was activated on 23 March 2020[73], therefore was said to continue to apply in 2022. The general escape clause has therefore been activated until the end of 2023.

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[70] See: https://economy-finance.ec.europa.eu/economic-and-fiscal-governance_en

[71] See: https://www.consilium.europa.eu/en/press/press-releases/2020/03/23/statement-of-eu-ministers-of-finance-on-the-stability-and-growth-pact-in-light-of-the-covid-19-crisis/

[72] See: https://economy-finance.ec.europa.eu/system/files/2022-03/com_2022_85_1_en_act_en.pdf

[73] See the fiscal policy responses to coronavirus pandemic by the European Commission: https://ec.europa.eu/commission/presscorner/detail/en/ip_21_884

Reform of EU's economic governance

On 8 March 2023, the Commission provided guidance to Member States on the conduct and coordination of fiscal policy for 2024[74]. This guidance comes as discussions on the future economic governance framework are ongoing. Overall, fiscal policies in 2024 should ensure medium-term debt sustainability and promote sustainable and inclusive growth in all Member States.

In the meantime, a reform of the complicated rules of the SGP has been discussed, based on the communication of the European Commission as of 9 November 2022 on "Building an economic governance framework fit for the challenges ahead"[75]. On 10 February 2024 an agreement has been reached between the European Parliament and the Council on the most ambitious and comprehensive reform of the *EU's economic governance framework* since the aftermath of the economic and financial crisis. The Commission presented its latest reform proposals in April 2023[76].

The EU's economic governance framework consists of the EU fiscal policy framework (the *Stability and Growth Pact (SGP)* and requirements for national fiscal frameworks) and the *Macroeconomic Imbalance Procedure*, which are implemented in the context of the *European Semester* for policy coordination, as well as the framework for macroeconomic financial assistance programs.

The new framework also builds on the lessons learned from the EU policy response to the financial crisis where a lack of investment hampered a swift economic recovery. The adjusted rules include the following changes:

- *Stronger national ownership with medium-term plans*
- *Simpler rules to take account of different fiscal challenges:* SGP targets of a deficit of 3% of GDP and public debt of 60% of GDP remain, but the Commission issues a country-specific "reference trajectory". Countries with excessive debt would be subject to safeguard rules requiring them, amongst others, to reduce their debt on average by 1% per year if their debt is above 90% of GDP, and by 0.5% per year on average if their debt is between 60% and 90% of GDP. These provisions are less restrictive than the current requirement that every country should cut debt annually by 1/20 of the excess above 60%.

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[74] See: https://ec.europa.eu/commission/presscorner/detail/en/ip_23_1410

[75] See the European Commission: https://ec.europa.eu/commission/presscorner/detail/en/ip_22_6562

[76] See European Commission: https://ec.europa.eu/commission/presscorner/detail/en/ip_24_711; and European Parliament: https://www.europarl.europa.eu/news/de/press-room/20240205IPR17419/deal-on-eu-economic-governance-reform

- *Promoting reforms and investment:* investment commitments of the national RRP will be taken into account.

After the European Parliament has approved the *New EU fiscal rules* on 23 April 2024[77], the Economic and Financial Affairs Council (ECOFIN) adopted the reform of fiscal rules on 29 April 2024[78]. The package consists of three pieces of legislation[79] that will reform the EU's economic and fiscal governance framework. The main objective of the reform is to ensure sound and sustainable public finances, while promoting sustainable and inclusive growth in all member states through reforms and investment**.** The new framework should reduce debt ratios and deficits in a gradual, sustainable, and growth-friendly manner, while protecting reforms and investments in strategic areas such as digital, green or defence. It will provide appropriate room for counter-cyclical policies and help address existing macroeconomic imbalances.

The essential elements are the following:

1) *Preventive measures for sound public finances:* Under the new rules, all member states will be asked to prepare a national medium-term fiscal structural plan that spans over 4-5 years, depending on the length of the national legislature. Ahead of this, the Commission will submit a "reference trajectory" for net expenditure developments to member states where government debt exceeds the 60% of gross domestic product (GDP) or where the government deficit exceeds the 3% of GDP. The new rules contain two safeguards (a debt sustainability safeguard to ensure a minimum decrease in public debt levels; and a deficit resilience safeguard to create a fiscal buffer around the 3% deficit target).
2) *Correcting excessive public debts and deficits:* The reform updates the excessive deficit procedure (EDP). The Commission will prepare reports when the ratio of government debt to GDP exceeds the reference value; the budget position is not close to balance or in surplus, and the deviations either exceed 0.3 ppts of GDP annually, or 0.6 ppts of GDP cumulatively.

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[77] See: https://www.europarl.europa.eu/news/en/press-room/20240419IPR20583/new-eu-fiscal-rules-approved-by-meps

[78] See: https://www.consilium.europa.eu/en/press/press-releases/2024/04/29/economic-governance-review-council-adopts-reform-of-fiscal-rules/

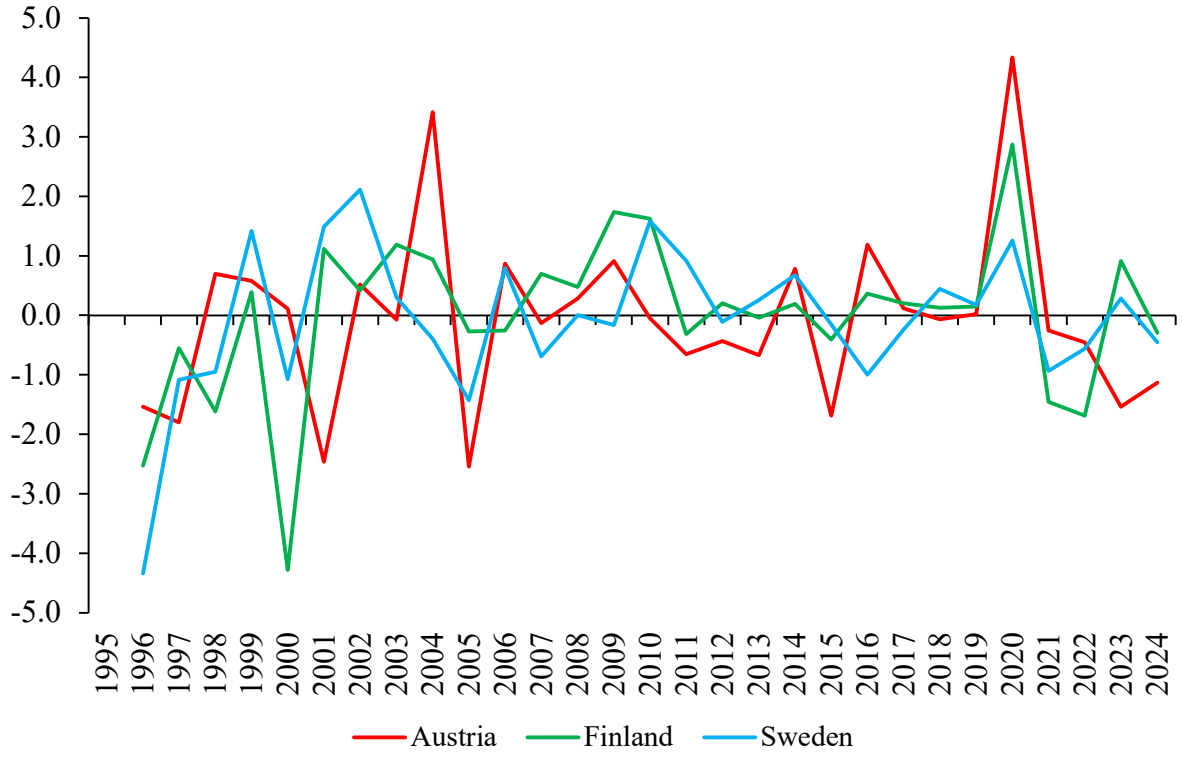
[79] 1) REGULATION (EU) 2024/1263 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 29 April 2024 on the effective coordination of economic policies and multilateral budgetary surveillance and repealing Council Regulation (EC) No 1466/97, OJ L, 30.04.2024.
2) COUNCIL REGULATION (EU) of 29 April 2024 amending Regulation (EC) No 1467/97 on speeding up and clarifying the implementation of the excessive deficit procedure, OJ L, 30.04.2024.
3) COUNCIL DIRECTIVE amending Directive 2011/85/EU on requirements for budgetary frameworks of the Member States; adoption 16.04.2024.

Temporarily, the Commission may in 2025, 2026 and 2027, take into account the increase in interest payments.

Fiscal impulses during crises

The fiscal support during the Covid-19 crisis (2020) was strongest in Austria, followed by Finland and Sweden[80]. Hence, the fiscal impulse, measured as by the IMF (2023A, p.4) was very stark in 2020 in all three countries compared to earlier crises (e.g. the financial crisis in 2009; see Figure 3.31).

Figure 3.31: Fiscal Impulse: Austria, Finland, and Sweden
(Percentage point changes of potential GDP)



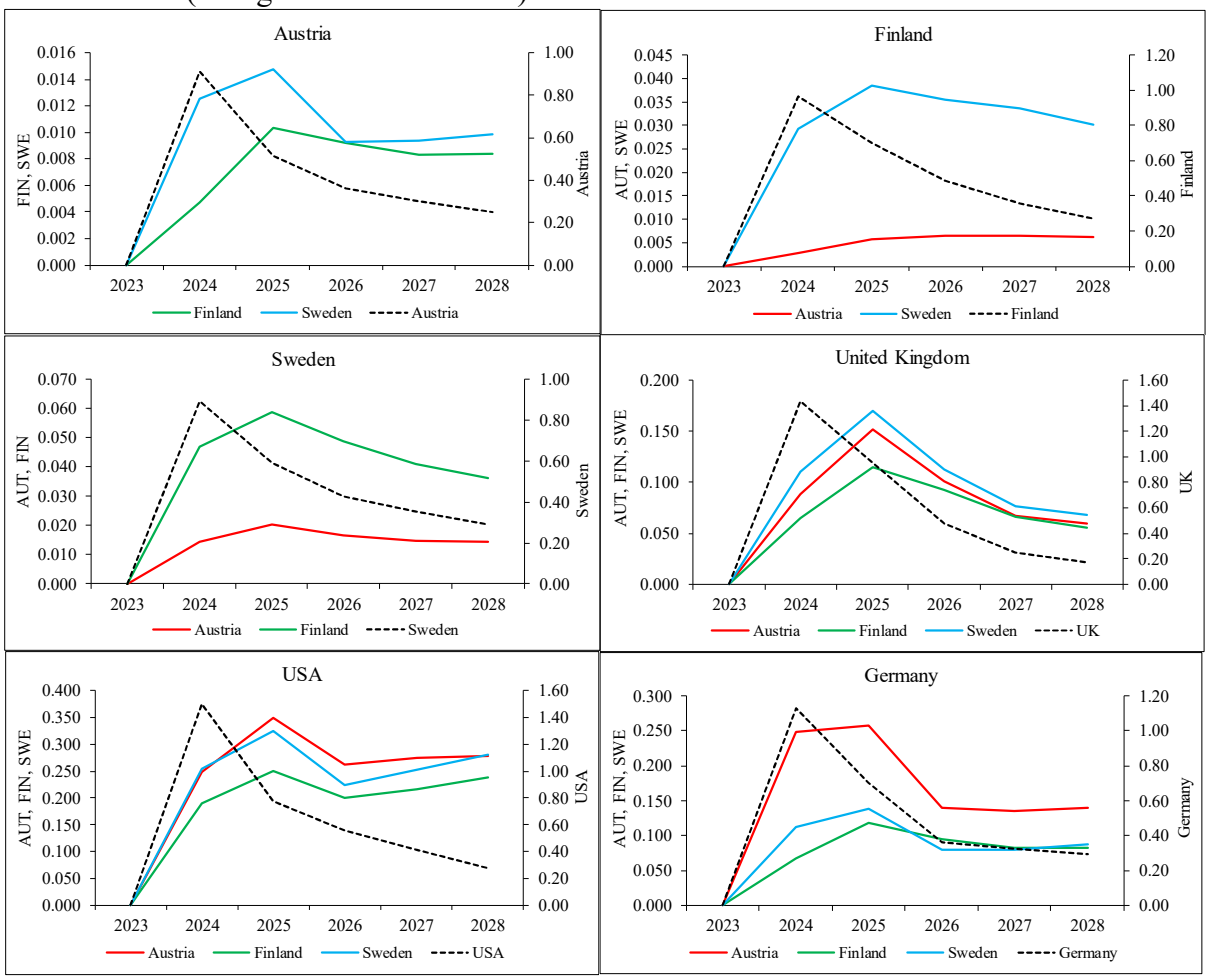
The fiscal impulse is calculated as the annual change in the cyclically adjusted primary balance (total revenues minus total expenditures exclusive interest rates), multiplied by -1. A positive (negative) fiscal impulse implies an expansionary (contractionary) fiscal stance.
Data source: AMECO database

[80] Pizzato et al. (2024) estimated that the COVID-19 crisis caused 1,642,586 excess deaths across all European countries, 2020-2023. In the same period, Sweden with 7857 excess deaths performed the best of the three countries concerning excess death mortality. Finland registered 17172 excess deaths, Austria 37472.

A comparison of fiscal shocks

A comparison of the impact of an equal fiscal policy shock (an increase of real government consumption by 1% of real GDP) is made in Figure 3.32. As fiscal policy is still a competence of the EU member states (although subject to coordination) each country can control it fiscal policy, however in the framework of the fiscal policy framework of EMU.

Figure 3.32: Fiscal Policy Shocks: increase of real government consumption by 1% of real GDP (change of real GDP in %)



The countries executing the fiscal shock are on the right-hand side of the chart (dotted black line); Austria, Finland, and Sweden are on the left-hand side. The sustained shock is implemented in 1Q2024, and the simulations runs until 4Q2028.
Source: Own simulations with the Global Model of Oxford Economics.

A fiscal policy shock in Austria of 1% of real GDP results in a fiscal multiplier of 0.9 (that means 0.9% more real GDP) in the first year of the shock. The spillover to Sweden is larger than to Finland, but the impact is only around 0.01%. A similar picture gives a fiscal policy shock in Finland and Sweden, with the specificity that the spillovers are only felt in the neighbouring countries, but not in Austria.

A fiscal policy shock in UK results in a fiscal multiplier of 1.4. The spillover to Sweden is higher than in Austria and Finland. The fiscal multiplier of a fiscal shock is 1.5 in the USA. The spillovers are slightly higher in Austria (0.3% real GDP in the second year after the shock) than in Sweden and Finland.

A fiscal policy shock in the largest EU economy, in Germany results in a fiscal multiplier of 1.1. The spillover of 0.25% more real GDP is highest in the neighbouring country Austria, and only half as much in Finland and Sweden.

3.3.2 Monetary Policy with and without the Euro

The Economic and Monetary Union (EMU) with the core element of the single currency, Euro, introduced as legal tender in 2002 is the last step of deep economic integration of the EU. Austria and Finland belonged to the founding members in 1999, Sweden, however, refused to take part in EMU and did not want to introduce the Euro. On 14 September 2003, 55.9% voted against the introduction of the Euro in Sweden. From the viewpoint of the EU the fact that not all 27 EU member states have adopted the Euro is a kind of incompleteness of the Single Market and a sign of missing solidarity.

In those EU member states which not only take part in the SM but have also adopted the Euro, many degrees of freedoms in policy making have been transformed to EU institutions: a) the Common Commercial Policy (CCP) and the Common Agricultural Policy (CAP) delegates decisions to EU institutions; b) with the adoption of the Euro, the Euro area member states delegate its monetary policy to the European Central Bank (ECB). By not having introduced the Euro, Sweden has retained its competence in monetary policy. It can gear the exchange rate of the Swedish Krona (SEK) and hence, can improve its international competitiveness via depreciation the SEK. But that thwarts the basic idea of the SM, namely the creation of a trouble-free common market à la United States of America.

The Convergence Reports by the ECB (2022) and the European Commission (2022D) examine every second year – by applying the so-called Maastricht criteria[81] – whether the non-Euro countries would be (if they will) fit for becoming a member of the euro area and be eligible to introduce the euro as legal tender. In the latest reports of 2022, the status of Sweden as a non-Euro area country has been confirmed.

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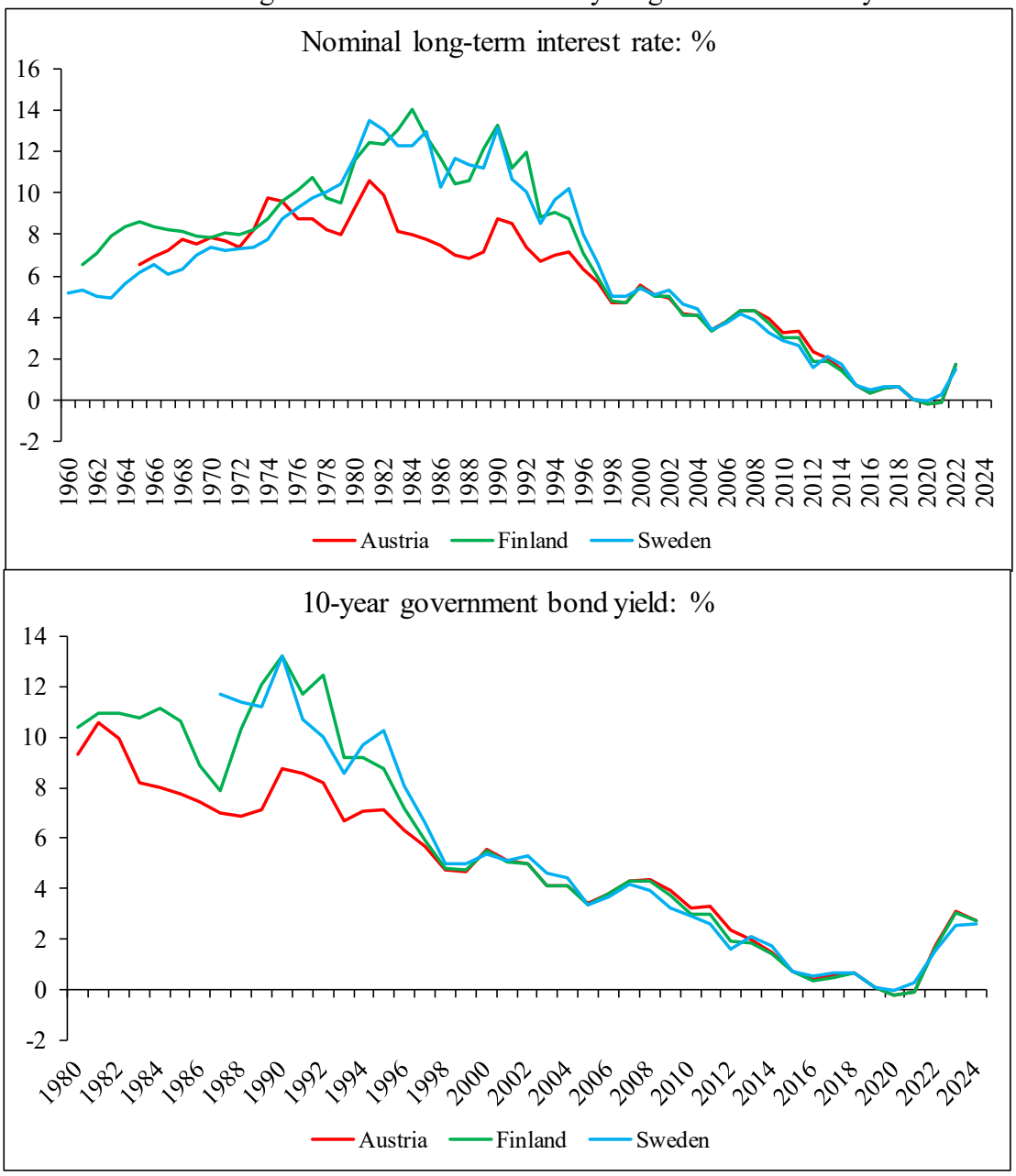
[81] Convergence criteria, according to Article 140 TFEU: Price stability, government budgetary position, exchange rate, long-term interest rates, other factors (see: https://www.ecb.europa.eu/pub/convergence/html/ecb.cr202206~e0fe4e1874.en.html). Seven countries have not yet introduced the Euro: Bulgaria, Denmark, Czechia, Hungary, Poland, Romania, and Sweden.

Figure 3.33: Nominal long-term interest rates and 10-year government bond yields in %



Sources: AMECO database European Commission (long-term interest rates); Oxford Economics (10-year government bond yield).

Although Austria and Finland are euro are members and Sweden is not, there is an astonishing convergence in long-term nominal interest rates and in 10-year government bond yields (Figure 3.33).

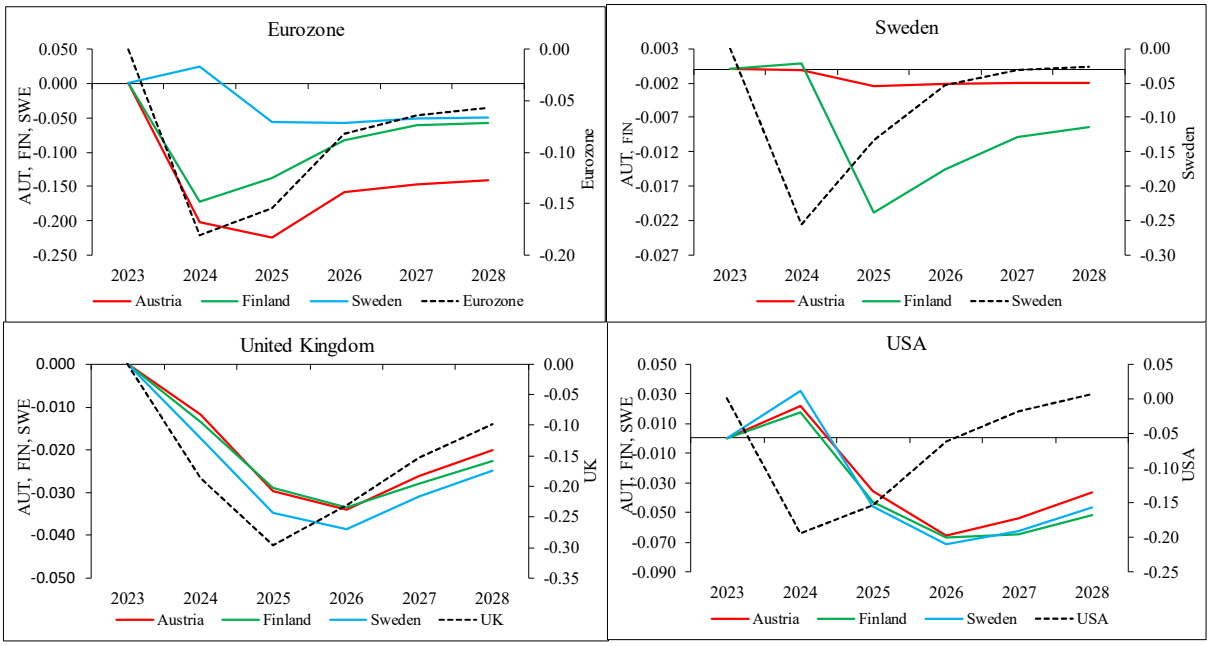
A comparison of monetary shocks

A comparison of the impact of equal monetary policy shocks (an increase in either the Central Bank rate or the short-term interest rate by one percentage point, sustained from 1Q2024 to 4Q2028) is made in Figure 3.34. Sweden is the only country of the three EU member states which can gear its own monetary policy because Sweden is not (yet) a member of the Euro area. Real GDP would shrink in Sweden by 0.25% in the first year and then tapering out. Only the neighbour Finland would have a slight impact, not so Austria.

Monetary policy of the euro area member states is executed solely by the ECB. A one percentage increase of ECBs central rate would decrease real GDP in the euro area by 0.18% in the first year, in Austria in the second year after the shock by 0.22%, in Finland only by 0.17% in the first year after the shock.

A comparison of monetary policy shocks in the UK and in USA results in quite similar spillovers in the three countries, although the biggest impact is only felt in the third year after the shock but amounting not more than in a decrease of real GDP of around 0.04%. Sweden is (because of its tighter trade relations) slightly more affected by a monetary shock in the UK than the other two countries.

Figure 3.34: Monetary Policy Shocks: increase of Central Bank or short-term interest rate by one ppt (change of real GDP in %)



The countries executing the monetary shock are on the right-hand side of the chart (dotted black line); Austria, Finland, and Sweden are on the left-hand side. The sustained shock is implemented in 1Q2024, and the simulations runs until 4Q2028.
Source: Own simulations with the Global Model of Oxford Economics.

3.4 "Ever Closer" or "Ever Stronger" Union?

In the first paragraph of the Preamble, the Treaty of the Functioning of the European Union (TFEU), states a deep goal of Europe's future: *"Determined to lay the foundations of an ever closer union among the peoples of Europe"*. In nice-weather periods, this goal would not be signed by every Member States. In crises times, however, not only an "ever closer" Union is desired, but also an "ever stronger". In particular, the Russian invasion of Ukraine on 24 February 2022 has reinforced the desire for a strong EU.

Shortly after the Russian invasion of Ukraine, Turk (2022) made a strong point for a "stronger" EU as the priority of the future of Europe. *"Only a stronger union can be whole, free and at peace. Closer Union comes later."* The quick reaction of Finland and Sweden to improve its security by becoming members of NATO underlines this thinking.

Whether the EU needs an own army is an old debate, but the question became virulent again in view of Russia's invasion of Ukraine. The idea of a "European army" was first discussed in 1950. It was proposed by France and would have consisted of the "Inner Six" countries (Belgium, France, Italy, Luxembourg, the Netherlands, and West Germany), in order to strengthen defence against the Soviet threat without directly rearming Germany in the wake of World War II. In 1952 the Treaty establishing the European Defence Community was signed but not ratified by the signatories. The "EU army" would supersede the Common Security and Defence Policy and would go beyond the proposed European Defence Union. Currently, there is no such army, and defence is a matter for the member states.

Not only NATO (Article 5), but also the EU has a duty to provide assistance in the event of attacks. The "Assistance clause" in Article 42, paragraph 7, of the Treaty on European Union (TEU) is part of the Provisions on the Common Security and Defence Policy (CSDP) and stipulates that *"If a Member State is the victim of armed aggression on its territory, the other Member States shall have towards it an obligation of aid and assistance by all the means in their power, in accordance with Article 51 of the United Nations Charter. This shall not prejudice the specific character of the security and defence policy of certain Member States"* (the last sentence considers the "everlasting Neutrality status" of Austria).

EU's CSDP in Article 42, paragraph 2 of the TEU states that the policy of the Union is in accordance with the "obligations of certain MS which see their common defence realised in the NATO". That means EU's CSDP is cooperating with NATO.

Conference on the Future of Europe

The Conference on the Future of Europe (CoFE) which took place primarily before the Russian invasion of Ukraine (from April 2021 to May 2022), discussed above all about the future of an "ever closer union". The CoFE was a citizen-led series of debates and discussions and enabled people from across Europe to share their ideas and help shape our common future. It concluded its work in May 2022 with the submission of 49 proposals to the European institutions (see Future of Europe, 2022). Another major legacy of the Conference is the embedding of deliberative democracy in EU policymaking. Three new generation Citizens' Panels already took place, making recommendations ahead of certain EC initiatives on Food Waste, Virtual Worlds and Learning Mobility Abroad.

A central feature of the Conference were the European citizens' panels. Four panels of 200 randomly selected citizens, from all corners of the EU and all walks of life, and representative of its sociological diversity, were set up to allow citizens to debate the future of Europe together. They were organised by theme:

- Panel 1 - Stronger economy, social justice, jobs, education, culture, sport, digital transformation
- Panel 2 - EU democracy, values, rights, rule of law, security
- Panel 3 - Climate change, environment, health
- Panel 4 - EU in the world, migration

Although the Conference on the Future of Europe took place before the Russian invasion of Ukraine, nevertheless it underlines the necessity that the EU in times of military threads should become a real "Union*": "War is knocking on our Eastern doors, and this calls on us to be more unified than ever, and to grant the EU more competence on foreign affairs This Conference can be the foundation for the creation of a more united and politically cohesive Europe It all boils down to this word: Union"* (Conference on the Future of Europe, 2022, p. 39). Proposal 18 requests the need to reduce the dependency of EU from foreign actors (Russian gas and oil) is requested (p.62). Proposal 24 requires that the EU should become a stronger actor on the world scene in relationship building (p. 66).

EP's proposals to amend the Treaties

On 22 November 2023, following the Conference on the Future of Europe (Future of Europe, 2022) and in the context of unprecedented challenges and multiple crises, members of the

European Parliament (MEPs of the EP) put forward proposals to change the EU[82]. The EP is advocating reforms that will enhance the EU's capacity to act and strengthen the say of citizens. Key among the proposals by MEPs are:

- a more bicameral system and fewer deadlocks in the Council, through more decisions by qualified majority voting and the ordinary legislative procedure;
- a fully-fledged right of legislative initiative, and a co-legislator role for Parliament for the long-term budget;
- an overhaul of the rules for the Commission's composition (rebranded as the "European Executive"), including the election of its President (with the nomination to be done by Parliament and the approval by the European Council - a reversal of the current process), limiting the number of Commissioners to 15 (rotating between the member states), enabling the Commission President to choose their College based on political preferences with geographic and demographic balance in mind, and a mechanism to censure individual Commissioners;
- significantly greater transparency in the Council by publishing EU member state positions on legislative issues; and
- more say for citizens through an obligation for the EU to create appropriate participatory mechanisms and by giving European political parties a stronger role.

MEPs call for more powers for the EU on environmental issues, as well as shared EU powers in the following areas currently within the member states' exclusive remit: public health (especially cross-border health threats and including sexual and reproductive health and rights), civil protection, industry, and education. Existing shared powers should be developed further in the areas of energy, foreign affairs, external security and defence, external border policy, and cross-border-infrastructure.

By adopting this report, Parliament is responding to citizens' expectations for a more effective and democratic EU, in line with the *proposals of the Conference on the Future of Europe* (Future of Europe, 2022).

Where the EU stands today and where it should stand in the future outlined the President of the European Commission, Ursula von der Leyen on 13 September 2023 in her "State of the Union Address"[83]. Sie talked about the main priorities and flagship initiatives for the year to

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[82] With a narrow majority (the resolution was adopted with 291 votes in favour, 274 against, and 44 abstentions) the European Parliament has adopted proposals to amend the EU Treaties. See: https://www.europarl.europa.eu/news/en/press-room/20231117IPR12217/future-of-the-eu-parliament-s-proposals-to-amend-the-treaties

[83] See: https://state-of-the-union.ec.europa.eu/index_en

come, building on the European Union's successes and achievements of the past years. No word was said about the reform of the EU and its Treaties.

4. The macroeconomic performance

4.1 Pre and post-EU development

To analyse the macroeconomic development of Austria, Finland, and Sweden since their EU accession, it makes sense to compare this nearly 30 years of EU membership with a similar period before. We therefore describe two periods: the pre-EU period from 1970 to 1994, and the EU period from 1995 to 2023. Both are characterized by quite different events. In 1970 the three countries were EFTA members. Since EFTA membership (Austria and Sweden since 1960, Finland since 1961) trade creation took place with the other EFTA partners and trade diversion with the EC member states. This was particularly harmful for Austria, because its direct neighbour countries, Germany and Italy were EU members. For Finland and Sweden with only EFTA neighbours this constellation was favourable.

In 1973 the EC concluded a Free Trade Treaty (FTT) with the EFTA. Consequently, the European parallel integration course (EC versus EFTA) of the sixties came to a halt. In mid-1977 both integration areas merged to a common free trade area (at least for industrial products).

1989 was a turning point in political history in Europe. Revolutions in Eastern European Countries (formerly members of the COMECON[84]) ended communism and brought autonomy and independence from Moscow. This process started in Poland and Hungary and reached the climax with the fall of the Berlin wall. The dissolution of the Soviet Union (USSR)[85] in 1991 concluded this world-historic event.

Austria was one of the big winners from the "opening-up of Eastern Europe". As early as 1989, Austria (which had traditional good relations with the neighbouring CEEC[86] countries) began systematically directing its trade flows to the East. Some called this the result of the "Habsburg or k.u.k. effect" (Breuss, 2015, p. 259). In contrast, Finland – having good relations

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[84] The Council for Mutual Economic Assistance (English abbreviation COMECON, CMEA, CEMA, or CAME) was an economic organization from 1949 to 1991 under the leadership of the Soviet Union that comprised the countries of the Eastern Bloc along with a number of socialist states elsewhere in the world (See: https://en.wikipedia.org/wiki/Comecon)

[85] The Soviet Union, officially the Union of Soviet Socialist Republics (USSR), was a transcontinental country that spanned much of Eurasia from 1922 to 1991 (See: https://en.wikipedia.org/wiki/Soviet_Union). After the dissolution of the Soviet Union in 1991, the Commonwealth of Independent States (CIS) was formed. It is a regional intergovernmental organization in Eurasia (see: https://en.wikipedia.org/wiki/Commonwealth_of_Independent_States).

[86] Central and Eastern European Countries (CEEC).

with the USSR - was negatively affected by the dissolution of the USSR in 1991. For Sweden, the opening-up of Eastern Europe did not make a big difference.

After the political turbulences surrounding the process of opening-up of Eastern Europe in 1989, the EU came under pressure because many countries in Eastern Europe (but also some EFTA countries) wanted to become members of the EU. To discourage countries to join the EU, on the one hand the EU offered an interim solution, the European Economic Area (EEA). On the other hand, the CEEC had the chance to conclude Europe Agreements (EAs)[87] with the opportunity to liberalize trade with the EU via an asymmetric abolition of tariffs. The EEA agreement was signed in 1992 and entered into force in 1994[88] between 12 EU countries and 7 EFTA countries. The EEA membership liberalized further trade between both integration communities and introduced 2/3 of the legal standards of the EU (acquis communautaire). However, border controls still remained and agricultural policy was not harmonized with the Common Agricultural Policy (CAP) of the EU. Austria, Finland, and Sweden were only members of EEA in 1994. After the EU accession of Austria, Finland, and Sweden only three EFTA countries, Iceland, Liechtenstein, and Norway remained EEA members. Switzerland rejected EEA ratification in a 1992 referendum. Relations with the EU base on bilateral agreements.

4.2 Where are the traces of EU membership?

After a big regime change – which was the accession of the EU – one would expect to see statistically the ex-ante proclaimed benefits. A sober check of the facts reveals no significant improvement in the macroeconomic performance.

To make this check, we compare the most important macroeconomic indicators of the pre-EU period (1970 to 1994) with those of the post-EU period (1995 to 2023) for the three countries (see Table 4.1). The per-EU period was determined by the re-integration of EC and EFTA via the FTT in 1973 and the EEA. In the post-EU period, the three countries experienced as EU members the further development of the EU (deepening with single market, and euro - not Sweden) and the major enlargements from 2004 onwards. First, we compare both periods for the three countries, and second, we compare the performance of GDP per capita of the three countries with benchmark countries (USA and a control group of 10 countries outside the EU).

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[87] The Europe agreements (EAs) were association agreements between the EU and its Member States and the Central and Eastern European countries (CEEC) that joined the EU in 2004/2007. They formed the legal framework for the accession process of these countries to the EU (see: https://neighbourhood-enlargement.ec.europa.eu/enlargement-policy/glossary/europe-agreement_en).

[88] See: https://en.wikipedia.org/wiki/European_Economic_Area

4.2.1 Overall macroeconomic performance

From an integration theoretical point of view, EU membership should result in a better macroeconomic performance. However, the bare figures show a different picture. Average annual growth of real GDP and those of real GDP per capita was lower in the post-EU period than in the pre-EU period in Austria and Finland. In Sweden, however, average growth increased in both categories (see Table 4.1). The same growth pattern can be seen in the development of total factor productivity (TFP), but not for labour productivity which declined in all three countries. Inflation rates declined in all three countries. Unemployment rates increased. Despite the high costs of fighting the consequences of the CORONA-19 pandemic, the Swedish government did a good job. The deficit of net lending declined and so did public debt. In contrast, the other two countries deteriorated its fiscal position with increasing public deficits and debts. Sweden bears the highest costs of EU membership, measured by the net contribution to the EU budget.

Taking part in a larger free market (EU's Single Market) leaves the biggest traces in the allocation of external trade. Table 4.1 reveals that in all three countries real exports of goods increased less than in the pre-EU period. If, however, one takes services trade into account, only in Sweden real exports of goods and services performed better in the post-EU period. In Austria and Finland, the growth rates after 1995 were considerably lower than in the period before.

Table 4.1: Macroeconomic indicators: Austria, Finland, and Sweden

Indicator	Unit	Austria		Finland		Sweden	
		1970-1994	1995-2025	1970-1994	1995-2025	1970-1994	1995-2025
GDP, real	%	2.96	1.59	2.88	1.84	1.91	2.21
GDP p.c., real	%	2.69	1.12	2.49	1.50	1.51	1.59
GDP, nominal 1995/2025	billion PPS[1)]	162	442	85	239	173	492
GDP p.c. nominal 1995/2025	PPS[1)]	20 405	48 169	16 700	42 370	19 745	46 262
Population 1995/2025	1000 persons	7 936	9 181	5 088	5 640	8 785	10 624
Inflation[2)]	%	4.64	2.11	7.56	1.73	7.74	1.69
Unemployment rate	%	2.67	5.19	5.55	8.95	3.66	7.72
Total factor productivity (TFP)	%	1.68	0.73	2.45	0.89	0.83	1.01
Labour productivity (GDP/Total employment)	%	2.51	0.68	3.30	0.81	1.71	1.28
Net-lending	% of GDP	-2.43	-2.77	2.60	-0.16	-0.51	-0.26
Public debt 1995/2025	% of GDP	64.38	80.80	56.20	84.74	68.50	32.72
Exports of goods, real	%	4.90	4.47	4.41	3.35	4.17	3.99
Exports of services, real	%	3.85	3.26	7.86	4.82	5.66	6.03
Exports of goods and services, real	%	5.56	4.10	5.04	3.82	4.44	4.55
Imports of goods, real	%	3.90	3.27	2.89	3.64	2.86	3.86
Imports of services, real	%	4.57	3.65	6.50	4.30	3.57	5.21
Imports of goods and services, real	%	5.43	3.40	4.02	3.90	3.17	4.31
Balance of goods and services trade: contribution of GDP change	Percentage of GDP of preceding year	0.02	0.38	0.35	0.21	0.39	0.32
Intra-EU exports of goods, nominal (EUR)	%	12.14	5.95	10.07	3.85	8.89	4.18
Intra-EU exports of goods 1995/2025	Share in % ot total	63.54	68.84	54.56	56.79	55.95	54.47
Current account	% of GDP	-0.40	1.15	-2.35	1.90	-0.83	5.01
Net-contribution to EU budget[3)] (average 1995-2023)	% of GNI[4)]		-0.26		-0.17		-0.34

[1)] PPS = Purchasing Power Standards
[2)] National consumer price index
[3)] Operating budgetary balance
[4)] GNI = Gross National Income
Sources: European Commission: AMECO data base; OECD

Austria was already at the beginning higher integrated into the EU than the Scandinavian countries with an intra-EU export share of 64%. This share increased to 69% until 2025. Finland and Sweden are much less integrated into the EU market with an intra-EU trade share of about 57% and 54%. Even after joining the EU this share remained nearly constant. This first inspection shows that trade creation with the EU took place in Austria, but not in the Scandinavian countries. As a mirror image, trade with the rest of the world (ROW) declined in Austria (trade diversion), in Finland and Sweden, however the ROW share increased (trade creation with non-EU countries). This contrasting trade performance is due in case of Austria because of the higher trade share with the EU, which was enhanced by the grand EU enlargements after 2004. Current account improved in all three countries after 1995, most pronounced in Sweden.

What then did the trade sector contribute to GDP growth after 1995? The indicator contribution of the balance of goods and services trade to real GDP growth gives a first answer. The average GDP growth contribution from net-exports (balance of goods and services trade) increased in Austria from 0.02 ppts in the period 1970-1994 to 0.38 ppts in the post-EU period. In Finland (from 0.35 to 0.12 ppts) and Sweden (from 0.39 to 0.32 ppts) net-exports contributed less to GDP growth in the period after EU accession (see Table 4.1).

The analysis of the macroeconomic development of the three countries in the pre and post EU period, based on 22 macroeconomic indicators (see Table 4.1) shows that Sweden performed as best country 14 times in the period 1995-2025, Austria was 6 times best and Finland twice. In contrast, in the pre-EU period Austria performed 12 times as best, followed by Finland (6 times) and Sweden (3 times). In the past EU-period, Austria was above all better than the others in terms of unemployment and the share of intra-EU trade. Sweden scored well in terms of economic growth, productivity growth, inflation, and the current account balance. Finland mainly scored with a low budget deficit.

However, there was a highly diverging development of public debt. In the pre-EU period gross public debt increased steadily in all three countries, from low levels of around 20% of GDP to 69% in Austria and Sweden (55% in Finland) in 1995. Since then, only the debt ratio in Austria continuously increased – fuelled by jumps after the Great Recession in 2009 and the COVID-19 recession in 2020 – up to 81% in 2025. In Finland, after joining the EU the debt ratio initially fell to 35% in 2008, but rose sharply again after the recession in 2009, reaching 85% in 2025. By contrast, the debt ratio in Sweden has fallen steadily since its peak in 1995 (69%) to 33% in 2025. One explanation of this diverging development of public finance is the different attitude of fiscal policy in the three countries. Whereas Sweden (a non-Euro country)

introduced an effective *debt brake* (with a surplus target and a debt anchor of a debt ratio of 35% in the long-term) in its Budget Act[89], Austria and Finland (Euro are countries) did not follow the call in The Treaty on Stability, Coordination and Governance (TSCG) (including Fiscal Compact as of March 2012[90]) – as part of the EU Fiscal Framework of the Stability and Growth Pact (SGP[91]) SKS to enshrine such a requirement - preferably in the constitution[92].

Sweden's sustainable budget consolidation

During the recession of the early 1990s, the general government budget deficit underwent an acute deterioration. The subsequent consolidation effort has been among the most substantial undertaken by any OECD economy (see OECD, 1996). Reasserting control over public finances has entailed the setting out of medium-term objectives, underpinned by a detailed specification of expenditure cuts and tax increases which have been adopted by Parliament. The programme covers the years 1995-98, the objective being to achieve a balanced budget by 1998, compared with a peak deficit of 10.7 per cent of GDP, resulting in a public debt quota of around 70% of GDP for 1993. The Swedish fiscal consolidation programme and its implications until 1998, whose political decisions were made in the fall of 1994, is described in detail in OECD (1996, p. 53 ff).

Because of the fiscal consolidation programme and the "debt brake" (with a surplus target and a debt anchor of a debt ratio of 35% in the long-term) introduced later, Sweden has succeeded in stabilizing its public finances in the long term. As mentioned above, the debt to GDP ratio fell from 69% in 1995 to 35% in 2025. The budget (net-lending) converged to the planned balanced target since 1998 (see also Table 4.1).

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[89] See "About the Swedish fiscal policy framework": https://www.government.se/government-of-sweden/ministry-of-finance/central-government-budget/the-fiscal-policy-framework

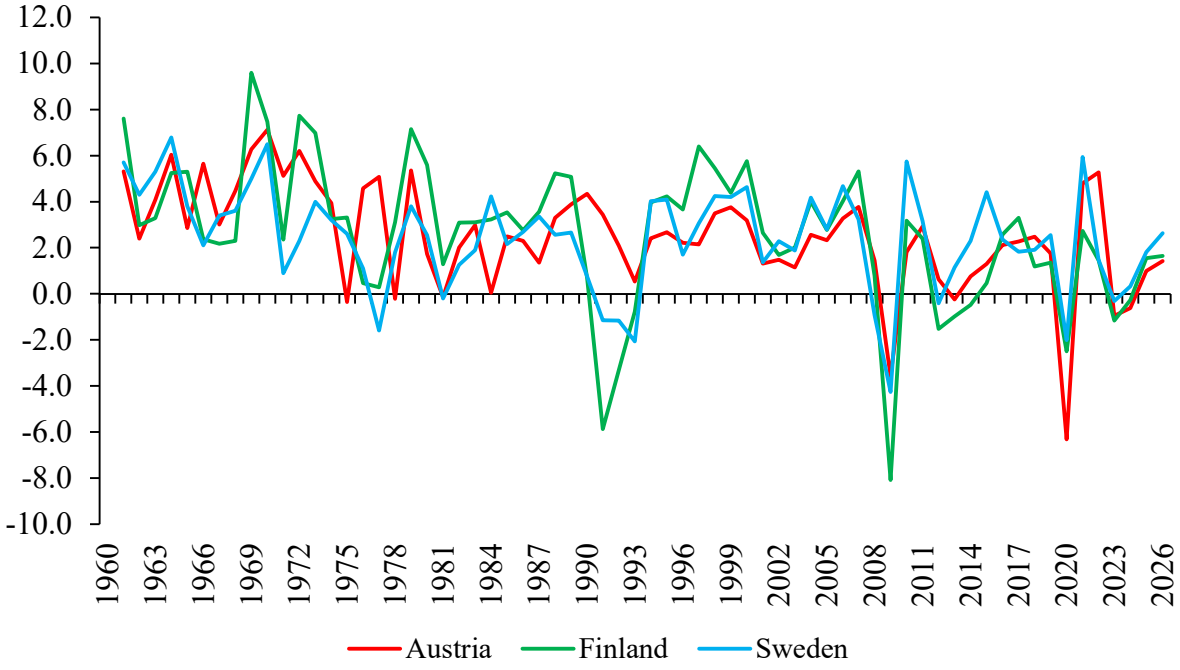
[90] Under the "Fiscal Compact", in Article 3 of the TSCG a "balanced budget rule" (or debt brake) is defined according to the SGP rules. Article 3 (2) says that the "balanced budget rule" *"shall take effect in the national law of the Contracting Parties at the latest one year after the entry into force of this Treaty through provisions of binding force and permanent character, preferably constitutional, or otherwise guaranteed to be fully respected and adhered to throughout the national budgetary processes."* (see the text of the TSCG: https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:42012A0302(01)

[91] The description and legal basis of the SGP which should ensure that countries in the EU pursue sound public finances and coordinate their fiscal policies can be found on: https://economy-finance.ec.europa.eu/economic-and-fiscal-governance/stability-and-growth-pact_en?prefLang=de. With the Regulation (EU) 2024/1263 of the European Parliament and of the Council of 29 April 2024 the SGP has been reformed again, after suspending its rules during the COVID-19 crisis.

[92] Switzerland (a non-EU member state) is one of the only country with a successful debt brake (see: https://de.m.wikipedia.org/wiki/Schuldenbremse_(Schweiz)). An Overview of successful and non-successful debt brakes gives: https://de.m.wikipedia.org/wiki/Schuldenbremse

However, the rigorous and successful budget reform is not only a relief for fiscal policy because it leaves room for future-oriented public investment, it could also be the key to the question (puzzle) of why Sweden managed to achieve the best macroeconomic performance of the three countries although it has the lowest level of EU integration of the three countries (no Euro, weak intra-EU trade share, lowest estimated integration effects; see chapter 12).

Figure 4.1: Growth of real GDP in Austria, Finland, and Sweden



Source: Data from AMECO database of the European Commission

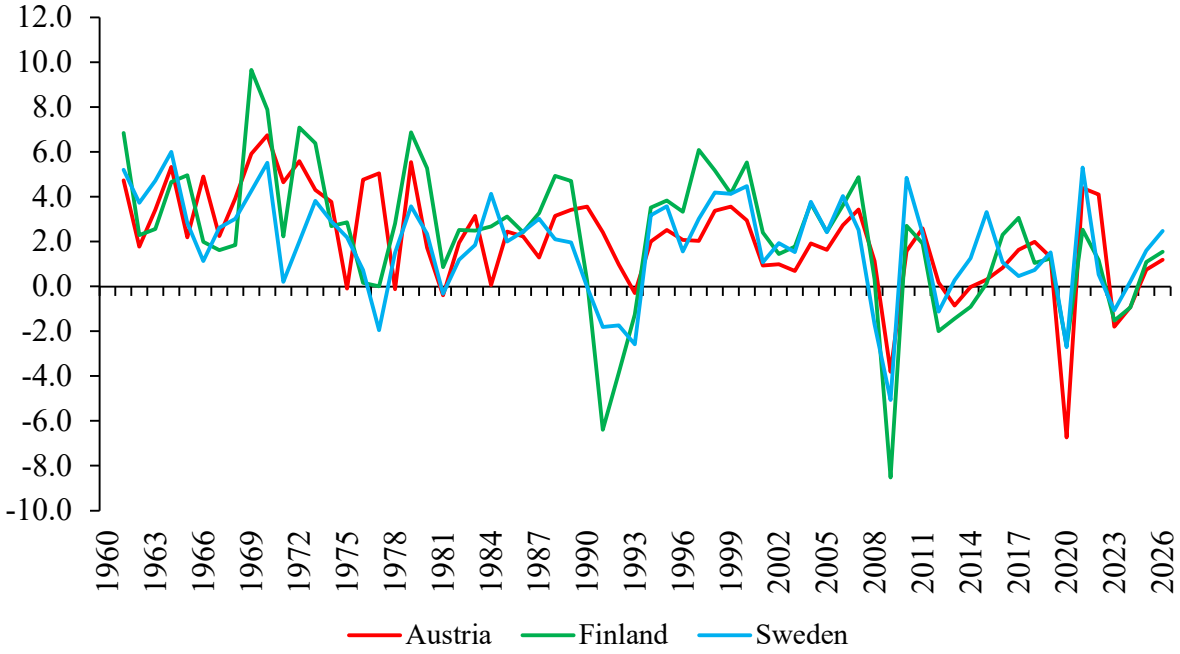
4.2.2 Exposed to different shocks

Since the early seventies all three countries went through similar recessions: the first (1973/74) and the second oil price crises (1980/81), the Great Recession in 2009 after the financial crisis and the recession in 2020 due to the COVID-19 pandemic crisis (see Figure 4.1). Austria recorded the deepest recession in 2020 (a decline of real GDP by 6.6%). In Finland and Sweden, the biggest recessions were in 2009 (-8.1% and -4.3%). Compared to the two severe common recessions in 2009 and 2020, the common recessions due to the first (1973/74) and the second (1980/81) oil price crises had a relatively mild impact. Austria suffered slightly after the first oil price crisis in 1975 (real GDP declined only by 0.4%). Sweden was hurt by a recession in 1977 (-1.6%). Finland survived both oil crises with no recession. The second oil price crisis led to mild recessions in Austria (1981 real GDP -0.1%) and in Sweden (-0.2%).

Additionally, to the common recessions caused by global events, there were recessions in the three countries which had country-specific reasons (see Figure 4.1). The opening-up of

Eastern Europe in 1989 enabled Austria to exploit new trade potentials in their neighbouring countries in the East ("Habsburg effect"). In contrast, Finland suffered from this effect and in the following after the dissolution of the USSR in 1990. A growth pattern comparable to that of real GDP is shown by that of real GDP per capita because population growth did not change very much (see Figure 4.2).

Figure 4.2: Growth of real GDP per capita in Austria, Finland, and Sweden

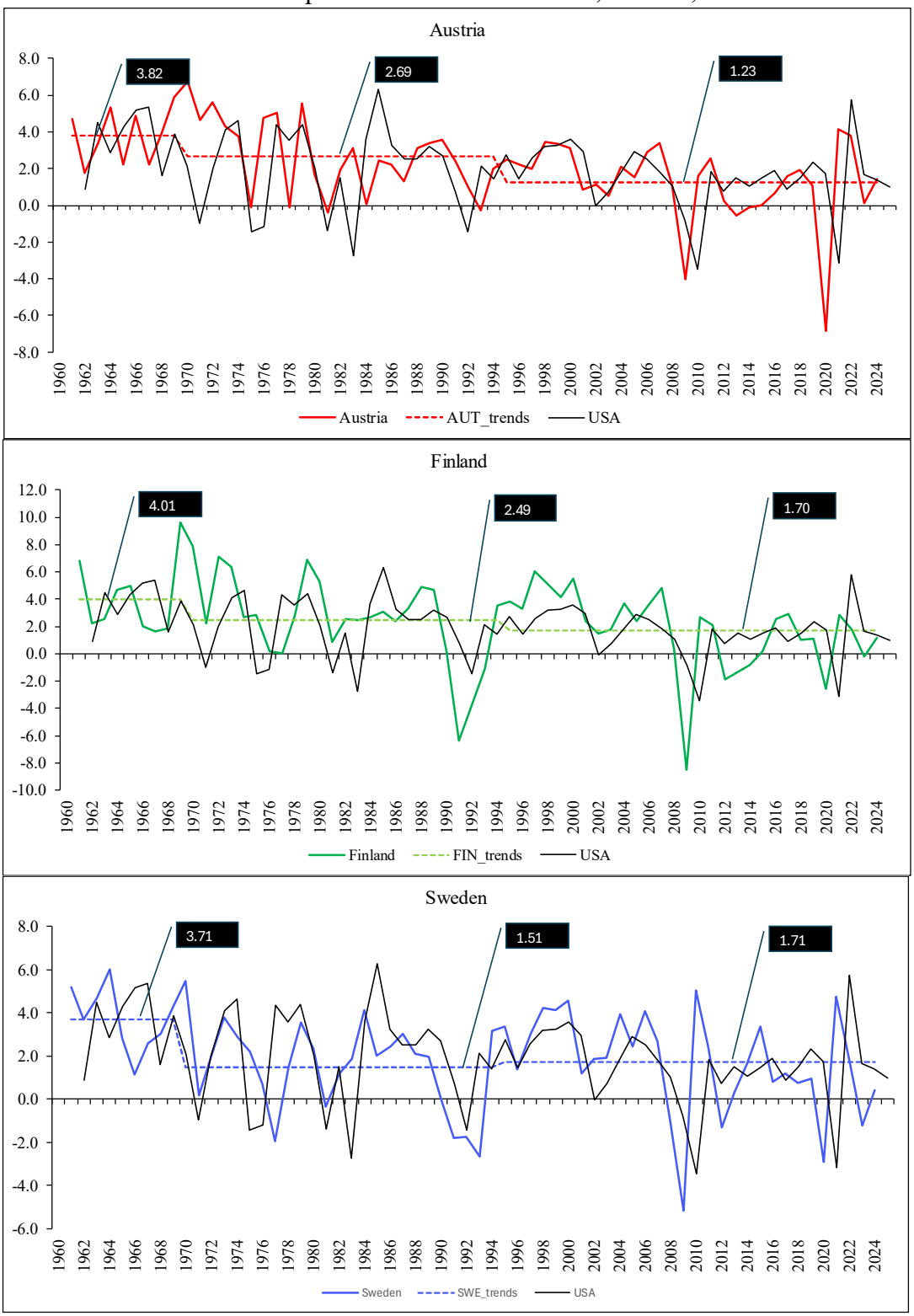


Source: Data from AMECO database of the European Commission

Three years in a row (1991-1993), Finland slid in a severe recession with a decline of real GDP in 1991 by 5.9%, in 1992 by 3.3% and in 1993 by 0.7%. In the early nineties, Sweden was hit by a three-years long recession, caused by the burst of a real estate boom, leading to a banking crisis. Real GDP declined in 1991 by 1.2%, in 1992 by 1.2% and in 1993 by 2.1%. The crisis of the 1990s ended the much-buzzed welfare model, called "The Swedish Model". After a rapid recovery in 2021-2022 from the CORONA-19 crisis with the corona recession in 2020, the energy price hike caused by the Russian invasion in Ukraine as well as the tightening of monetary policy by the ECB, lead to a two-year long recession in Austria and Finland. Austrias real GDP declined by 1.8% in 2023 and by 0.9% in 2024 (Finland -1.5% and 0.9%, respectively). Sweden, however, suffered from a recession only in 2023 (-1.1% decline in real GDP). Overall, the post-COVID-19 period 2000-2025 showed in all three countries a considerable worsening of the economic landscape. On average 2000-2025 real

GDP grow only by 0.5% in Austria, 0.3% in Finland, but 1,2% in Sweden. In contrast, the average inflation rate rose to 3.4% in Austria, 3.1% in Finland, and 3.8% in Sweden.

Figure 4.3: Growth of real GDP pc and its trends in Austria, Finland, and Sweden



First trend 1960-1969; second trend 1970-1994; third trend 1995-2023
Source: AMECO database of the European Commission

4.2.3 Welfare improving EU membership?

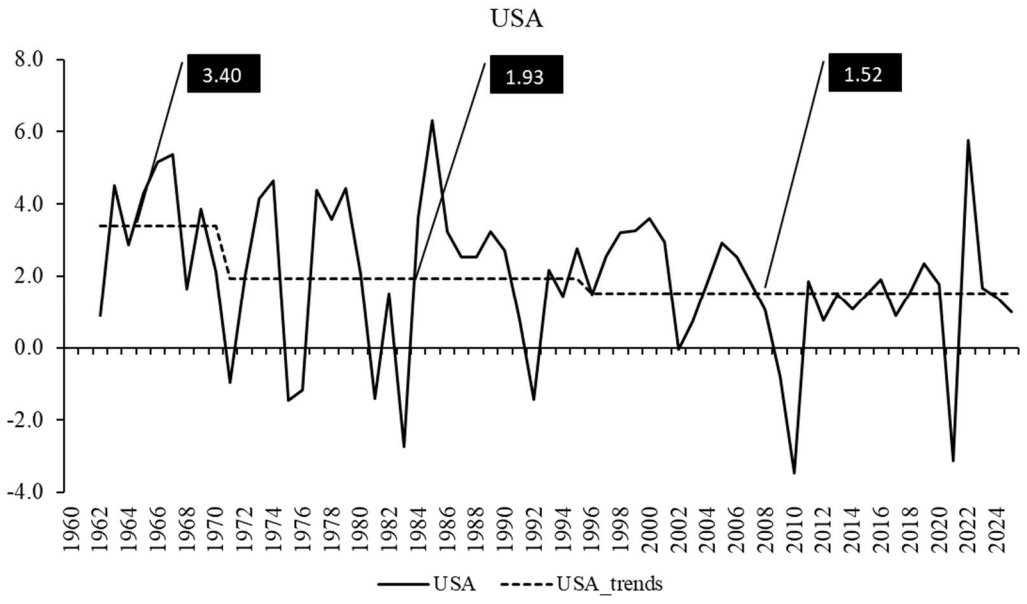
In the following we take the growth of real GDP per capita (pc) to get an idea of the impact on welfare of the three counties of its EU integration history. A comparison over time of economic growth of the three countries shows that except for Sweden, the trend growth of real GDP pc was lower after 1995 than in the periods before (see the Figure 4.3). The trend growth of real GDP growth was highest in the sixties when all three EFTA countries had still a strong need to catch up after the Second World War. In the period 1970 to 1994 in which the three countries were reintegrated in trade with the EC via the FTT of 1973 and the short EEA membership in 1994, the trend growth rates declined already, most sharply in Sweden because of the unique economic problems in the early nineties as described above.

In the EU period 1995 to 2023 trend growth declined compared to the period 1970-1994 in Austria by 1.5 ppts, in Finland by 0.8 ppts, but it grew slightly in Sweden by 0.2 ppts (Figure 4.3).

4.2.4 A comparison with benchmark countries

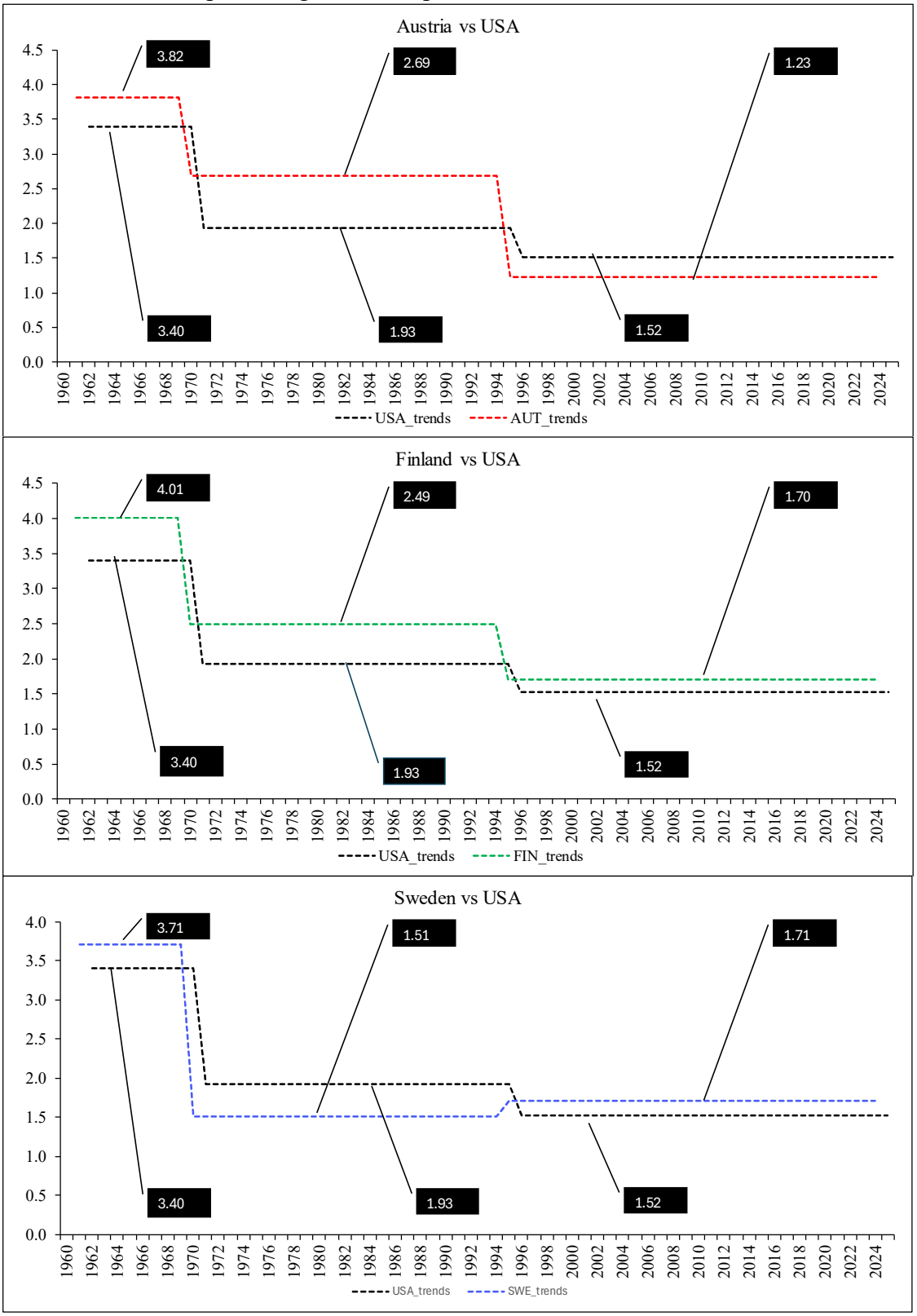
To see whether EU membership has something to do with the decline in trend growth of real GDP per capita in Austria and Finland, and with the slight increase in Sweden, we make comparisons with benchmark countries, which were not members of the EU. In the first step we take the USA as benchmark. Also in the USA, there was a sequential decline of trend growth from the sixties to the seventies/eighties and to the period after 1995 (see Figure 4.4).

Figure 4.4: Growth of real GDP pc in the USA and its trends



First trend 1960-1969; second trend 1970-1994; third trend 1995-2023
Source: AMECO database of the European Commission

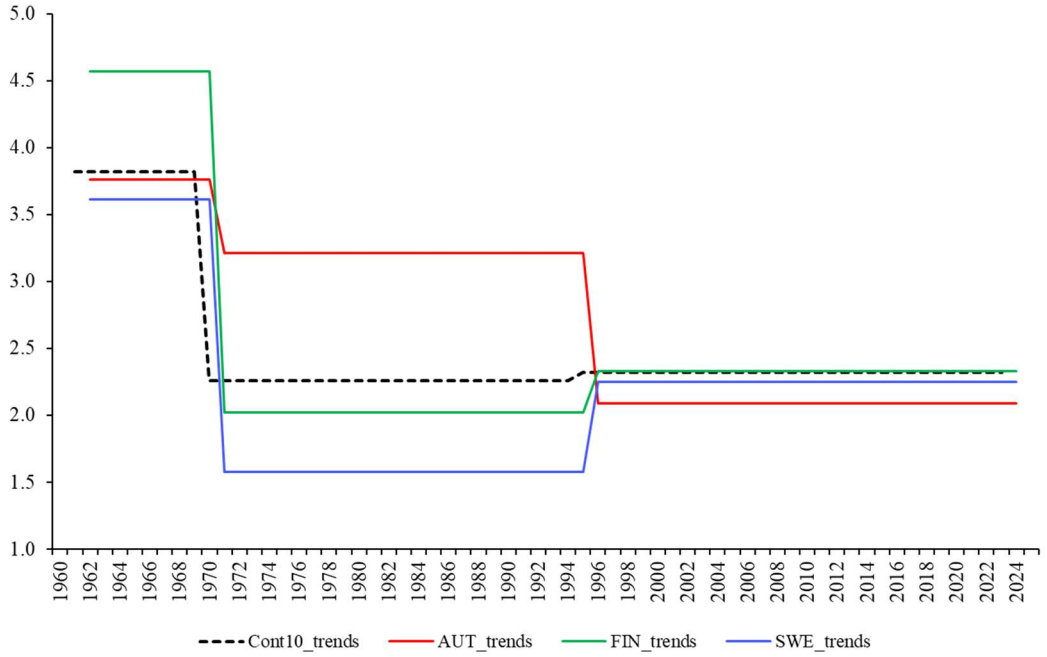
Figure 4.5: Real GDP pc trend growth compared with the USA: Austria, Finland, Sweden



First trend 1960-1969; second trend 1970-1994; third trend 1995-2023
Source: AMECO database of the European Commission

A comparison of the performance in Austria with those in the USA shows that Austria's trend growth of real GDP was higher than those of the USA only in the periods before EU membership (see Figure 4.5). In Finland, trend growth of real GDP pc was in all three subperiods higher than those of the USA. In Sweden the performance of trend growth of real GDP pc varied. In the sixties it was higher than those in the USA. In the seventies/eighties it was lower, and after EU accession, again Sweden outperformed the USA.

Figure 4.6: Real GDP pc trend growth in Austria, Finland, and Sweden compared to a control group of 10 countries outside the EU



First trend 1960-1969; second trend 1970-1994; third trend 1995-2023
Source: Penn World Tables PWT 10.01

A similar pattern of the performance of real GDP pc trend growth gives a comparison with a control group of 10 countries which have nothing to do with EU membership (Australia, Canada, Switzerland, China, Japan, Mexico, Norway, New Zealand, Turkey, and the USA). Figure 4.6 shows that after EU accession in 1995, again trend growth of real GDP pc in *Austria* (2.1%) was lower than that of the control group (2.3%); before it was higher. After 1995, trend growth in *Finland* was comparable to that of the control group; but it was lower in the pre-EU period. Trend growth in *Sweden* was in alle three periods below the 10-country control group.

A look at the figures with the trend growth of real GDP pc in Table 4.1 and in Figures 4.3 and 4.4 shows differences to those in Figure 4.6. The reason is that the GDP statistics of the AMECO data base and that of the Penn World Tables (Figure 4.6) are not the same. However, the growth pattern is comparable.

4.2.5 A DiD analysis sees Sweden ahead

A simple Difference-in-Difference (DiD) calculation of the previous results leads to the conclusion that Sweden leads the GDP growth performance. In Table 4.2 the DiD analysis is done with two data sources: AMECO database of the European Commission and Penn World Tables 10.01. The latter ends in 2019 and is extrapolated until 2023 with data from Oxford Economics. In the Scenarios A1 and A2 the pre-EU period 1970-1994 is compared with the post-EU period 1995-2019 (the last year before the COVID-19 crisis). Austria's trend growth rate of real GDP pc declined by 1.3 ppts (AMECO data; A1) or by 0.9 ppts (PWT data; A2). Those of the control country USA declined in the same period by 0.7 ppts or by 0.3 ppts. The DiD interpretation says that the decline in Austria was 0.58 ppts or 0.53 ppts stronger than that of the USA (see the scenarios A1 and A2 in Table 4.2).

In contrast, Finland, and Sweden reached positive DiD values, that means their growth performance, measured in real GDP pc was better than that of the USA, concerning the comparison of the post- with the pre-EU period.

A similar pattern emerges if on extends the post-EU period until 2023. Then again, Austria is the loser, and Sweden the winner. The results for Finland depend on the database one choses (see scenarios B1 and B2 in Table 4.2).

Table 4.2: Difference-in-Difference analysis of the development of real GDP per capita (Real GDP pc; ppts comparison of Austria, Finland, and Sweden with USA and two control groups)

vis à vis	**USA**				**Control10**	**ControlEU12**
	A1	A2	B1	B2	C1	C2
Austria	-0.58	-0.53	-1.03	-0.72	-1.17	-1.06
Finland	0.12	0.93	-0.38	0.68	0.23	0.34
Sweden	1.11	1.31	0.63	1.08	0.63	0.74

Difference-in-Difference (DiD) is calculated as follows: Difference of annual growth rates of real GDP pc between the pre- and the post-EU periods for the three countries plus control country USA and control groups (Control10, ControlEU12).
A1 = comparison 1995-2019 with 1970-1994 (AMECO)
A2 = comparison 1995-2019 with 1970-1994 (PWT)
B1 = comparison 1995-2023 with 1970-1994 (AMECO)
B2 = comparison 1995-2023 with 1970-1994 (PWT)
C1 = comparison 1995-2023 with 1970-1994 (PWT)
C2 = comparison 1995-2023 with 1970-1994 (PWT)
Control10 = 10 non-EU countries: Australia, Canada, Switzerland, China, Japan, Mexico, Norway, New Zealand, Turkey, USA
ControlEU12 = 12 EU member states: Germany, France, Italy, Belgium, Netherlands, Luxembourg, Denmark, Ireland, UK, Greece, Portugal, Spain
Data sources: Penn World Tables PWT 10.01 (extrapolated 2019-2023 with data from Oxford Economics); AMECO database; Oxford Economics (OEF).

If one substitutes the control country USA with two control groups, the basic picture remains the same. Control10 is a group of 10 non-EU countries (see footnote of Table 4.2) and ControlEU12 is a group of 12 EU member states. The results (based on PWT data) are quite similar. Austria is loser, Finland, and more so Sweden are the winners (see Table 4.2, scenarios C1 and C2).

The GDP pc figures of the AMECO database (in national currencies, at 2015 prices) and that of the Penn World Tables (PWT 10.01; at chained PPPs in Million 2017 USD) are not fully comparable, give however, a similar general pattern. The growth rates of real GDP pc of the control groups (Control10 and ControlEU12) are unweighted average of the growth rates of the 10 (12) countries of the control group. To make the comparison in Table 4.2 compatible, also the average growth rates, calculated for the three countries and for the USA are arithmetic averages of the subperiods.

4.2.6 Production functions and growth accounting

4.2.6.1 Production functions

Two types of production functions are estimated here for the overall economy of the three countries. One is the Cobb-Douglas (CD) production function, the other is the CES production function.

The *Cobb–Douglas (CD) production function* is a particular functional form to represent the technological relationship between the amounts of two or more inputs (particularly physical capital and labour) and the amount of output that can be produced by those inputs. The Cobb–Douglas form was developed and tested against statistical evidence by Charles Cobb and Paul Douglas (1928).

We use it in its most standard form for production of a single good with two factors, the function is given by:

$$Q = AK^{\alpha}L^{\beta} \tag{1}$$

where:

- Q = total production (real GDP in bn national currency)
- K = capital input (Net capital in bn national currency)
- L = labour input (total employment in 1.000 persons)
- A = total factor productivity (TFP)
- $0 < \alpha < 1$ and $0 < \beta < 1$ are the output elasticities of capital and labour, respectively. These values are constants determined by available technology.

- Economies of scale (EOS): $\alpha + \beta = 1$ (constant returns to scale); $\alpha + \beta > 1$ (increasing returns to scale); $\alpha + \beta < 1$ (decreasing returns to scale).

To econometrically estimate the CD equation (1), one takes the logarithm to get the log-linearized form of the CD production function:

$$\log(Q) = \log(A) + \alpha \log(\mathrm{K}) + \beta \log(\mathrm{L}) \quad (2)$$

The estimations are done in Excel. In Table 4.3 the estimation of the CD production function for the whole economy of the three countries is executed for the pre-EU accession period 1960-1994, the post EU-membership period 1995-2025, and for the whole period 1960-2025. The results are mixed. Only for the whole period all estimated coefficients are significant at the 95% level. For the Scandinavian countries the estimations result in increasing returns to scale ($\alpha + \beta > 1$, for Austria in decreasing returns to scale ($\alpha + \beta < 1$). However, the estimation of the CD production function for Austria has the caveat that the production elasticity for labour is negative. The subperiods show a similar picture, although for the post EU membership period, not all estimated coefficients are significant.

Table 4.3: Estimations of Cobb-Douglas production function: Austria, Finland, Sweden

	log(A)=constant	α	β	EOS
		1960-1994		
Austria	5.8521*	0.9283*	-0.8032*	0.1252
Finland	-5.2097*	0.8875*	0.6031*	1.4907
Sweden	-2.3616	0.6659*	0.4915*	1.1574
		1995-2025		
Austria	1.4289	1.0165*	-0.3354	0.6812
Finland	-11.4937*	-0.2942*	2.3908*	2.0966
Sweden	-2.3010	1.0235*	0.1001	1.1236
		1960-2025		
Austria	0.8980*	0.8953*	-0.1693*	0.7260
Finland	-4.7592*	0.9987*	0.4676*	1.4663
Sweden	-3.6783*	0.8011*	0.5108*	1.3119

* Significant at the 95% level.
Source: Own estimations in Excel with AMECO data.

The *Constant Elasticity of Substitution (CES) production function* is a generalized concept of production function, including the CD production function as a special case. CES is a neoclassical production function that displays constant elasticity of substitution. It was introduced by Arrow, Chenery, Minhas, and Solow (1961). Its general form is:

$$Q = A[\delta K^{\rho} + (1-\delta)L^{\rho}]^{\frac{v}{\rho}} \quad (3)$$

where

- Q = Quantity of output (real GDP)
- F = Total factor productivity (TFP)
- δ = Share (or distribution) parameter
- K, L = Quantities of primary production factors (Capital and Labour)
- ρ = Substitution parameter
- $\sigma = \frac{1}{(1-\rho)}$ Elasticity of substitution
- v = degree of homogeneity of the production function. Where $v = 1$ (Constant return to scale), $v > 1$ (Increasing return to scale), $v < 1$ (Decreasing return to scale).

As its name suggests, the CES production function exhibits constant elasticity of substitution between capital and labour. Leontief, linear and Cobb–Douglas functions are special cases of the CES production function. That is,

* If ρ approaches 1, we have a linear or perfect substitutes function.
* If ρ approaches zero in the limit, we get the Cobb–Douglas production function.
* If ρ approaches negative infinity we get the Leontief or perfect complements production function.

We estimate the CES production function with the same AMECO data as in the case of the estimation of the CD production function over the period 1960-2025 and the subperiod before and after EU accession in 1995. The estimation is done in Stata with the non-linear regression (with error term ε):

$$\ln(Q) = \beta_0 - \left(\frac{1}{\rho}\right) \ln\{\delta K^{-\rho} + (1-\delta)L^{-\rho}\} + \varepsilon \quad (4)$$

The results of the estimations of the CES production function for the whole economy for the three countries is not very satisfactory (see Table 4.4). For the subperiods the estimated coefficients are greatly insignificant. For the whole estimation period 1960-2025, only the estimations for Austria deliver plausible results. All estimated coefficients are significant and as a result it seems that the elasticity of substitution ($\sigma = 0.35$) is very low. In the case of Sweden ($\sigma = -0.65$) we approach the Leontief variant, namely a non-substitutional but a complementary production situation. The estimation for Finland delivers non-significant parameters.

Table 4.4: Estimations of CES production function: Austria, Finland, Sweden

	β_0	ρ	δ	σ
		1960-1994		
Austria	-2.5737*	3.9674*	0.0025	0.2013
Finland	-2.1901*	2.1286*	0.1020	0.3196
Sweden	-1.0778*	2.4457*	0.8503*	0.2902
		1995-2025		
Austria	-2.5223*	26.2944*	0	0.0366
Finland	-2.5374*	-68.4412	-7.0577	-0.0148
Sweden	0	0	0	0
		1960-2025		
Austria	-2.0213*	1.8210*	0.1673*	0.3545
Finland	-1.1187*	13.1346	1.1916	0.0707
Sweden	-1.0030*	-2.5387*	0.6309*	-0.6499

* Significant at the 95% level.
Source: Non-linear estimated in Stata with AMECO data.

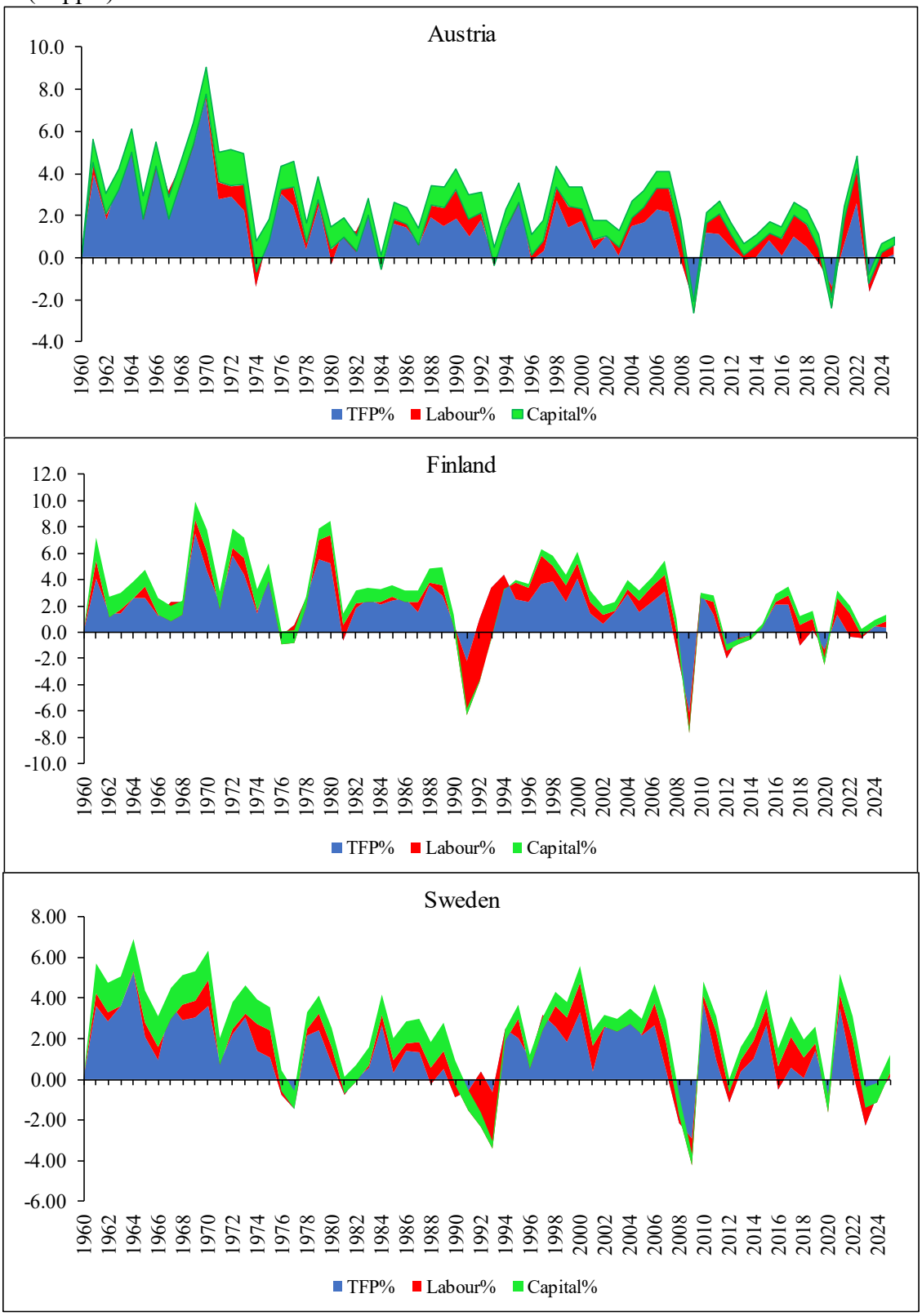
Overall, it must be noted that the estimations of production functions (CD or CES) for the economy as a whole - especially for short sub-periods of almost 30 years - hardly provide satisfactory results. The estimation results for the entire period of 66 years (1960-2025) are also mixed. As demonstrated by Arrow et al. (1961), better results would certainly be achieved if production functions were estimated for individual sectors.

4.2.6.2 Growth accounting

Based on the development of theoretical production functions in the context of growth theory, the concept of *growth counting* was developed. Growth accounting is a procedure to measure the contribution of different factors of production to economic growth and to indirectly compute the rate of technological progress, measured as a residual, in an economy. Growth accounting decomposes the growth rate of real GDP into that which is due to increases in the contributing amount of the factors used - usually the increase in the amount of capital and labour - and that which cannot be accounted for by observable changes in factor utilization. The unexplained part of growth in GDP is then taken to represent increases in total factor productivity (TFP), often interpreted as a measure of technological progress.

Since the seminal analyses from Solow (1956, 1962) growth accounting is the most widely used approach to measure the contribution of factors to productivity or output growth. As a basic approach, the growth of real GDP is measured by the factors of production, used in the Cobb-Douglas production function of equation (1).

Figure 4.7: Growth accounting: contribution of TFP, labour, and capital to the growth of real GDP (in ppts)



Data source: AMECO database

The growth rate of real GDP (Q) is the sum of the growth rates of TFP (A) plus the growth rate of capital, weighted with the production elasticity (α) plus the growth rate of labour, weighted with its production elasticity (β) which is equal the wage share[93]:

$$Q\% = A\% + \alpha K\% + \beta L\% \quad (5)$$

The growth accounting exercise has been done for Austria, Finland, and Sweden, using data from the AMECO database (see Figure 4.7). At first glance, it is striking that the residual (TFP) contributes the most to real GDP growth in all three countries.

Table 4.5: Growth accounting for Austria, Finland, and Sweden

	TFP%	Labour%	Capital%	GDP%
		1960-1994		
Austria	2.23	0.14	1.05	3.41
Finland	2.57	-0.17	1.06	3.46
Sweden	1.47	0.20	1.15	2.83
		1995-2025		
Austria	0.67	0.57	0.69	1.93
Finland	0.97	0.63	0.59	2.20
Sweden	1.04	0.53	0.81	2.37
		1960-2025		
Austria	1.48	0.34	0.88	2.70
Finland	1.81	0.21	0.84	2.86
Sweden	1.26	0.36	0.99	2.61

Data source: AMECO database

If one divides the entire period 1960-2025 into a pre-EU accession period and a post-EU accession period, the growth performance of the three countries is quite heterogeneous (see Table 4.5). In the period 1960-1994 the growth of TFP is the dominant factor determining the growth or real GDP in all three countries, most prominently in Austria and Finland. In the post-EU accession period 1995-2025, the contribution to GDP growth of the three factors TFP, labour, and capital is almost the same in Austria, but not in the Scandinavian countries. After 1995, in Finland, and Sweden, the growth of TFP is the most important determinant of the growth or real GDP, although the weight is lower than in the period 1960-1994. Over the whole

[93] The wage share β is measured by the adjusted wages shares relative to GDP from the AMECO database. By assuming constant returns to scale, $\alpha = (1 - \beta)$. The data for TFP (A) is also taken from the AMECO database.

period (1960-2025), again TFP is the dominant growth factor for the growth of real GDP in all three countries.

However, there are many studies that go beyond the simple decomposition of economic growth into FTP, labour and capital as applied above. These analyses use various subdivisions of TFP (technical progress). Over the last decades, this approach has been used to also evaluate the contribution of Information and Telecommunication Technologies (ICTs) to growth. It consists in decomposing the growth of value added per hour worked (labour productivity) into the growth of ICT capital and non-ICT capital per hour worked, based on a set of input-specific elasticities.

The study by Cette et al. (2020) is a recent example. This study uses a new and original database and contributes to the growth accounting literature with three original aspects: first, it covers a long period from the early 1960 to 2019. Second, they analyse at the country level a large set of 30 developed countries and the Euro Area.

The growth accounting approach shows that the main drivers of labour productivity growth over the whole period (1960-2019) appear to be TFP, non-ICT and non-robot capital deepening, and education. The overall contribution of ICT capital is found to be small. The contribution of robots to productivity growth through the two channels (capital deepening and TFP) appears to be significant in Germany and Japan in the sub-period 1975-1995, in France and Italy in 1995-2005, and in several Eastern European countries in 2005-2019. Their findings also confirm the slowdown in TFP in most countries from at least 1995 onwards. This slowdown is mainly explained by a decrease of the contributions of the components “others” in the capital deepening and the TFP productivity channels.

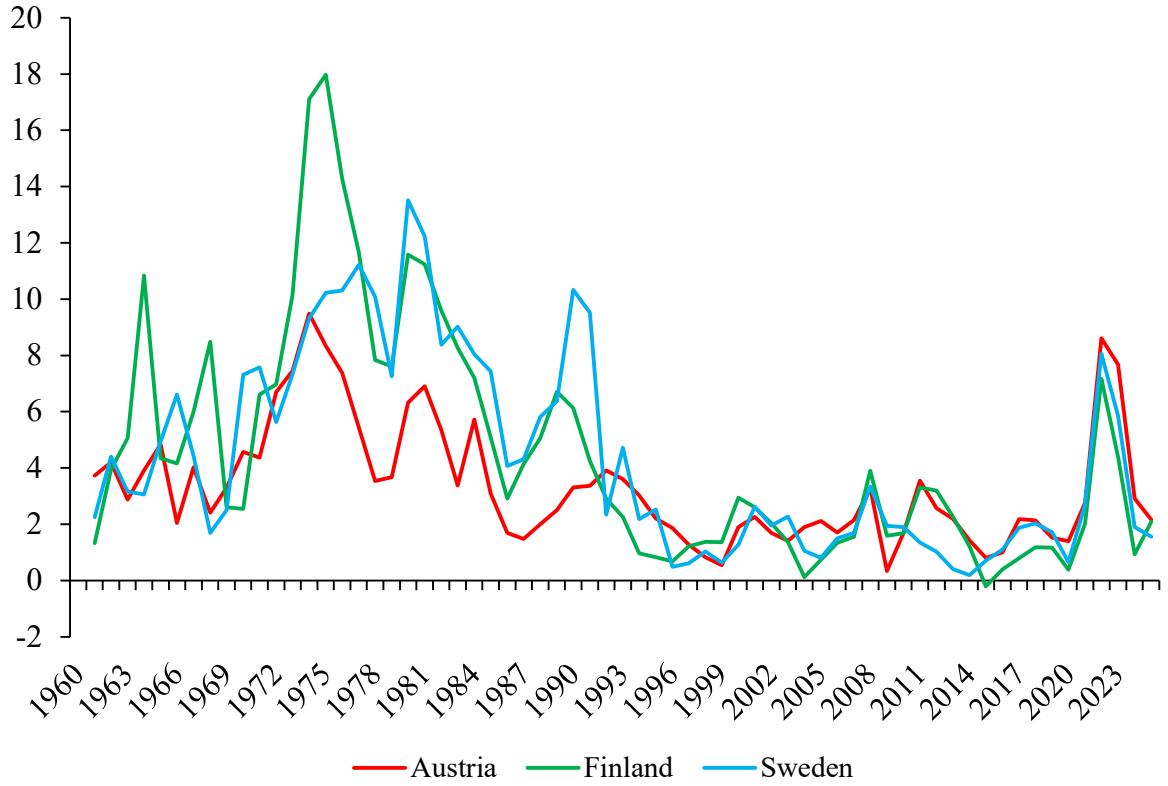
4.2.7 Inflation performance

Since the last crises – COVID-19 during 2020-2022, followed by the Ukraine war – the inflation hike is a great topic in the EU. In a longer-term perspective, however, inflation rates were much higher in the early seventies, caused by the first oil price shock. Since the early 1990s, Europe has benefited from a major price moderation. The inflation rate hovered around 2%. Only the war shock after Russian’s invasion of Ukraine, followed by a shortage of raw material (primarily oil and gas), fuelled by EU sanctions against Russia, inflation on all levels (wholesale and consumer) increased drastically.

Late, but not too late, the ECB switched from a too long loose monetary policy to a restrictive monetary policy stance. It increased its key interest rate (main refinancing operations: MRO) in ten steps from zero to 4.5%, starting in July 2022.

Since their EU accession in 1995, inflation rates developed quite similar in the three countries (see Figure 4.8). Only in the pre-EU area, in the seventies, due to the oil price shocks, inflation rates were much higher in the Scandinavian countries than in Austria.

Figure 4.8: Inflation performance in Austria, Finland, and Sweden
(CPI and HICP, annual percentage change)

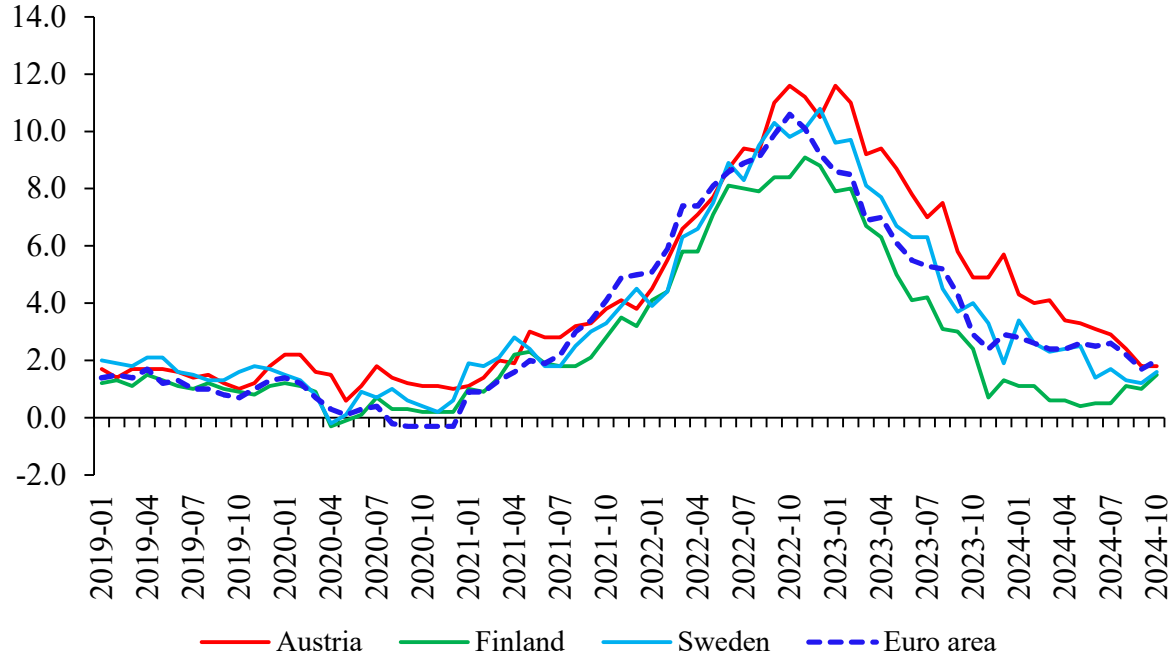


National consumer price index (CPI) 1961-1997; Harmonised consumer price index (HICP) 1998-2025
Source: AMECO database

The recent inflation performance was characterized by two external shocks: COVID-19 crisis in 2020/2021 and the war in the Ukraine, starting on 24 February 2022. The first shock - due to lockdowns - led to a fall in prices in 2020. The second shock led to an intensification of the price surge due to the shortage of energy, which had already been initiated by the ECB's very expansive monetary policy and the fiscal stimuli to overcome the Coronavirus crisis.

After the peak at the end of 2022 inflation rates – measured by the Harmonized Index of Consumer Prices (HICP) steadily declined (see Figure 4.9). While the inflation rate in Finland has been consistently below that of the Euro area since mid-2021, it has exceeded that of the Euro are in Austria and Sweden since mid-2022. Sweden brought its rate down to the level of the Euro area as early as mid-2023. In Austria, the HICP inflation rate exceeded that of the eurozone by 2 percentage points almost continuously until fall 2024.

Figure 4.9: Inflation rates during recent crises (COVID-19 and Ukraine war): 2019M01-2024M02 (Annual rate of change in %)



Source: Eurostat

The fact that the inflation rate is falling much more slowly in Austria than in many European countries is partly explained by the different political interventions (Austria has relied very heavily on measures to support purchasing power of its consumers; other countries - France and Spain - on direct intervention in the price mechanisms of the markets via price hikes or VAT cuts for food). Furthermore, Austria is very dependent on tourism, a sector in which prices are only falling slowly. Whether competition in the whole and retail sectors are stronger in Finland than in Austria is an open question (see chapter 9.2.2 for a partial explanation).

Measures to combat inflation

Amaglobeli et al. (2023, p. 17) collected the measures announced by country and by type of measure during the first semester of 2022. The authors divide their analysis into four groups:

- *Pricing policies.* These included cuts to excise duties and to lesser extent in VAT rates on energy products (e.g., Belgium, Bulgaria, Finland, Greece, Italy, Lithuania, Netherlands, Romania). General retail price caps of energy products (France, Hungary, Portugal, Romania, Slovenia, Spain) were also common.
- *Support to households.* These included cash transfers (Austria, Cyprus, Czech Rep, France, Germany, Italy, Spain, U.K.), vouchers (Belgium, Croatia, Estonia, Netherlands, Romania, Sweden), and other forms of subsidies such as energy efficiency grants/subsidies (Lithuania,

Luxembourg, Sweden) exclusively for vulnerable households or more broadly covering all households.

- *Support to firms.* The most common include grants/subsidies/loans to firms in specific industries (Austria) or all categories (Bulgaria, Greece). Others include liquidity support to energy companies (Denmark, Switzerland), energy efficiency grants and subsidies (Norway), tax credits for electricity, gas, and gasoline for selected firms (Italy), and temporary unemployment benefits (Belgium, France, Germany). Some countries have set up company lists for energy rationing in case of severe shortages in natural gas supply (Netherlands, Romania).
- *Windfall taxes.* Italy (also Austria) introduced a special contribution on extra profits realized by energy companies' windfall tax on the extraordinary profits of energy companies. Spain introduced a mechanism in which large energy companies pay back an amount proportional to the increase in income due to rising prices.

In the EU, acts in the field of taxation must be adopted by unanimity. The current provisions on VAT rates[94] are thus the result of different compromises agreed by all the EU Ministers of Finance. Nevertheless, there are different VAT rates in the EU. The VAT Directive sets the framework for the VAT rates in the EU, but it gives national governments freedom to set the number and level of rates they choose, subject only to 2 basic rules:

Rule 1: The standard rate for all goods and services. The Standard rates are 20% in Austria, 24% in Finland, and 25% in Sweden.

Rule 2: An EU country can opt to apply one or two reduced rates but only to goods or services listed in the VAT Directive. The reduced rates are 10/13% in Austria, 10/14% in Finland, and 6/12% in Sweden.

Shortly after the Russian invasion of the Ukraine, on 24 February 2022, the EU Finance Ministers (ECOFIN) formally adopted changes to the EU VAT Directive to give member states wider rights to use reduced VAT rates, including an option to introduce a new rate below 5% on a limited range of supplies[95]. The directive came at just the right time, as the invasion of Ukraine caused a shortage of oil and gas, which subsequently drove up overall inflation rates.

The Council Directive (EU) 2022/542 consists of four elements to newly reduced VAT rates:

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[94] See for the general rules of the EU VAT system and the tax rates in the individual EU MS: https://taxation-customs.ec.europa.eu/vat-rates_en

[95] See: Council Directive (EU) 2022/542 of 5 April 2022 amending Directives 2006/112/EC and (EU) 2020/285 as regards rates of value added tax, Official Journal of the European Union, L 107/1, 6.4.2022.

3) The freedom for MS to apply a new reduced rate below 5% to up to 7 of a list of 24 categories of products and services (foodstuffs, water, medicines, pharmaceutical products, health, and periodicals).
4) MS still have to retain a minimum effective 12% VAT rate across a weighted range of taxable supplies in order to prevent tax competition and distortion of the EU Single Market
5) Crisis mechanism for rapid cuts in VAT rates in case of crises: pandemics, humanitarian crises, or natural disasters.
6) A sunset clause for 2030 for reduced rates on carbon-intensive supplies (European Green Deal): chemical fertilizers and chemical pesticides.

Of the three countries, only Finland used this option. Finland confirms VAT on electricity to 10% between December 2022 and April 2023, personal transport exempt for same period.

Finland's temporary VAT rate cut on domestic electricity in its 2023 Budget has ended. This was from the 24% standard rate to the reduced rate of 10%. This was between 1 December 2022 and 30 April 2023. At the same time, public transport VAT was reduced from 10% to 0% from 1 January until 30 April 2023.

The cost of the measures, which include electricity bill-based deductions on income tax or a direct subsidy for low-income groups, will amount to roughly 800 million euros in next year's budget[96].

Finland's temporary reduced rates related to the COVID-19 pandemic: a rate of 0% applied to certain goods needed to combat the COVID-19 from 30 January 2020 until 30 June 2022. A temporary zero rate applies to COVID-19 self-test kits during 2022. Temporary zero rate applies to goods and associated services intended to be denoted to Ukrainian refugees from 24 February until 31 December 2022 (see OECD, 2022B, p. 87).

The European Union Parliament's Committee on Economic and Monetary Affairs (ECON) has questioned the use of reduced VAT rates in time of crisis to help consumers[97]. ECON is concerned that the impact of temporary VAT reductions for end consumers was limited and was more pronounced for companies that increased their profit margins because of these reductions. It has called on the European Commission to review this area further.

During the COVID and inflation spike crises, many countries cut temporarily VAT rates on basics such as food and energy. This came despite IMF and OECD criticising inflation VAT

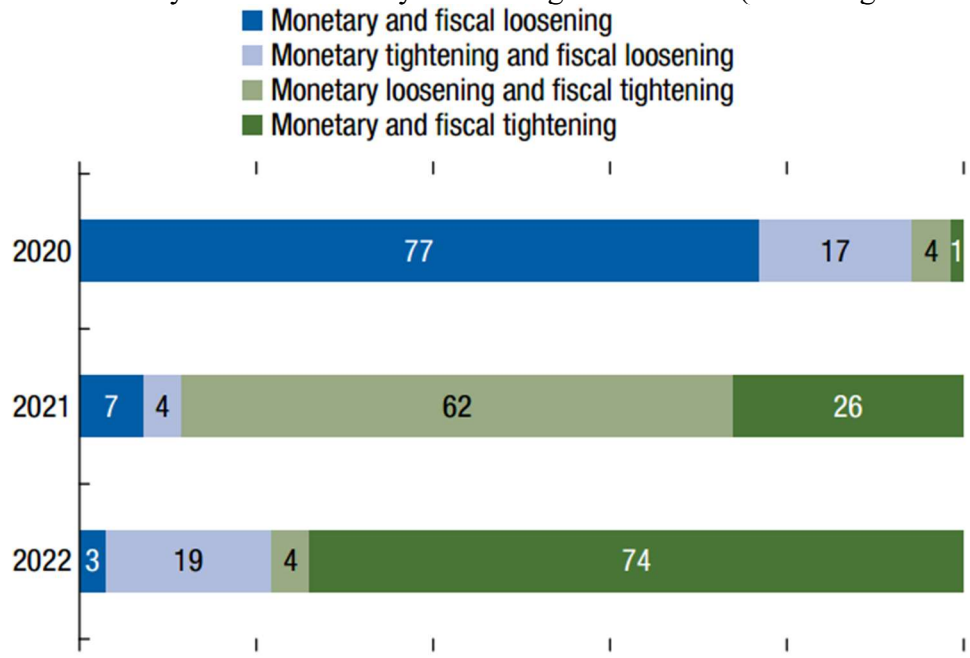
[96] See: https://www.vatcalc.com/finland/finland-considers-foodstuffs-and-petrol-vat-cuts/
[97] See: https://www.vatcalc.com/eu/eu-parliament-challenges-crisis-reduced-vat-rates/

cuts. Also, the Bruegel Institute in Brussels has closely followed the "National fiscal policy responses to the energy crisis" (see Sgaravatti et al. 2023).

The budgetary consequences

The two crises since 2020 (COVID-19, Ukraine war) were characterized by a change in the policy mix (see Figure 4.10). To combat the COVID-19-related disruptions exceptional measures were taken by the national banks and by governments. In 2020 more than three quarters of the IMF countries followed a fiscal and monetary loosening policy. As the global economy recovered from COVID-19-related disruptions and as exceptional measures by governments largely came to an end, fiscal policy moved to a tightening stance in 2021–22 amid high inflation and the need to reduce debt vulnerabilities. However, monetary policy largely remained expansionary. Nearly three-quarters of IMF economies tightened both fiscal and monetary policy in 2022.

Figure 4.10: Monetary and Fiscal Policy mix during recent crises (Percentage of economies)



Source: IMF (2023A), p. 2

According to the analysis by the IMF (2023A, p. 20), inflation can affect fiscal aggregates directly through three channels:

1) *Inflated nominal values for GDP and the tax base:* Higher nominal GDP lowers deb and deficits as a share of GDP. The nominal tax base also grows with inflation.
2) *Inertia in nominal spending:* The next response of the fiscal balances to inflation depends on whether expenditure keeps pace with revenues.

3) *Sovereign debt size and structure, and investors' response:* The larger the debt, the greater the potential erosion from inflation.

Beyond the overall impact of inflation on the fiscal accounts, inflation has also effects on the distribution of household's well-being. The IMF (2023A, p. 31) counts three channels through which inflation affects the distribution of households' well-being:

1) Differences in price increases across goods combined with differing consumption patterns (*consumption basket channel*).
2) Impact on households' real incomes (*income channel*)
3) Impact on the real value of households' initial stock of assets and liabilities (*wealth channel*).

The IMF (2023A, p. 32-33) estimates the effects of inflation via the three channels for six economies (low-income and developing countries, emerging market economies, and advanced economies – Finland and France).

Considering the overall impact of inflation and the relative importance of the three channels (consumption basket, income, and wealth) in different countries and for different income groups, it becomes apparent that the impact of inflation on well-being is variegated and depends on several factors. In Finland and France, the middle quintiles were less affected than the highest and lowest. While the income channel was the most sizable, variation across quintiles reflected the wealth channel.

4.3 Who is wealthier?

Besides GDP per capita as measure of welfare, wealth is an additional measure of the "richness" of a country.

According to the *Global Wealth Databook 2003* (UBS, 2023), all three countries belong to the top 100 wealthiest countries[98].

Wealth is measured by financial and non-financial (material) active posts (housing, financial assets minus debt). Accordingly, Austria had a GDP per adult in 2022 of 65,268 USD and a total wealth in 2022 of 1,794 bn USD (245.225 USD per adult). Finland's GDP per adult was 64.860 in 2022 and total wealth of 792 bn USD (179,986). Sweden's GP per adult was 72,116 in 2022 and total wealth amounted to 2,335 bn USD (296,800).

[98] See: https://de.m.wikipedia.org/wiki/Liste_der_L%C3%A4nder_nach_Gesamtverm%C3%B6gen

The Global Wealth Databook (UBS, 2023, p. 120 ff.) also estimates the degree of wealth inequality, measured by the Gini coefficient[99]. Accordingly, by the end of 2022 Austria's Gini coefficient was 76.1%. those of Finland was 72.4%, those of Sweden of 87.4%

In 2000 the wealth per adult was in Austria 115,039 USD, in Finland 73,221, and in Sweden 77,253. That mean that Sweden experienced the fasted growth in total wealth (6.3% per annum), followed by Finland (+4.2%) and Austria (+3.5%). Whether this result is the implicit consequence of EU membership is difficult to answer. The pattern of growth performance (Sweden as leader, Austria as last) matches with the outcome of the Difference-in-Difference analysis of chapter 4.2.5).

Another source of wealth statistics is the Household Finance and Consumption Survey (HFCS[100]), a joint project of central banks and national statistical institutes of the European Union, provides detailed household-level data on various aspects of household balance sheets and related economic and demographic variables, including income, pensions, employment, gifts, and measures of consumption. This set of tables reports the main figures from the HFCS along several dimensions. A key distinguishing feature of the HFCS is that it provides country-representative data, which have been collected in a harmonised way in 22 European Union member states for a sample of around 83,200 households.

5. The role of the EU budget

5.1 The cost of EU membership

At the start of the Single Market[101], the European Commission commissioned a study, called *"The Cost of Non-Europe"*. This study (The Economics of 1992) analysed the potential economic benefits of creating the Single Market in 1993 (see Cecchini et al., 1988; Catinat et al, 1988; Commission of the European Communities, 1988).

Here we mean by the "Cost of EU membership" the budgetary burdens a rich EU member state must bear. One of the fundamental and most important principles of the EU - laid down in Article 3 of the Treaty on the European Union (TEU) - is *"solidarity among Member States"*.

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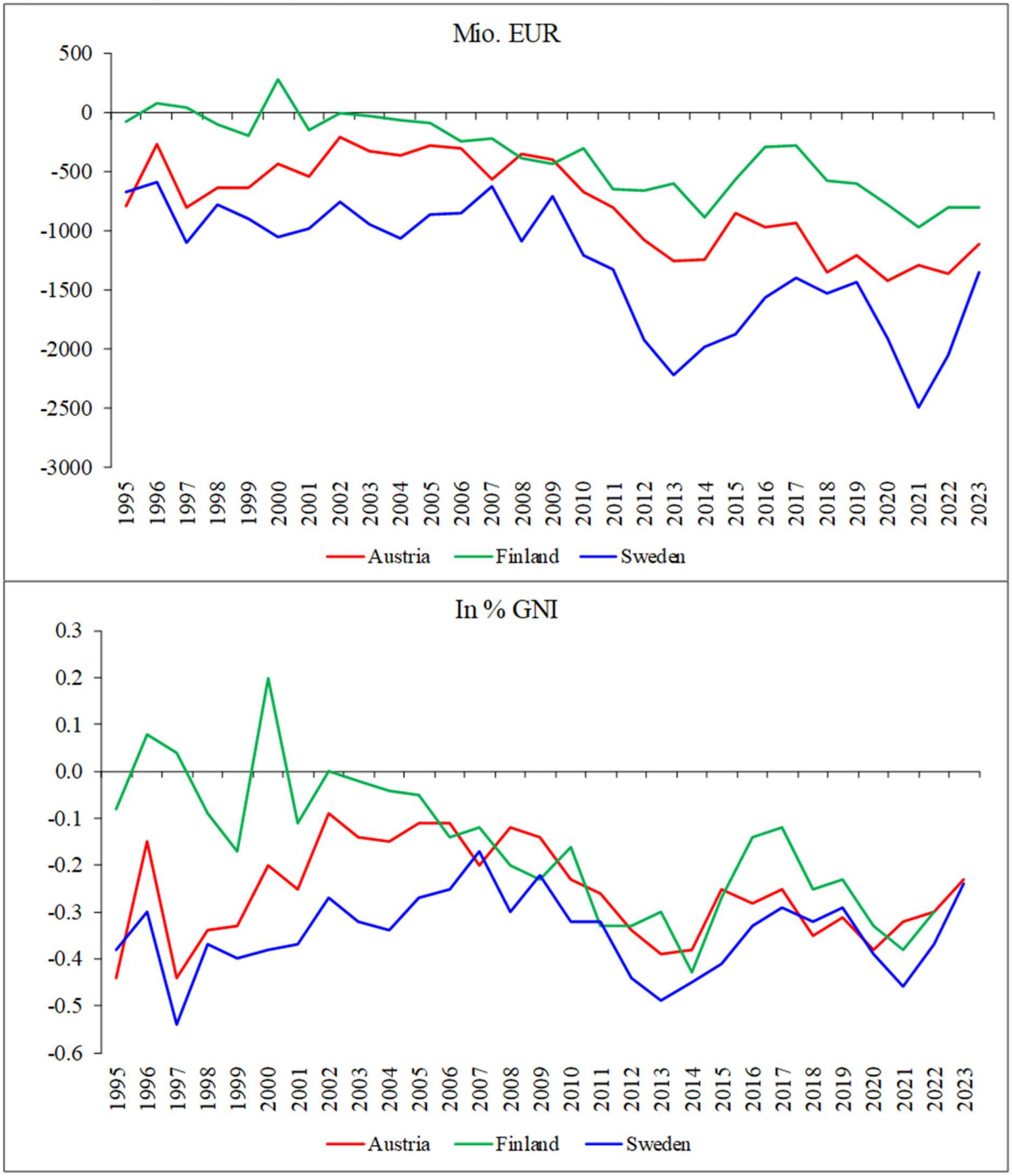
[99] A Gini coefficient of 0 reflects perfect equality, where all income or wealth values are the same, while a Gini coefficient of 1 (or 100%) reflects maximal inequality.

[100] See the dashboard of the ECB: The Household Finance and Consumption Survey, Wave 2021; statistical tables, July 2023 (https://www.ecb.europa.eu/home/pdf/research/hfcn/HFCS_Statistical_Tables_Wave_2021_July2023.pdf); see also a similar dashboard of the Austrian National Bank (OeNB): OeNB: HFCS-Internatioanl-Key-Figures-Dashboard: https://oenb.shinyapps.io/HFCS_Keyfigures/

[101] In the White Paper on the Internal Market, the Commission of the European Communities (1985) presented the plan for the creation of the Single Market.

This means that the EU works with a variety of funds to strive for a balance between rich, highly developed, and poor, less developed member states. This redistribution mechanism is reflected in the EU budget.

Figure 5.1: Operating budgetary balance vis à vis the EU budget: Austria, Finland, Sweden



GNI = Gross National Income
Source: European Commission (https://commission.europa.eu/strategy-and-policy/eu-budget/long-term-eu-budget/2021-2027/spending-and-revenue_en)

Table 5.1: Structure of expenditures/revenues of the EU Budget: Austria, Finland, and Sweden compared to EU average: 2021

Headings	**Austria**	**Finland**	**Sweden**	**EU27**	**Total EU****
			Spending in % of total		
1 Single Marekt, Innovation and Digital	17.4	16.1	16.1	9.0	8.1
1.01 Research and Innovation	*10.0*	*10.8*	*12.0*	*5.5*	*4.8*
2 Cohesion, Resilience and Values	18.7	20.0	25.1	44.3	55.5
3 Natural Resources and Environment	58.7	58.2	49.3	37.1	24.9
4 Migration and Border Management	1.2	1.5	6.5	1.6	1.1
5 Security and Defence	0.4	0.6	0.4	0.5	0.3
6 Neighbourhood and the World	0.5	0.6	0.2	0.5	4.8
7 European Public Administration	1.6	3.0	2.1	6.2	4.7
0 Outside MFF*	2.9	0.0	0.0	1.6	1.1
Total Spending	100.0	100.0	100.0	100.0	100.0
Total Spending (EUR Mio.)	2224.6	1600.2	2071	147948.8	227996.2
National spending in % EU27	*1.50*	*1.08*	*1.40*		
National spending in % Total EU	*0.98*	*0.70*	*0.91*		
National spending in % of GNI	*0.55*	*0.62*	*0.38*		
Types	**Austria**	**Finland**	**Sweden**	**EU27**	**Total EU****
			Revenue in % of total		
Sugar levies	0.0	0.0	0.0	0.0	0.0
Customs duties	5.8	5.8	10.3	13.6	7.9
Own resources based on VAT	14.4	10.6	13.4	12.8	7.5
Own resources based on GNI	86.6	76.5	86.1	83.0	48.3
Gross reduction in the annual GNI-based contribution	-9.7	5.1	-15.2	0.0	0.0
Own resources based on plastic packaging waste not recycled	4.2	2.6	2.0	4.2	2.4
Total	100.0	100.0	100.0	100.0	100.0
Total (EUR Mio.)	3713.7	2692.3	5069.4	139597.9	239596.0
National contribution in % EU27	*2.66*	*1.93*	*3.63*		
National contribution in % Total EU	*1.55*	*1.12*	*2.12*		
National contribution in % of GNI	*0.93*	*1.05*	*0.93*		

* Brexit adjustment reserve in data for EU27 and Total EU; in case of Austria: solidarity mechanism
** Total EU includes earmarked total and NextGenerationEU (NGEU), other, and non-EU.
GNI = Gross National Income; VAT = value added tax
Source: European Commission (https://commission.europa.eu/strategy-and-policy/eu-budget/long-term-eu-budget/2021-2027/spending-and-revenue_en; and: EU spending and revenue 2021-2027 (https://commission.europa.eu/strategy-and-policy/eu-budget/long-term-eu-budget/2021-2027/spending-and-revenue_en)

As Austria, Finland and Sweden are rich and highly developed members of the EU, they are paying more into the EU budget than getting back. That means they are net payers. The concept of net payers is popular for politicians, but nevertheless difficult to determine exactly (see European Commission, 2019B, p. 17). For this reason, the European Commission stopped the calculation of net payments, also called "operating budgetary balance" in 2018. In Figures 5.1 below, we used data from the European Commission from 1995 to 2018 and continued with the

calculation of this indicator, following the rules by the European Commission (2019A, Annex 3) and Busch et al. (2022).

In the Figure 5.1 one sees that Sweden is the biggest and Finland the least net payer. One sees furthermore that the costs of EU membership are increasing over time. Especially the grand EU enlargements, starting in 2004 led to an additional burden for the rich countries, because the new member states of Eastern Europe started as rather poor countries. In the meantime, they have picked up but additional programs of the EU like the "Green Deal" and the cost of the Ukraine war increase the burden for net payers.

The latest calculation of the operating budget balances for the year 2023 amount to -0.25% of GNI for Austria, -0.29% for Finland, and -0.24% for Sweden (see Figure 5.1). Including NGEU the net contributions to the EU budget were -0.43% for Austria, -0.62% for Finland, and -0.58% for Sweden (see Busch et al., 2024, p. 17). According to calculations by Busch et al. (2024, p. 17), in 2023, Ireland with EUR 236.08 per capita was the largest net contributor to the EU budget. Austria is in 8th place with -123.53 euros per capita, Finland (-150.54 euros per capita) in 7th place and Sweden (-131.04 euros per capita) in 6th place among the countries that are net contributors. Estonia was the biggest net recipient with 626.9 euros per capita, followed by Croatia, and Lithuania. In absolute terms, Poland gets still most out of the EU budget (8.2 bn euros), followed by Romania, and Hungary.

The structure of the expenditures and revenues of the EU budget in 2021 (after the Brexit it is one for EU27) shows the following picture (see Table 5.1):

- *Spendings/Expenditures:* In Austria and Finland, nearly 60% of the expenditures out of the EU budget go to "Natural resources and environment". The major part is spent on investments under the Common Agricultural Policy (CAP). Sweden's share in this category is below 50%. In all three countries, the shares are higher than in EU27 (37%). The second biggest expenditure share is in "Cohesion, Resilience and Values". Here are included all the financial means of regional funds (Cohesion Fund, European Social Fund, etc.). In Sweden 25% are spend in this category, in Austria and Finland only around 20%. In this category the EU27 offers 44% of the total expenditure, which means that these means go primarily to poor countries in the periphery or in the East of the EU. The three countries have a share of 16% to 17% of expenditures in the category "Single Market, Innovation and Digital" – the future-related investments. It should be emphasized that Sweden gets the most out of the EU budget in the subcategory "Research and Innovation: 12% vs 10% in Austria and Finland. This corresponds with the development of the shares of total R&D expenditure in % of GDP in the three countries (see Figure 6.5). Whereas in Finland the R&D develops quite

cyclically, Austria caught up linearly from below 1.5% in 1990 to above 3% in 2022. But still, Sweden leads with around 4% expenditures on R&D.

In 2021, the three countries got less than 1% of GNI out of the EU budget for spending (Austria: 0.55%, Finland, 0.62%, and Sweden only 0.38%; see Table 5.1).

- *Revenues:* The national contributions to the EU budget consist of so-called own resources (see Table 5.1). The biggest share concerns the contributions based on GNI (between 77% and 87%). Then comes the own resources base on value added tax (VAT) of around 10% to 14%. Some countries are entitled to discount for their activity in tax collection, so for instance Austria and Sweden. Finland must pay into the EU budget under this title. A newly introduced own resource are the plastic packaging fee. Austria must pay twice as much as the two other countries.

  In 2021, the three countries contributed to the EU budget around 1% of GNI (Austria: 0.93%, Finland 1.05%, Sweden 0.93%). Compared to the shares of spendings/expenditures, the three countries are net-contributors to the EU budget of around ½ of a percentage point of GNI.

The European Court of Auditors (2024C) critically analysed the outcome of the new EU's revenue based on non-recycled plastic packaging waste. In 2023, revenue from the plastic-based own resource was to €7.2 billion, or 4 % of the EU's total revenue. The ECA criticises this new own resource of the EU, introduced in 2021. Actions to monitor and support implementation were not timely, with most EU countries unprepared for the challenge. Persistent problems with data comparability and reliability, as well as a lack of appropriate checks of plastic packaging waste that is recycled, mean that the resource is likely to be calculated incorrectly. Poor-quality estimates of plastic packaging waste lead EU countries to understate their contributions. There is a significant risk that plastic packaging waste is not recycled.

5.2 New challenges of the EU budget

Over the years, the EU has been criticized for spending too much on agriculture and to less into future-related investments. In the meantime, the structure of the EU budget goes into the right direction towards future-relevant expenditures. Whereas in the last 4-year budgetary period nearly 60% were spent on Common Agricultural Policy and fisheries (CAP), in the latest Multiannual financial framework (MFF) 2021-2027 the share of CAP declines to 29%. In return new and reinforced priorities rose from 10% to 35%. Expenditures on economic, social, and territorial cohesion remained rather constant at around 29%. The share of spending on Administration increased slightly to around 7% (see European Commission, 2019B, p 4).

The contributions of the EU Member States will increase on EU average from 0.81% of Gross National Income (GNI) in the financial period 2014-2020 to 0.90% in the MFF period 2021-2027. The contributions to the EU budget increase in the case of Austria from 0.79% to 0.91%, in Finland from 0.84% to 0.91%, and in Sweden from 0.71% to 0.85% (European Commission, 2019B, p. 8). The Commission (2019B, p. 9) mentions the four main drivers of the change in the national contributions. 10 ppts of the increase is due to the cost of the Brexit in 2021, 20 ppts is owed the reinforced priorities (Green Deal), the remaining shares are due to economic growth and inflation. Since then, two other factors blow up the need for more contributions by Member States: 1) the COVID-19 crisis in 2020-2022, and 2) the Ukraine war (since 24 February 2022).

In the pre-COVID-19 year, 2019 the three countries contributed to the EU budget somewhat less than 1% of GNI: Austria 0.85%, Finland, 0.90%, Sweden, 0.73%. In 2020 (first COVID-19 year) the shares of contribution to the EU budget (in % of GNI) increased: Austria 1.00%, Finland, 1.02%, Sweden, 0.94%. In 2021 (first year without UK – EU27) the shares were: Austria 0.93%, Finland, 1.05%, Sweden 0.93% (see Table 5.1). In 2022 the contributions of the three countries to the EU budget in % of GNI again declined: Austria 0.81%, Finland 0.95%, Sweden 0.77%.

Cohesion policy investments are grouped by the European Commission (2022A, p. 294-295) into six areas: 1) investment in transport infrastructure, 2) investment in other infrastructure, 3) investment in human capital, 4) investment in R&D, 5) aid to the private sector, and 6) technical assistance programs. Model simulations by the European Commissions (2022A, p. 296) suggest that cohesion policy in 2014-2020 had a positive effect on EU GDP, reaching a peak in 2021 when GDP is estimated to be 0.4% higher than it would be without it. The impact varies within the EU regions. The poorest regions and countries profit more than average, the rich ones also get spillover effects. Accordingly, in 2023 and 2043 the regions in the peripheric countries (the poor countries and regions in Portugal and Spain and in the new member states in Eastern Europe) benefit the most of up to 1.5% to 2% more real GDP above baseline. Via spillovers also the rich countries draw benefits from the EU cohesion policy. In the northern regions of Sweden GDP would rise by 0.1% to 0.5% above baseline, whereas Finland and Austria gain only of around 0.1% more GDP.

To demonstrate, that the net payers are not the losers of EU membership, the European Commission (2019B, p. 19) compares the estimated benefits with the MFF 2021-2027 national contributions. Austria contributes to the MFF EU budget 2021-2027 0.95% of GNI and would benefit from the Single Market by 7.86% of GNI, according to estimates by in ‘t Veld (2019).

In the case of Finland, the costs (0.91% of GNI) are contrasted with a benefit of 5,03% of GNI. In Sweden (0.85% vs 5.31% of GNI) is the cost-benefit analysis similar.

Despite these impressive model simulations, it is still an open question whether the three countries -Austria, Finland, and Sweden - would have followed the same or a more efficient public investment policy when not financed by the EU budget but by their national budgets.

Since 2021 three major changes occurred in the EU budget:

1) The EU budget for 2021 was the first without UK after the Brexit, namely one for EU27.
2) Due to the "New Deal" of the European Commission under the presidency of Ursula von der Leyen since 1 December 2019 a new budgetary milestone was invented. Together with the MFF 2021-2027 (1074.3 EUR billion)[102] a new budget, the NextGenerationEU (NGEU, 750 EUR billion) was planned. The letter is named "Recovery Plan for Europe" and should help to cushion the burden of the COVID-19 crisis that plagued Europe between 2020 and 2022.
3) The Ukraine war calls for solidarity of the EU Member States and needs further financial assistance.

5.2.1 The Brexit effect

The Brexit effect can be identified by a comparison of the EU budgets of 2020 (with UK) with those of 2021 (without UK). In 2020, Austria contributed 1,0% of its GNI to the EU28 budget, Finland 1.02%, and Sweden 0.94%. In 2021 the shares of contribution were 0.93% for Austria, 1,05% in Finland, and 0.93% in Sweden. The decline in the cost of EU membership in the case of Austria and Sweden was due to a rebate (reduction in annual GNI-based own resources; see Table 5.1). In the EU, the share of contributions to the EU budget increased from 1.02% of GNI in 2020 to 1.09% in 2021.

5.2.2 Recovery Plan for NextGenerationEU

The European Commission advertised its new financial plan ("Recovery Plan for Europe") as follows[103]: *"This is NextGenerationEU. This is more than a recovery plan. It is a once in a lifetime chance to emerge stronger from the pandemic, transform our economies, create opportunities and jobs for the Europe where we want to live. We have everything to make this*

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[102] The budget allocation of the financial means (NextGenerationEU, MFF 2021-2027), to EU Member States can be found on: https://commission.europa.eu/strategy-and-policy/eu-budget/long-term-eu-budget/2021-2027/spending/budget-pre-allocations_en

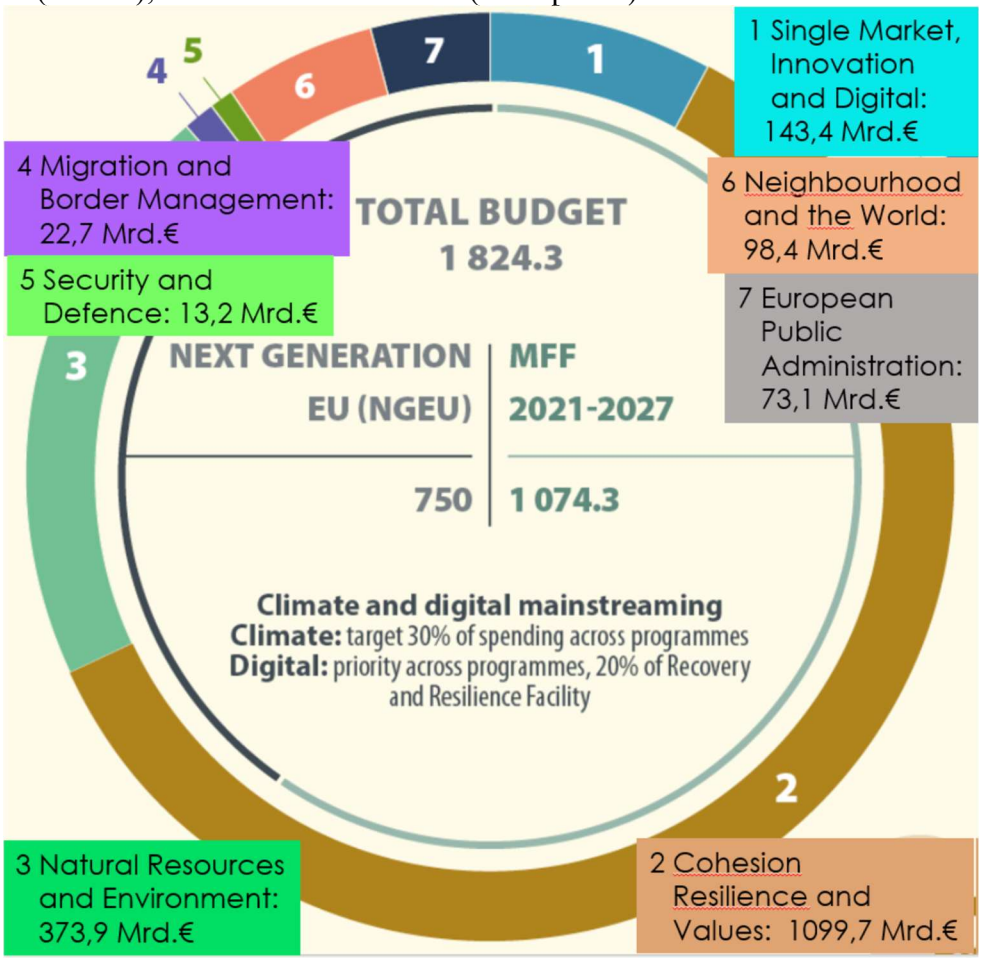
[103] Details see: https://commission.europa.eu/strategy-and-policy/recovery-plan-europe_en

happen. We have the vision, we have the plan, and we have agreed to invest together €806.9 billion (in current prices, which amounts to EUR 750 billion in 2018 prices) (see Figure 5.2).

The EU's long-term budget, coupled with NextGenerationEU (NGEU), the temporary instrument designed to boost the recovery, form the largest stimulus package ever financed in Europe. A total of €2.018 trillion in current prices (EUR 1.8 trillion in 2018 prices) are helping rebuild a post-COVID-19 Europe. It will be a greener, more digital and more resilient Europe.

The funds are being used to address the most important challenges before Europe and support those in need. In the aftermath of Russia's aggression on Ukraine, the EU budget was mobilised to provide emergency assistance and support, in Ukraine and in the EU countries, and to alleviate the humanitarian consequences of the war."

Figure 5.2: Multiannual Financial Framework (MFF) 2021-2027 and Next Generation EU (NGEU); all amounts in € billion (2018 prices)



Source: Simplified Infographic of the European Council, see: https://www.consilium.europa.eu/en/infographics/mff2021-2027-ngeu-final/

On 21 July 2020 the European Council agreed to establish the Next Generation EU (NGEU) instrument as an exceptional temporary recovery measure as part of a coordinated and as far as

possible, symmetric fiscal response to the economic fallout of the coronavirus (COVID-19) pandemic. NGEU allows the European Commission to issue debt to finance grants and loans to EU Member States between 2021 and 2026. The debt incurred by the EU will be repaid between 2028 and 2058. The scheme is intended to target support to the regions and sectors that were hit particularly hard by the pandemic.

The NGEU (€ 750 billion at 2018 prices; € 807 at 2022 prices) consists primarily of a Recovery and Resilience Facility (RRF[104]), amounting to € 673 billion (2018 prices) or € 723 at 2022 prices). € 385 billion of which are funds in loans and € 338 billion in grants. Those countries which have better refinancing conditions than the EU funds, like the three countries, do not take EU loans. The RRF plans of Austria, Finland, and Sweden were already accepted by the European Commission and first disbursements had been executed.

The European Commission (Pfeiffer et al., 2021), as well as the European Central Bank (Bankowski et al., 2021) have made simulations about the possible impact of the NGEU project. The study by Pfeiffer et al. (2021) particularly evaluates the spillovers resulting from the public investments financed by the NGEU program because NGEU is a unique coordinated investment reform programme across the EU. The simulations with the QUEST model of the European Commission. It is assumed that NGEU investment is about 4% of EU GDP. For the fast-spending scenario (four years), with evenly distributed spending between 2021 and 2024, the authors find that the level of real GDP in the EU-27 could be around 1.5% higher in 2024 than foreseen in no-policy change baseline. When it is assumed that the NGEU plan lasts six years (2021 to 2026), the GDP gains could reach 1.2% in 2026. However, the Ukraine war threw a spanner in the works. Furthermore, the withholding of NGEU funds in the case of Poland and Hungary also violated key assumptions of the model simulations.

The ECB study (Bankowski et al, 2021) find that those countries profit the most which get the largest part of RRF. In their simulations up to the year 2020 cumulatively real GDP could increase by 2% in Spain, followed by (+1,5%). The rich countries France and Germany could stimulate GDP only by 0.5%.

The NGEU program – more precisely via the RRF – introduces a new mechanism of redistribution in the EU from rich to poor countries (Breuss, 2022A, p. 29). The grants (measured in % of GDP) are negatively correlated with the state of development (GDP per

[104] For details, see: https://commission.europa.eu/business-economy-euro/economic-recovery/recovery-and-resilience-facility_en

capita) of EU MS. The poorer a country (measured by GDP per capita), the more it gets out of the RRF. This is true for Croatia, Bulgaria, and Greece which gain the most of this program.

What costs for the EU to pay its economic recovery debt?

On 2 April 2024, the European Court of Auditors (ECA[105]) criticised the implementation of the NextGenerationEU (NGEU) fund – worth around EUR 800 billion – set up by the EU in 2021, to prop up the economies of its member states during and following the COVID-19 pandemic. While the money has been flowing to member states, the flow is slow and set to end in 2026. There is also a catch – it is not "free money", as it will have to be repaid in full between 2028 and 2058. Will repayment simply be passed down to the next generation of taxpayers, as the fund's name aptly suggests? Halfway through the short life of this special fund, auditors point to several challenges, which does not bode well for the future.

The Recovery and Resilience Facility (RFF) represents the lion's share of this novel instrument, with over EUR 700 billion in grants and loans to member states. Spain and Italy stand to benefit the most from it. However, as of late March 2024, only just over a third of the funds available for disbursement under the facility have been paid out. In Spain and Italy, absorption of the traditional cohesion funds is lagging significantly behind the EU average too and, given that RRF funding "competes" with cohesion funding, the picture is less than encouraging. *Three EU countries have not yet received any RRF funding* – the Netherlands, Ireland, and Sweden. With most of the recovery fund yet to be disbursed but only about 2 years left of the instrument, there is a pressing need for action.

In addition to criticizing the slow implementation, the ECA also criticizes the *financing and its costs.* To finance this unprecedented EU fund, the Commission has, for the first time in history, borrowed on the financial markets on an unprecedented scale. However, this type of borrowing – once almost cost-free – has given way to soaring interest rates in recent years as the ECB has increased its interest rates. As we pass the halfway mark of the instrument's short lifespan, there is increasing concern about the repayment of the loans taken from the financial markets for RRF funding, further fuelled by the absence of a dedicated source of EU funding to pay back the loans. With capital repayments set to begin in 2028, the timeline for addressing this financial obligation is approaching rapidly. Moreover, the budget is already feeling the strain of interest charges, which could rise to as much as €27 billion for the EU's entire multi-year budgeting period, *doubling* initial estimates.

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[105] See: https://www.eca.europa.eu/en/news/news2024_04_newsletter_03

As part of its NextGenerationEU (NGEU) post-COVID-19 recovery and economic greening plan, the European Union intends to borrow about €421 billion (in current prices) before the end of 2026 to fund *"non-repayable support"* to EU countries. This debt and the interest on it must be repaid before 2058 from the EU budget. Claeys et al. (2023) from the Bruegel institute also made estimates what these costs could amount to. Their conclusion is that servicing the EU debt until 2058 seems feasible, despite increased borrowing costs, but member states must make choices about budget funding.

Starting in 2028, when a new budget cycle begins, the EU budget will also need to include provisions for the repayment of the EU debt, in addition to interest costs. However, the debt issued between 2021 and 2026 will not necessarily need to be reimbursed immediately when it matures, as the legislation allows for some rollover after 2027, to enable a smooth decline in EU debt.

The simulations by Claeys et al. (2023), from 2028, assume some rollover to ensure a linear decline in the total debt stock until 2058. From this, they estimate that the annual principal repayments will be around €13.9 billion from 2028 to 2058. Starting in 2028, the EU will thus be required to allocate significantly more money to service its debts. At the 50 percent confidence interval, the total annual financial needs could reach between €22 billion and €27 billion in 2030 (respectively 0.11 percent and 0.13 percent of EU GDP), before declining gradually towards €13.9 billion at the end of the programme. In total, for NGEU non-repayable support to EU countries, between about €582 billion and €715 billion will likely be spent to pay interest and to reimburse the debt.

The question then arises as to whether the EU has sufficient revenues. In June 2023, the European Commission proposed a package of "own resources", or revenues for the EU budget[106]. Under the proposal an estimated €36.5 billion (in 2018 prices) per year would be raised for the EU budget between 2028 and 2030: €19 billion from the EU emissions trading system, €1.5 billion from the carbon border adjustment mechanism (CBAM) and €16 billion from a new statistics-based own resource on company profits. Adjusting for inflation, this new package would in principle raise approximately €50 billion annually between 2028 and 2030. Given the scarcity of forecasts on carbon prices, carbon emissions, ETS and CBAM coverage, and the current lack of details on the revenues that could be derived from a corporate profits levy, estimating revenues after 2030 is a big challenge.

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[106] See "An adjusted package for the next generation of own resources" (20.6.2023): https://commission.europa.eu/system/files/2023-06/COM_2023_330_1_EN_ACT_part1_v5.pdf

The authors mean that €50 billion annually could, in theory, be enough to cover the costs associated with NGEU borrowing: these costs could peak at €27 billion or €32 billion in 2030.

Given that the costs associated with EU borrowing will peak as soon as 2028-2030, it is crucial that a sufficient package of own resources is in place by then. Otherwise, countries must either reduce other EU budget expenditures, or increase their national contributions, through a call on the 0.6 percent of GNI guarantee set up in 2020.

As always with state funding, there is also abuse with the NGEU. On 4 April 2024, the European Public Prosecutor's Office (EPPO) reported about an investigation about "resilient crime" concerning a EUR 600 million fraud involving NGEU funds[107]. In the context of an international large-scale investigation led by EPPO in Venice (Italy), dozens of searches and seizures took place, and 22 arrests were made today in Italy, Austria, Romania, and Slovakia, in a probe into an alleged criminal organisation suspected of defrauding €600 million from the EU's Recovery and Resilience Facility (RRF) for Italy.

Austria:

On 21 June 2021, the European Commission has adopted a positive assessment of Austria's Recovery and Resilience plan (RRP)[108]. The reforms and investments in the plan will help Austria become more sustainable, resilient, and better prepared for the challenges and opportunities of the green and digital transitions (see Figure 5.3). To this end, the plan consists of 32 investments and 27 reforms. They will be supported by €3.46 billion in grants**.** 59% of the plan will support climate objectives and 53% of the plan will foster the digital transition**.** Austria has not utilized any loans.

Under the Recovery and Resilience Facility (RRF), Austria has so far received €1.15 billion in total, made up of €450 million in pre-financing in September 2021, and €700 million for the first payment request disbursed in April 2023.

On 19 October 2023, the Commission has positively assessed Austria's modified recovery and resilience plan, which includes a REPowerEU chapter. The plan benefits from €3.961

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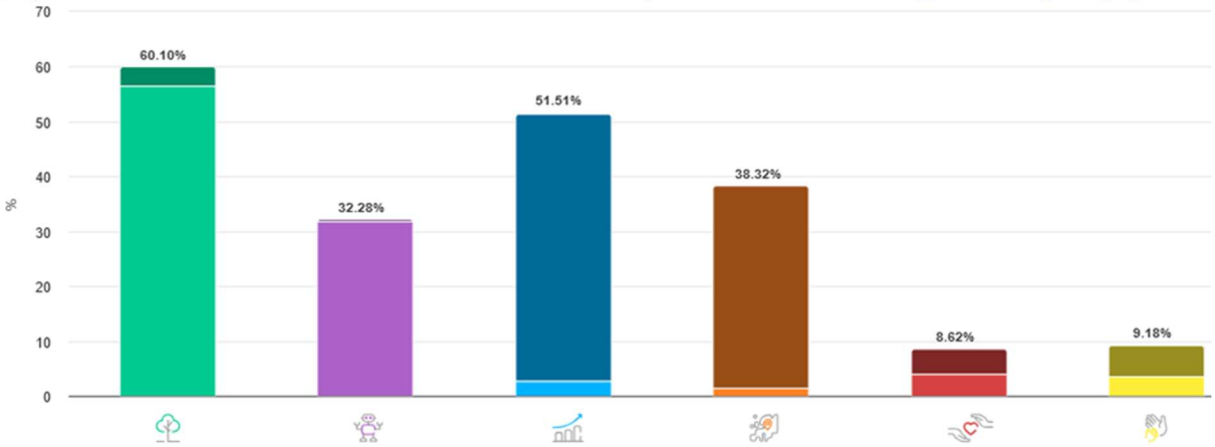
[107] See: https://www.eppo.europa.eu/en/news/investigation-resilient-crime-22-arrests-raid-against-criminal-organisation-suspected-eu600

[108] See: https://commission.europa.eu/business-economy-euro/economic-recovery/recovery-and-resilience-facility/austrias-recovery-and-resilience-plan_en; in a comparative study, Serger et al. (2023) analyses the RRPs for Austria, Finland, and Sweden concerning the links of transformation and innovation policy.

billion in grants (RRP allocation amounts to 0.83% of GDP) and covers 30 reforms and 34 investments[109].

Austria's REPowerEU chapter, worth €210 million, includes two new reforms, one new investment as well as a scale-up of an investment in the original plan to help deliver on the REPowerEU Plan's objective to make Europe independent from Russian fossil fuels well before 2030. The chapter focuses on accelerating the take-up of renewable energy, renewable hydrogen and decarbonising road transport. On 21 December 2023 the European Commission disbursed €42.06 million in REPowerEU pre-financing to Austria. So far, the European Commission disbursed €1.19 bn of grants under the RFF to Austria. Austria has not requested any loans.

Figure 5.3: Share of Austria's RPP's estimated expenditure contributing to each policy pillar



1st pillar: Green transition; 2nd pillar: Digital transformation; 3rd pillar: Smart, sustainable and inclusive growth; 4th pillar: Social & territorial cohesion; 5th pillar: Health, and economic, social and institutional resilience; 6th: Policies for the next generation.
Source: European Commission, Recovery and Resilience Scoreboard: https://ec.europa.eu/economy_finance/recovery-and-resilience-scoreboard/country_overview.html?lang=en

In addition to this, Austria has proposed changes to 14 measures in its original recovery and resilience plan. No investment or reform has been removed. These changes are based mainly on the need to factor in the very high inflation experienced in 2022 as well as supply chain disruptions caused by Russia's war of aggression against Ukraine, which have made investments more expensive and caused delays.

Austria's €210 million grant allocation under REPowerEU together with the upward revision of Austria's maximum Recovery and Resilience Facility (RRF) grant allocation from €3.5

[109] See: https://ec.europa.eu/commission/presscorner/detail/en/ip_23_5103

billion to €3.75 billion brings the total grant allocation for Austria to €3.96 billion. This upward revision is a result of the June 2022 update to the RRF grants allocation key.

Possible economic impact in model simulations

The possible macroeconomic impact has been evaluated with model simulations. Pfeiffer et al. (2021, p. 26) assume in their QUEST model exercise that EU member states use 100% of EU grants (EUR 396 billion) for additional public investment, while only 50% of the EU loans (EUR 166 billion) are used for additional investments. The model inputs assumes that the investment package NGEU totals around 4% of EU GDP. Then they demonstrate that in the six-year NGEU scenario with assumed high productivity and full immediate implementation of all NGEU investments in all EU Member States, the level of *Austria's* real GDP in 2026 could raise by 0.9 ppts, most of this effect (70%) stem from spillovers of the NGEU investments in neighbouring countries.

The Austrian study by Reiter et al. (2021) even estimates higher effects of a full implementation of RRF investments (EUR 4.5 billion) in Austria. With a dynamic stochastic general equilibrium (DSGE) model the authors estimate that in the second year of Austria's Recovery and Resilience plan (RRP), in 2022 real GDP would be higher by 0.41%, in year 5 (2025) it will be higher by 0.91%, and in year 20 (2040) it will be higher by 1.21%, always compared to the baseline of no policy measures.

If one, however, evaluates not the possible full implementation, but the funds approved (EUR 3.5 billion in grants), the impact is much lower in Austria. According to model simulations with the Oxford Economics Global Model by Breuss (2022A, p. 34) the respective investments could stimulate Austrian GDP by around 0.2% in 2026, inclusive spillovers from EU MS neighbours (Germany and Italy) by an additional 0.1%. If one assumes that the RRF investments will also stimulate total factor productivity, then one would reach similar results as those of Pfeiffer et al (2021) or Reiter et al. (2021).

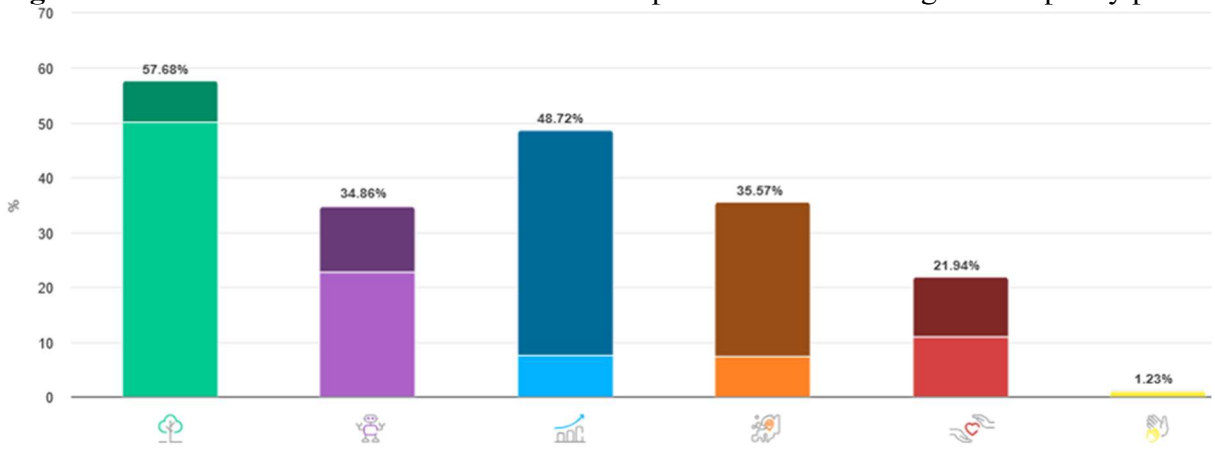
In the meantime, the war in Ukraine has dampened the economic outlook in Europe in several ways since 2022. Therefore, the results of the model simulations just presented are mere economic gimmicks.

Finland:

On 4 October 2021, the European Commission has adopted a positive assessment of Austria's Recovery and Resilience plan (RRP)[110]. The aims – to recover from the COVID-19 pandemic – are like those in the case of Austria (see Figure 5.4). The European Commission supports Finland by €1.95 billion in grants**.** 50% of the plan will support climate objectives and 27% of the plan will support the digital transition**.** Like Austria, Finland has not made use of loans.

On 21 November 2023, the Commission has given a positive assessment of Finland's modified recovery and resilience plan in order to include a REPowerEU chapter. The plan is now worth €1.949 billion in grants (RRP allocation amounts to 0.70% of GDP) and covers 19 reforms and 40 investments[111].

Figure 5.4: Share of Finland's RPP's estimated expenditure contributing to each policy pillar



1st pillar: Green transition; 2nd pillar: Digital transformation; 3rd pillar: Smart, sustainable and inclusive growth; 4th pillar: Social & territorial cohesion; 5th pillar: Health, and economic, social and institutional resilience; 6th: Policies for the next generation.
Source: European Commission, Recovery and Resilience Scoreboard: https://ec.europa.eu/economy_finance/recovery-and-resilience-scoreboard/country_overview.html?lang=en

Finland's REPowerEU chapter consists of three new investments and one new reform to deliver on the REPowerEU Plan's objective of making Europe independent from Russian fossil fuels well before 2030. These measures focus on accelerating the deployment of renewable energy, renewable hydrogen, decarbonising industry and investing in the net-zero industry value chain. The revision of the Finnish plan is due to the insertion of the REPowerEU chapter in line with the RRF Regulation.

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[110] See: https://commission.europa.eu/business-economy-euro/economic-recovery/recovery-and-resilience-facility/finlands-recovery-and-resilience-plan_en
[111] See: https://ec.europa.eu/commission/presscorner/detail/en/ip_23_5917

To finance its increased ambition, Finland has requested to transfer part of its share of the Brexit Adjustment Reserve (BAR) to its plan, in line with the REPowerEU Regulation, amounting to €14.2 million. These funds, added to Finland's RRF and REPowerEU grants allocations (amounting to €1.82 billion and €113 million, respectively), make the approved overall modified plan worth €1.95 billion.

The modified plan has an even stronger focus on the green transition, allocating 52.3% of the available funds to measures that support climate objectives, up from 50.3% in the original plan.

The REPowerEU Chapter further strengthens the green dimension of the Finnish plan. The reform included in the chapter aims at establishing a single review procedure and a new single national authority for processing environmental permit applications. The three new investments focus on new clean technologies for energy production and use, as well as research and development activities to promote renewable energy solutions. The preparatory phase of an offshore wind power project in the Åland autonomous region will also be supported. These measures are expected to contribute to achieving the Union's 2030 climate targets, Finland's goal of achieving carbon neutrality by 2035, as well as the goal of increasing the share of renewable energy sources in Finland's energy mix.

On 1 March 2024, the European Commission disbursed the first payment of €202 million to Finland. So far, the €498.8 million have been disbursed as grants to Finland. Finland has not requested any loans.

So far, no payments have been made to Finland. On 13 November 2023, the European Commission receives Finland's first payment request under the Recovery and Resilience Facility, relating to 20 milestones, for a total amount of €198 million in grants.

As the grants, Finland gets as RFF are only around half of that of Austria, one would expect that the economic impact is also only half as much as in Austria. Pfeiffer et al. (2021, p. 26), however, estimate that a full NGEU implementation in all EU MS could increase the level of Finland's real GDP in 2026 by 0.7 ppts, 60% of this effect stem from spillovers of the NGEU investments in neighbouring countries.

Sweden:

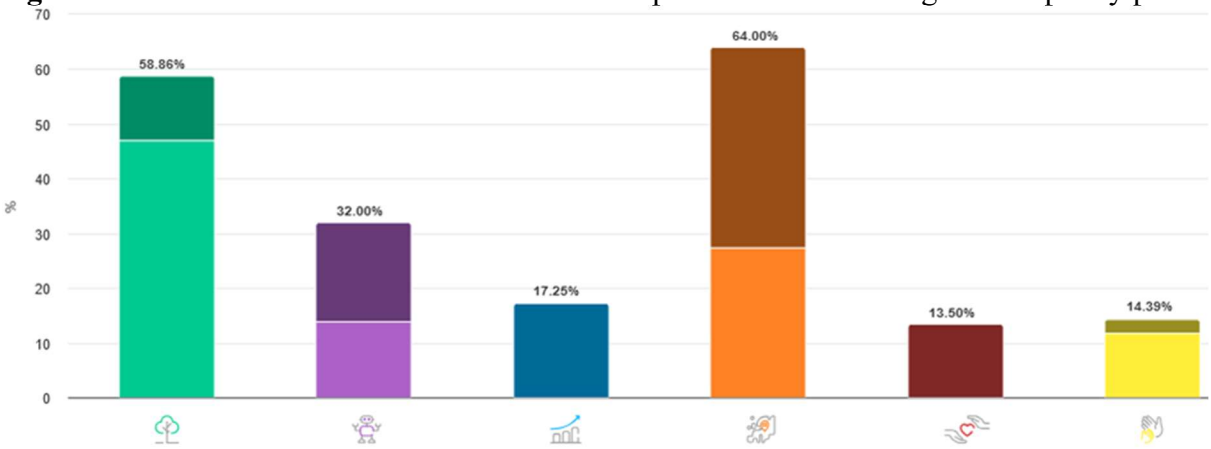
On 29 March 2022, the European Commission has adopted a positive assessment of Austria's Recovery and Resilience plan[112]. Sweden will be supported by €3.5 billion in grants**.**

[112] See: https://commission.europa.eu/business-economy-euro/economic-recovery/recovery-and-resilience-facility/recovery-and-resilience-plan-sweden_en

44% of the plan will support climate objectives and 21% of the plan will support the digital transition**.** As Sweden is rather advanced in climate policy the share for the support of climate objectives (44%) is much smaller than in Austria (59%) and Finland (50%; see Figure 5.5).
On 19 October 2023, the Commission has positively assessed Sweden's modified recovery and resilience plan, which includes a REPowerEU chapter. The EU contribution to the plan is now worth €3.446 billion in grants (RRP allocation amounts to 0.63% of GDP) and covers 16 reforms and 14 investments[113]. Like Austria and Finland, Sweden has not made use of loans.

Sweden's REPowerEU chapter includes one reform, as well as a scale-up of two existing investments, to deliver on the REPowerEU Plan's objectives to make Europe independent from Russian fossil fuels well before 2030, in light of Russia's invasion of Ukraine. The new reform aims at speeding up the authorisation process for the construction of electricity grids. The two scaled up investments aim at improving energy efficiency in multi-dwelling buildings, rental dwellings and student housing.

Figure 5.5: Share of Sweden's RPP's estimated expenditure contributing to each policy pillar



1st pillar: Green transition; 2nd pillar: Digital transformation; 3rd pillar: Smart, sustainable and inclusive growth; 4th pillar: Social & territorial cohesion; 5th pillar: Health, and economic, social and institutional resilience; 6th: Policies for the next generation.
Source: European Commission, Recovery and Resilience Scoreboard: https://ec.europa.eu/economy_finance/recovery-and-resilience-scoreboard/country_overview.html?lang=en

In addition, Sweden has also removed one milestone and one target from the original plan relating to an investment to strengthen railway support. Sweden has indicated that these elements will instead be implemented through national funds with a slightly extended timeline

[113] See: https://ec.europa.eu/commission/presscorner/detail/en/ip_23_5102

beyond the lifetime of the Facility. These changes to the original plan are based on the need to factor in the downward revision of its maximum Recovery and Resilience Facility (RRF) grant allocation, from €3.29 billion to €3.18 billion. This downward revision is a result of the June 2022 update to the RRF grants allocation key and reflects Sweden's comparatively better economic outcome in 2020 and 2021 than initially foreseen.

Sweden's REPowerEU grants allocation is €198.4 million. Together with Sweden's RRF grant allocation (€3.18 billion) and the part of its share of the Brexit Adjustment Reserve worth €66 million that Sweden has requested to transfer to the plan, the EU contribution to the modified plan is worth €3.45 billion.

So far, no grant has been disbursed to Sweden because it has not yet requested a payment. Sweden has not requested any loans.

As the amount of grants, Sweden could get as RFF are comparable to that of Austria, one would expect that the economic impact is also similar in model simulations. However, Pfeiffer et al. (2021, p. 26) estimate that a full NGEU implementation in all EU MS could increase the level of Sweden's real GDP in 2026 only by 0.3 ppts, 20% of this effect stem from spillovers of the NGEU investments in neighbouring countries.

The European Court of Auditors (ECA) recently produced two special reports on the implementation of the *Recovery and Resilience Facility (RRF)*. In the first report (European Court of Auditors, 2024A), *"Absorption of funds from the Recovery and Resilience Facility"*, the ECA notes delays in the processing of the NGEU. The first three years of the EU's €724 billion RRF have seen delays in funds being disbursed and projects being implemented. This put at risk the achievement of goals for helping EU countries recover from the COVID-19 pandemic and making them more resilient, according to a report by the European Court of Auditors. Even though the rate of payments from the European Commission is progressing, member states might not be able to draw down or absorb the funds in time, complete their planned measures before the RRF expires in August 2026, and thus gain the expected economic and social benefits.

By the end of 2023, EU countries had drawn down less than a third of the planned EU COVID-19 recovery funds. Only around half of the money transferred from Brussels to national capitals reportedly reached final recipients. Auditors flag risks of funding absorption slowing further, and projects not being completed as planned.

In the second report (European Court of Auditors, 2024B), the ECA criticizes the implementation of the RRF. The RRF provides member states with an incentive to invest in the green transition. They planned to spend around €275 billion on climate action as part of the

green transition pillar. However, ECA' analysis revealed shortcomings in the Facility's design and implementation of green transition measures. This led to potential overestimations of amounts allocated to climate action, discrepancies between planning and practice, and little indication of the measures' actual contribution to the green transition. There is no requirement in the legislation to assess the Facility's contribution to the EU's climate objectives, nor report on actual spending, limiting the relevance for stakeholders. The ECA makes several recommendations to improve design and effectiveness of EU funds relevant for green transition.

5.2.3 Support for Ukraine

In a Special meeting on 1 February 2024, The European Council reached agreement on the revision of the Multiannual Financial Framework (MFF) 2021-2027[114]. This special meeting was necessary because Hungary blocked a respective decision at the Council meeting on 14-15 December 2023[115]. In the new meeting, the European Council underlined the need to ensure, together with partners, stable, predictable, and sustainable financial support for Ukraine for the period 2024-2027. To contribute to the recovery, reconstruction, and modernization of the country, foster social cohesion and progressive integration into the Union, with a view to possible future Union membership, a *Ukraine Facility* for the period 2024-2027 will be set up.

For the period 2024-2027, the sum of the overall resources made available from the Facility will not exceed EUR 50 billion, of which:

i) EUR 33 billion in the form of loans guaranteed by extending until 2027 the existing Union budget guarantee, over and above the ceilings, for financial assistance to Ukraine available until the end of 2027.

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[114] See the Conclusions of the European Council meeting, 1 February 2024: https://www.consilium.europa.eu/media/69874/20240201-special-euco-conclusions-en.pdf

[115] In January 2024, the European Parliament criticized the release of funds to Hungary in December 2023 as an advance payment for Hungary's approval of the Ukraine deal (https://www.europarl.europa.eu/news/en/press-room/20240122IPR17026/release-of-frozen-eu-funds-to-hungary-meps-to-debate-next-steps-with-commission). The EP adopted a resolution in January, criticising the Commission's decision to release up to €10.2 billion of previously frozen funds, despite Hungary not fulfilling the demanded reforms for judicial independence. Parliament had also warned that it would look into whether legal action should be pursued to overturn the Commission's decision. The 2021 *Rule of Law Conditionality Regulation* enables the European Commission to withhold EU funds from a member state if violations of rule of law principles threaten or risk jeopardizing the sound management of the EU's budget or the protection of its financial interests. Consequently, 55% of budgetary commitments (approximately EUR 6.3 billion) in EU cohesion funding for Hungary are currently frozen. In addition, EUR 10.4 billion for Hungary remain blocked under the Recovery and Resilience Fund (RRF) as the country has not fulfilled various super-milestones. In December 2023, the Commission recognised Hungary's judicial reforms as meeting the fundamental requirement of judicial independence under the Charter of Fundamental Rights. However, other concerns remain unaddressed. Following this assessment, Hungary has been able to request reimbursement of EUR 10.2 billion from the roughly EUR 22 billion allocated in Cohesion funds for the country.

ii) EUR 17 billion in the form of non-repayable support, under a new thematic instrument the Ukraine Reserve, set up over and above the ceilings of the MFF 2021-2027. Potential revenues could be generated under the relevant Union legal acts, concerning the use of extraordinary revenues held by private entities stemming directly from the immobilised Central Bank of Russia assets.

EU support to Ukraine since the beginning of Russia's war of aggression on 24 February 2022 amounts to EUR 98.5 billion. It includes €49.4 bn made available by Team Europe to support Ukraine's overall economic, social, and financial resilience; €32 bn in military assistance measures[116]; up to €17 bn to help Member States cater to the needs of Ukrainians fleeing the war to the EU[117].

6. The microeconomic performance

In the seventies there was a debate in economic circles about the "Microeconomic Foundations of Macroeconomics". At that time, the aim was to provide a better theoretical foundation for Keynesian macroeconomics through the behavioural assumptions of the economic actors. Finally, the "Lucas critique" (Lucas, 1976) provided an impetus for a better foundation of macroeconomic models. A conference held by the International Economic Association at S'Agora, Spain demonstrated that there was no solution to this problem (see the conference proceedings by Harcourt, 1977).

In the meantime, this old problem has been solved by the development of computable general equilibrium (CGE) models and by dynamic stochastic general equilibrium (DSGE) models. In the first categories belong the extensive analyses with the GTAP data base of the Global Trade Analysis Project[118]. Examples of the second categories are a variety of national and global DSGE model. The European Union uses the QUEST[119] model to analyse trade policy and other policy problems.

In the following we will analyse the microeconomic performance of the three countries with the help of several indicators.

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[116] Details, see: https://eu-solidarity-ukraine.ec.europa.eu/eu-assistance-ukraine/eu-military-support-ukraine_en
[117] See "EU assistance to Ukraine": https://eu-solidarity-ukraine.ec.europa.eu/eu-assistance-ukraine_en
[118] See: https://www.gtap.agecon.purdue.edu/
[119] See: https://economy-finance.ec.europa.eu/economic-research-and-databases/economic-research/macroeconomic-models/quest-macroeconomic-model_en

6.1 Sectoral structure

The sectoral structure reveals somehow the state of development of an economy. According to the three-sector model by Clark and Fourastié[120], poor countries have still a strong agricultural sector, in high developed industrial countries the service sector is dominant. As the three EU Member States Austria, Finland, and Sweden belong to the category of highly developed small economies, the services sectors should already outpace the other sectors.

We consult data from two sources: OECD STAN database for structural analysis and the GTAP database. According to the sectoral representation of the OECD STAN database[121] in Table 6.1, total services have the highest share in total output in all three countries. The latest data as of 2018 show, that Sweden leads with a share of 63.9%, followed by Finland with 57.5% and Austria with 56.0%. In all three countries the service shares increased since 1995, the most in Finland and Sweden. In Austria, there was a small increase by two ppts from 1995 to 2005; after that the share fell back to the level of 1995. The Scandinavian countries dominate in the services sectors information and communication, as well as in scientific and technical activities.

Table 6.1: Austria, Finland, and Sweden: Structure of production
(Gross output in % of total output)

	Austria				Finland				Sweden			
	1995	2005	2018	Change % 1995-2018	1995	2005	2018	Change % 1995-2018	1995	2005	2018	Change % 1995-2018
A. Agriculture, hunting, forestry and fishing	2.64	1.59	1.40	-1.24	3.85	2.53	2.44	-1.41	3.93	2.08	2.11	-1.83
B-E: Industry including energy	33.01	33.58	34.45	1.44	39.99	37.14	31.22	-8.77	33.93	32.53	26.41	-7.53
B. Mining and quarrying	0.37	0.39	0.34	-0.03	0.42	0.36	0.59	0.17	0.37	0.43	0.57	0.21
C. Manufacturing	28.31	28.17	28.30	-0.01	36.87	34.47	27.54	-9.33	30.66	29.10	22.98	-7.69
D. Electricity, gas, steamd and air conditioning	3.23	3.94	4.64	1.41	2.13	1.68	2.15	0.02	2.30	2.28	1.97	-0.33
E. Water supply	1.10	1.08	1.17	0.07	0.57	0.62	0.94	0.37	0.60	0.71	0.88	0.28
F. Construction	8.84	7.69	8.19	-0.65	6.07	7.82	8.86	2.79	4.87	5.21	7.54	2.68
G-U: Total services	55.52	57.14	55.95	0.44	50.09	52.50	57.48	7.39	57.26	60.18	63.94	6.67
G. Wholesale and retail sale, repair	11.68	10.91	9.96	-1.72	8.16	9.00	7.84	-0.32	8.40	8.58	9.22	0.82
H. Transportation	4.65	5.73	5.25	0.60	6.21	6.05	5.73	-0.48	7.31	7.35	6.69	-0.62
I. Accomoation and food service	3.84	3.65	4.07	0.24	1.86	1.78	2.01	0.15	1.48	1.53	1.96	0.48
J. Inforamtion and communication	2.81	3.98	3.62	0.81	3.42	5.19	5.49	2.07	4.09	6.66	7.51	3.41
K. Financial and insurance activities	5.13	4.63	3.81	-1.32	3.21	2.39	3.07	-0.14	3.25	3.17	2.67	-0.58
L. Real estate activities	6.18	6.70	7.11	0.94	6.54	6.56	8.01	1.46	8.82	7.80	7.73	-1.09
M. Professional, scientific and tech. activities	3.47	4.74	5.04	1.57	3.06	3.48	4.32	1.26	4.26	5.42	7.13	2.87
N. Administrative and support activities	2.12	2.76	3.28	1.16	1.23	1.83	2.92	1.69	1.99	2.59	3.36	1.36
O. Public administr. and defence; social security	4.91	4.07	3.62	-1.30	5.00	4.79	5.01	0.01	5.19	4.15	4.00	-1.20
P. Education	3.64	3.22	3.11	-0.53	3.74	3.42	3.27	-0.48	3.93	3.85	3.85	-0.08
Q. Human health and social work	4.66	4.54	5.01	0.34	5.45	5.54	7.00	1.55	6.23	6.63	7.30	1.08
R. Arts, entertainment and recreation	0.90	0.92	0.92	0.03	0.89	1.06	1.29	0.40	1.16	1.26	1.34	0.18
S. Other service activities	1.46	1.26	1.13	-0.33	1.31	1.34	1.45	0.15	1.14	1.18	1.16	0.02
T. Household activities	0.08	0.04	0.02	-0.05	0.03	0.04	0.08	0.06	0.01	0.01	0.03	0.02
U. Exteritorial organizations activities	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	100.00	100.00	100.00	0.00	100.00	100	100.00	0.00	100.00	100.00	100.00	0.00

Source: OECD STAN Structural Analysis Database
(https://www.oecd.org/sti/ind/stanstructuralanalysisdatabase.htm)

The second database is the GTAP database of the Global Trade Analysis Project[122]. The structure according the GTAP11 database of the year 2017 give a similar picture (see Table 6.2)

[120] For a description of the three-sector model, see: https://en.wikipedia.org/wiki/Three-sector_model
[121] See STAN Structural Analysis Database by OECD:
https://www.oecd.org/sti/ind/stanstructuralanalysisdatabase.htm
[122] See: https://www.gtap.agecon.purdue.edu/

as the sectoral structure based on OECD STAN database in Table 6.1. Here we aggregated the 65 sectors data base of GTAP to 12 sectors and 12 countries. A comparison of the three countries with selected countries shows that Sweden dominates with a share of the services sector of 72.6%, closely followed by Finland (71.4%), and Austria (67.4%). Austria (30.3%) has the highest share of the manufacturing sector, compared to 25.5% in Finland and 24.8% in Sweden.

Table 6.2: Output structure of the GTAP database 2017
(Sectoral output in % of total output)

	Austria	Finland	Sweden	Germany	UK	EU23	World
1 Grains and Crops	0.41	0.31	0.22	0.31	0.24	1.08	2.06
2 Livestock and Meat Product	1.12	1.06	0.79	1.02	0.97	1.60	1.79
3 Crude Oil	0.04	0.00	0.00	0.01	0.38	0.05	0.90
4 Mining and Extraction	0.76	1.73	1.62	0.46	0.28	0.68	1.92
5 Processed Food	2.81	2.14	2.05	2.72	2.55	4.23	3.81
6 Textiles and Clothing	0.76	0.29	0.33	0.79	0.47	1.17	1.56
7 Motor Vehicles (Cars)	2.58	0.98	3.04	5.72	1.45	2.36	2.50
8 Light Manufacturing	7.43	8.45	6.67	7.36	5.03	6.30	5.54
9 Heavy Manfucaturing	16.74	13.66	12.70	19.49	7.99	14.56	16.24
10 Utilities and Construction	9.60	11.80	9.26	6.92	9.18	9.66	10.15
11 Transport and Communicatio	26.97	24.94	25.53	21.61	25.01	25.25	20.07
12 Other Services	30.79	34.64	37.80	33.59	46.46	33.07	33.46
	Four-sectors output structure in % of total						
Agriculture: 1-2	1.53	1.37	1.01	1.34	1.20	2.68	3.85
Extraction: 3-4	0.80	1.73	1.62	0.47	0.65	0.72	2.82
Manufacturing: 5-9	30.31	25.52	24.79	36.08	17.49	28.62	29.65
Services: 10-12	67.36	71.37	72.59	62.12	80.65	67.98	63.68

Source: GTAP Version 11B

6.2 Enterprise size structure

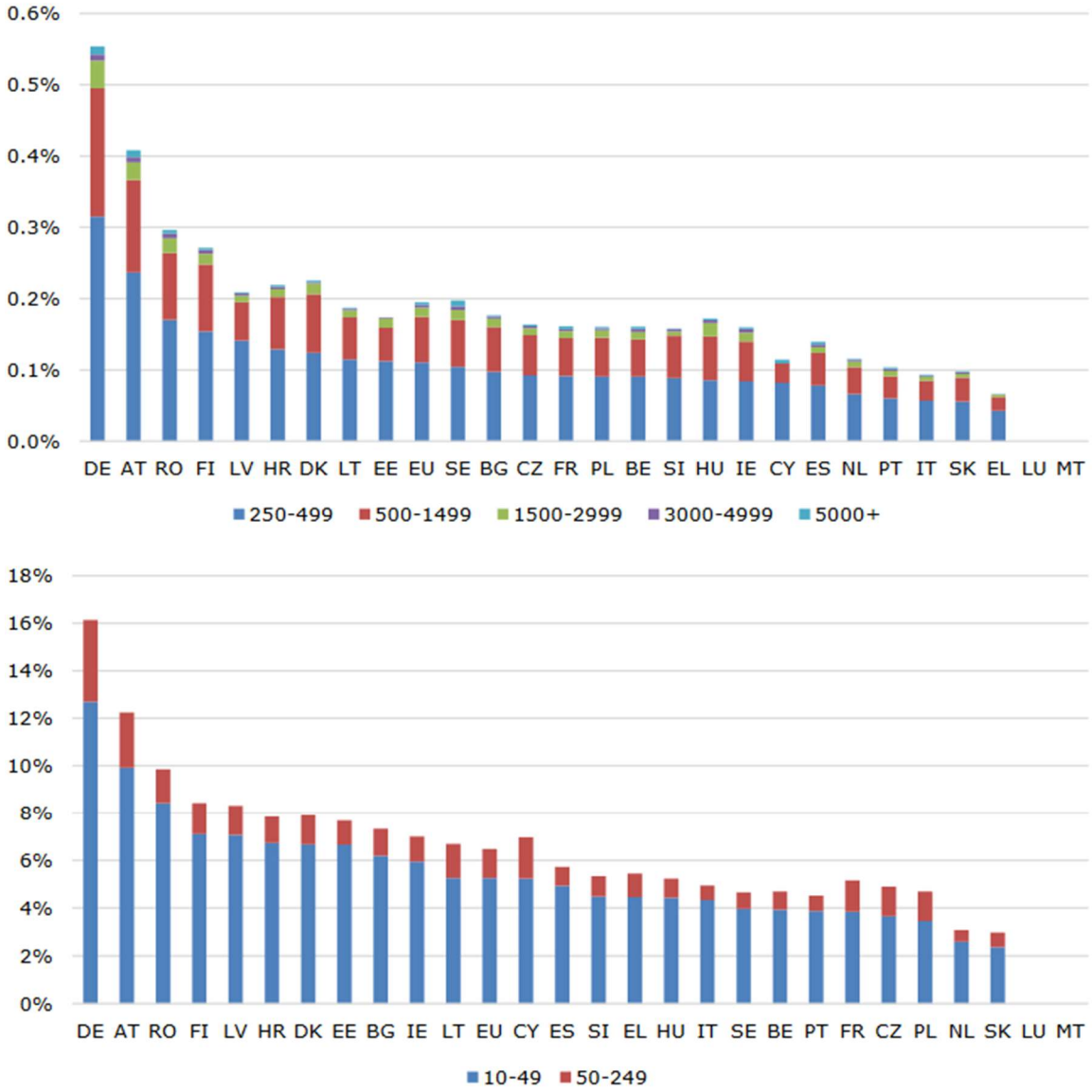
Austria is populated with medium- to large-sized companies. Finland, and Sweden also have large companies. In EU small and medium-sized enterprises (SMEs), representing 99% of all businesses in the EU[123].

The definition of an SME is important for access to finance and EU support programmes targeted specifically at these enterprises. Medium-sized (small) are companies with less than 250 employees (50), a turnover of less or equal EUR 50 million (10), or a balance sheet total of less or equal EUR 43 million (10). Below these levels, the companies are qualified as micro. Middle-sized enterprises (or *mid-caps*) lie between small and medium-sized enterprises (SMEs) and large corporations.

[123] See: https://single-market-economy.ec.europa.eu/smes/sme-definition_en

The EU (European Commission, 2022F) considers mid-caps as those enterprises with 250 or more, but less than 1,500 employees (see Figure 6.1). Austria and Finland have a higher share of mid-caps than Sweden.

Figure 6.1: Share of mid-caps and SMEs by EU member states and by mid-caps definition



Source: European Commission (2022F), p. 17

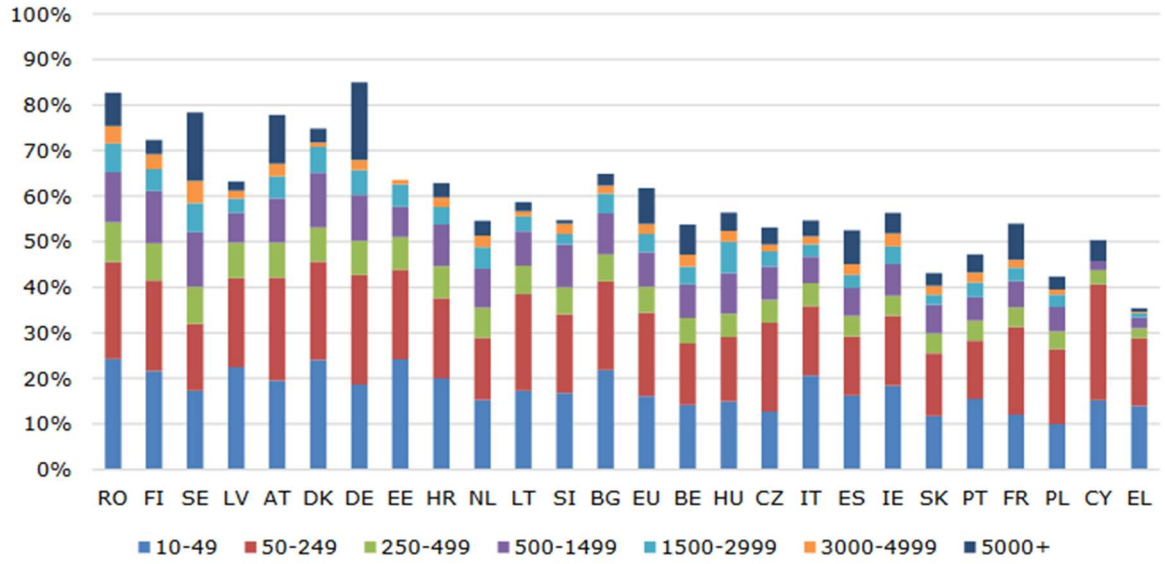
The share of small mid-caps in total employment (see Figure 6.2) is highest in Romania, Finland, Sweden, and Latvia followed by Austria and Germany, the countries with the largest shares of mid-caps in the total number of firms. Generally, small mid-caps and large mid-caps tend to contribute more to employment and turnover than very large mid-caps.

Measuring the performance at the labour productivity (turnover per employee, Figure 6.3) show again a high variation. SMEs and large firms (excluding micros) on average have very high labour productivities in the Netherlands, Ireland, Denmark, and Belgium. Lower

productivities are found in Latvia, Romania, Lithuania, and Bulgaria. Austria leads in the labour productivity performance compared to Finland and Sweden.

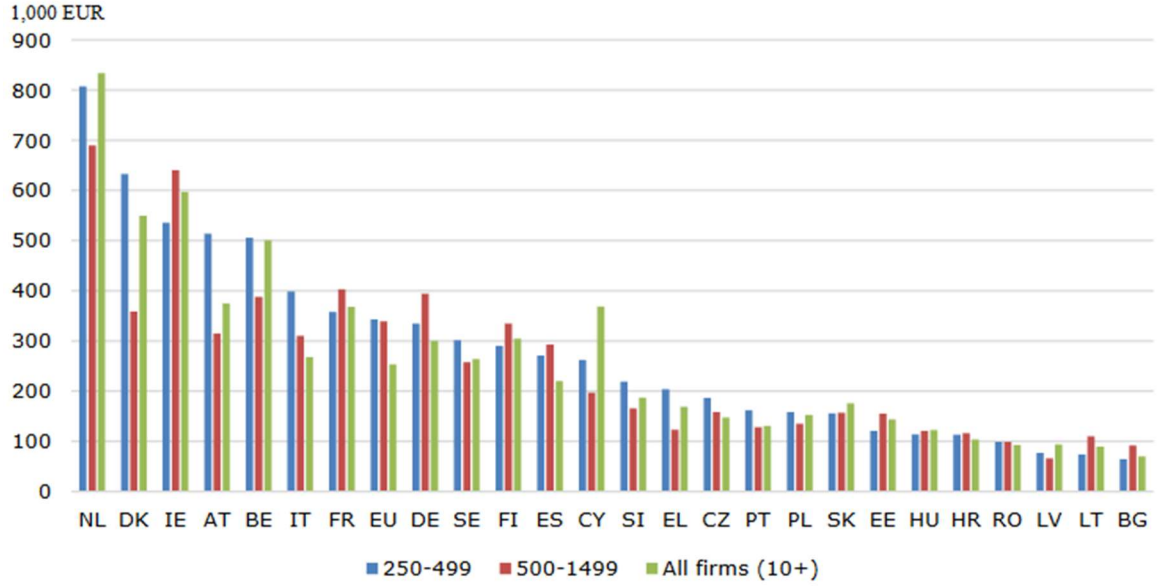
Overall growth of employment between 2015-2019 is largest in Sweden. The growth rates of turnover were largest in Finland in all categories of firms.

Figure 6.2: Share of total employees by EU member states and by mid-cap definition



Source: European Commission (2022F), p. 18

Figure 6.3: Labour productivity of mid-caps by EU member states



Source: European Commission (2022F), p. 23

The three countries are populated with different numbers of companies. Table 6.3 demonstrates that Sweden has the greatest number of enterprises (878818) against 577302 in Austria, and 428436 in Finland. Concerning the number of persons employed Austria and

Sweden are comparable with 3 ½ million. Finland has only half of that number. Sweden dominates in the number of firms and persons employed in large enterprises. Austria dominates in the number of persons employed in SMEs but not in the number of firms.

This picture is underlined by the Forbes 2023 ranking of the largest 2000 companies (Global 2000)[124]. Accordingly, Sweden is more prominent present in this ranking than Austria and Finland. Austria is ranked with 9 companies, of which 5 are banks or insurance companies. The largest company (OMV Group) ranks 357, followed by the Erste Group Bank (391), Raiffeisen Bank International (606). The energy company, Verbund ranks 698, Voestalpine 1056, Vienna Insurance Group 1187, STRABAG 1702, Bawag Group 1809, Uniqa 1879.

Table 6.3: Enterprise by size class: Austria, Finland, and Sweden: 2021

			Austria	**Finland**	**Sweden**
Micro enterprises	Number		531983	406950	837446
0-9 persons employed	Turnover	Mio. EUR	129121.7	84764.8	171733.7
	Employees		1028446	365730	719186
Small enterprises:	Number		25052	10692	21362
10-19 persons employed	Turnover	Mio. EUR	65720.7	33281.3	66831.7
	Employees		333541	148256	284936
Small enterprises:	Number		13091	6711	12415
20-49 persons employed	Turnover	Mio. EUR	87737.6	49512.2	94956.8
	Employees		389445	203066	370964
Medium-sized enterpr.: 50-249	Number		5826	3371	6124
50-249 persons employed	Turnover	Mio. EUR	216172.9	100197.2	218625.5
	Employees		583234	327671	615334
Large enterprises:	Number		1350	712	1471
250 or more employees	Turnover	Mio. EUR	373010.1	216090	569340.4
	Employees		1182711	601940	1560568
Total enterprises	Number		577302	428436	878818
	Turnover	Mio. EUR	871763.1	483845.6	1121488
	Employees		3517377	1646665	3550988

			Austria	**Finland**	**Sweden**
Small and medium sized	Number		575952	427724	877347
enterprises: **SME**s	Turnover	Mio. EUR	498752.9	267755.5	552147.7
1-249 persons employed	Employees		2334666	1044723	1990420

Source: Eurostat: Enterprise statistics by size class (https://ec.europa.eu/eurostat/databrowser/view/SBS_SC_OVW/default/table?lang=en)

[124] See: https://www.forbes.com/lists/global2000/?utm_campaign=socialflowForbesMainTwitter&sh=437e375b5ac0

Finland is represented with 10 companies. The first best is Nordea Bank (rank 219), followed by Nokia[125] (368), Neste 599, Sampo t642, UPM-Kymmene 743, Fortum 888. Stora Enso 911, Kone 967, Outokumpu 1443 and Kesko 1564.

Sweden is represented in the Forbes ranking with 24 companies, starting with Volvo Group (rank 230), SEB AB 388, Investor AB 452, Svenska Handelsbanken 489, Swedbank 496, Ericsson 529, Atlas Copco, 584, Volvo Car 634, Assa Baly 813. The last ranked Swedish company is Alfa Laval (1996).

The wealth of nations creates profitable companies. How to measure it? The project "Crux of Capitalism"[126] of the University St. Gallen collect such data. Accordingly, Switzerland, the United States and Sweden are the Superstars, measured by the economic profit per capita (firm's profit from current operations minus the opportunity cost of capital). The project only encompasses 21 countries, Austria and Finland are not captured.

6.3 Scientific excellency

Besides the traditional factors of production, capital and labour, total factor productivity (TFP) is the most important driver of economic growth. TFP – a weighted combination of capital and labour productivity - , however, is a very complex variable determined by many factors. One of the primary determinants is research and development (R&D) and hence innovation.

6.3.1 Innovation performance

The European Commission regularly make surveys about the innovative power of its member states. The results of the Innovation Scoreboard (EIS) 2023[127] are collected in Figure 6.4. It shows that all three countries are very innovative. Sweden and Finland are ranked second and third, Austria is on the sixth place. According to the categorisation of EIS, Sweden, and Finland belon to the category of innovative leaders, Austria is a strong innovator. EIS uses many sub indicators (R&D expenditures, patent applications, human resources, university rankings etc.) to create its Innovation index.

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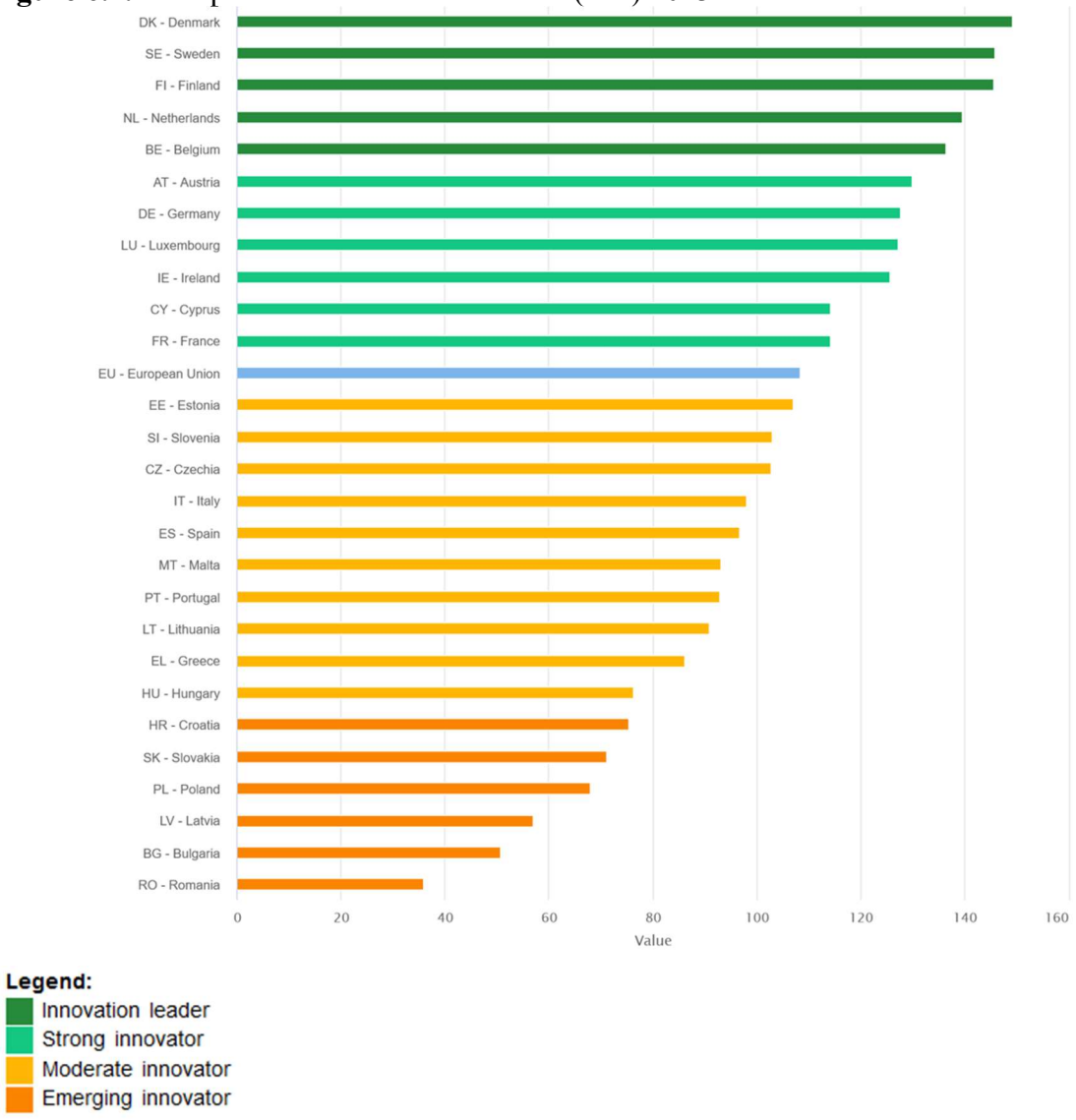
[125] The history of Nokia is a good example how a company that was once the world market leader in mobile phones is outperformed by a new innovator - iPhone in 207 by Apple (https://en.wikipedia.org/wiki/Nokia; https://en.wikipedia.org/wiki/IPhone).

[126] See: https://www.cruxofcapitalism.com/our-insights; see also Neue Zürcher Zeitung, 14 August 2023, p. 6.

[127] See: https://ec.europa.eu/research-and-innovation/en/statistics/performance-indicators/european-innovation-scoreboard/eis

In 2023 the Boston Consulting Group (BCG) made a ranking of the most innovative companies. The BCG's 2022 global innovation survey[128] states that two-thirds of the companies ranked climate and sustainability (C&S) as a top corporate priority. Only one company of Sweden (Volvo) is listed in the 2023 top 50 companies concerning innovative power.

Figure 6.4.: European Innovation Scoreboard (EIS) 2023



Source: EIS – European Innovation Scoreboard 2023

6.3.2 Research and Development

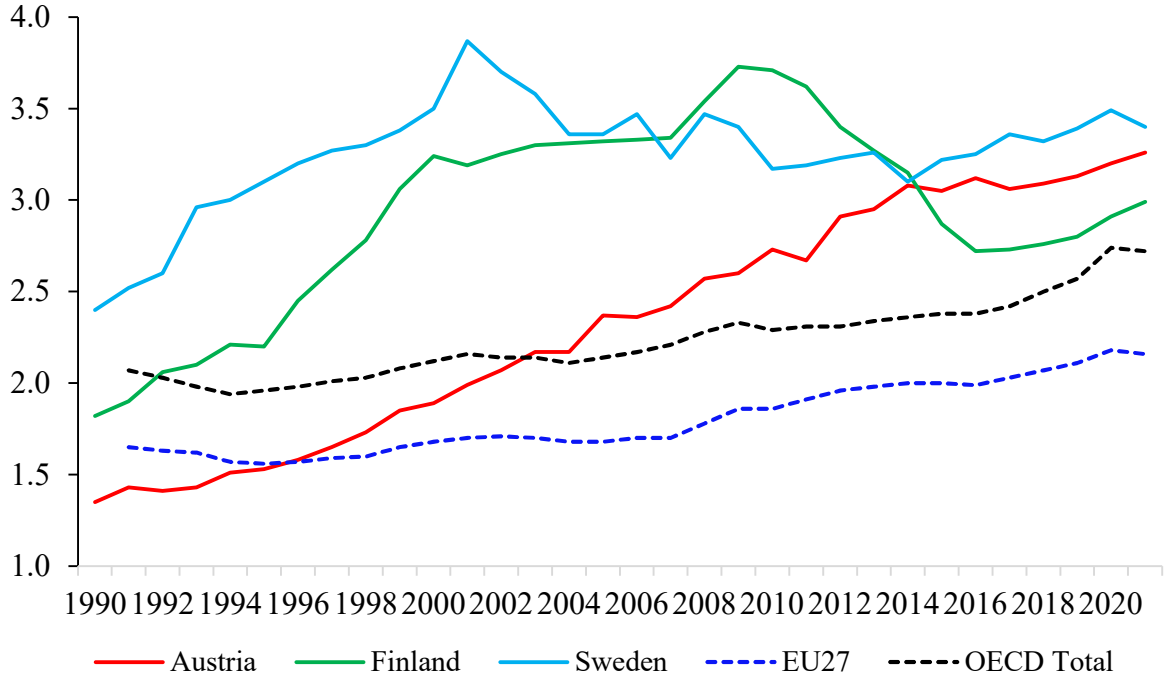
A comparison of the gross expenditures of Research and Development (R&D) in % of GDP (Figure 6.5) shows that Sweden and Finland were leading in the nineties until 2010. Starting already before its EU accession in 1995, Austria then continuously increased total R&D up to

[128] See: https://www.bcg.com/publications/2022/innovation-in-climate-and-sustainability-will-lead-to-green-growth

3.3% in 2021. Hence, Austria with its uninterrupted increase since 1995 turned from a laggard to one of the leading countries in Europe.

In contrast, Finland's R&D spending as a share of GDP increased from 1.8 percent in 1990 to a peak of 3.7 percent in 2009, but then dropped again to 2.7 percent in 2016. In recent years it has started to increase slightly again, indicating that the downward tendency may have been halted. Compared to Austria's significant and continuous increase and Finland's dramatic drop, Sweden's R&D spending as a share of GDP has been rather stable since the mid-1990s, with a peak of 3.9 percent in 2011 (right before the burst of the IT bubble) and a low of 3.1 percent in 2014. All three countries, however, are still well above OECD average.

Figure 6.5: Gross Expenditure on Research and Development (GRED), as percentage of GDP (1990-2021)



Source: OECD, Main Science and Technology Indicators Database, http://oe.cd/msti, last updated: 16 January 2024

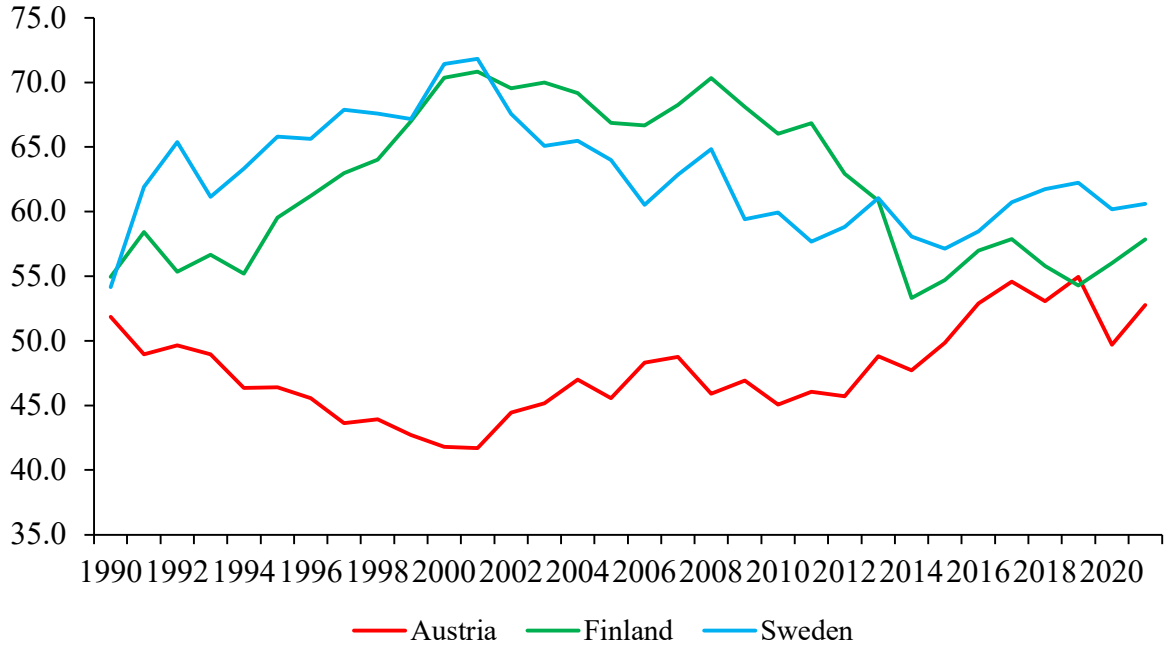
Increases in public R&D funding in *Austria* were matched with higher funding by the enterprises themselves and from MNE headquarters abroad for their Austrian subsidiaries[129]. The main instruments of Austria's R&D policy are the R&D tax credit (Forschungsprämie) which provides funding for R&D active enterprises regardless of size and/or technological focus, bottom-up funding in the form of the Basis program by the Austrian Research Promotion

[129] For more details, see Serger et al. (2023), p. 15-20.

Agency FFG, and topical funding for co-operation, special technologies, some weaknesses, special technologies, sectors, etc.

The rise in Austrian R&D expenditure is driven by an increase in government funded R&D expenditure (as a share of GDP), particularly up until 2014, which was eventually complemented by an increased in business-funded R&D expenditure, including considerable higher R&D efforts by foreign-owned firms. The business-financed R&D expenditures increased in Austria since 2014 (see Figure 6.6).

Figure 6.6: Share of business-financed GERD in percent of total GERD (1990-2021)



Source: OECD, Main Science and Technology Indicators Database, http://oe.cd/msti, last updated: 16 January 2024

In contrast, *Finland's* drop in R&D spending (as a share of GDP) since 2009 was mainly the result of the dramatic reduction in business sector R&D (particularly by Nokia), following the financial crisis. Finland's development, from a country that has been an international leader in R&D expenditure, to a rather stark and persistent drop, is noteworthy. Finland has a long-standing tradition of setting and reaching national R&D targets, starting in the early 1970s. According to Serger et al. (2023, p. 17) the 2008 global financial crisis and the ensuing recession in 2009, both of which struck Finland particularly hard, have weakened the government's long-standing resolve and commitment to maintain high R&D spending. More generally, the decade after the global economic crisis was marked by an erosion of a previously solid consensus on the importance of R&D for the Finnish economic prosperity and competitiveness. Cuts in public R&D spending between 2010 and 2016, particularly for applied research, research institutes

and innovation programs, the significant weakening of Council (RIC) as tool for innovation policymaking illustrate this erosion. However, in December 2021, a parliamentary working group on research, development and innovation agreed on a proposal to introduce legislation that would commit Finnish governments (regardless of political party) to work to reach the target of R&D spending of four percent of GDP by 2030. Thus, after a decade-long dip, Finland now seems to be returning to its traditionally strong commitment to R&D spending, though it remains to be seen how this will translate into innovation policy and transformation. The share of the business-financed R&D expenditure decreased from the high level of around 70% at the beginning of the 2000ies steadily to reach 55% in 2021 (Figure 6.6).

Swedish Science and Technology policy over the past 15 years can be described as one of relative stability and incrementalism. Thus, public R&D funding has seen a modest but stable increase and there have been no major changes in the higher education or R&D funding landscape. Sweden's research priorities are set out every four years in a research bill. In the latest research bill, presented in 2020, the government identified five societal challenges: climate and environment, health and welfare, digitalisation, skills supply and working life, and a democratic and strong society. The recent research bill includes the budget framework for most of civilian government R&D expenditure, including R&D funding agencies and institutional funds for research in the higher education sector and the RISE institute, for the period 2021-2024. While smaller adjustments may be made in the annual budgets, based on past experiences the expectation is that budget figures in the research bill will be kept unchanged. Importantly, sector agencies, of which the Swedish Energy agency is the largest in terms of R&D, are not covered by the research bill. In parallel to the development of Finland, the Swedish business-financed share of R&D decreased since 2000 (see Figure 6.6).

6.3.3 The patent race

The patent applications to the European Patent Office[130] according to Eurostat and the European Patent Office (EPO)[131] shows that Sweden is in the lead. Sweden is in 2023 (2022, 2021) with 2842 (2218, 2897) granted patents in the group of the top 10 at place 10. In 2023, the USA had 24976 granted patents, Germany 15013. As a small country Switzerland is in rank 7 with 4161 granted patents. The company Ericsson ranks number 4 under the top 10 patent applicants in

[130] See: https://ec.europa.eu/eurostat/cache/metadata/en/sdg_09_40_esmsip2.htm
[131] See: https://www.epo.org/en/about-us/statistics/data-download

2022. In the first place is Huawei (China). In 2023, Austria got 1504 patents granted by EPO, Finland only 1187.

In 2023, Austria had 2,355 patent applications at EPO, which gives relative to its population a ratio of 263.6. Finland had 2,336 patent applications, a ratio of 422.1. Sweden had 5,139 patent applications, a ratio of 495.1. A comparison with other innovative countries shows that the performance of the three countries is not bad. Germany has 24,966 patent applications with a ratio of 300.2; Switzerland 9,410 applications and a ratio of 1085.3; the USA 48,155 applications with a ratio of only 141.6; China had only 20,735 applications and a ratio of only 14.5.

The top technologies of patent applications are in the fields of digital communication, medical technology, computer technology, electrical machinery, apparatus, energy, pharmaceuticals, transport, measurement, biotechnology.

6.3.4 Nobel Prizes

A prominent indicator for the scientific excellence is also the number of granted Nobel Prizes. Accordingly, since the start of the Nobel Prize[132] in 1901, 39 *Swedes* have been awarded the Nobel Prize where it originates[133]. The latest winner, Svante Pääbo in 2022 was a recipient in the field of Medicine. Of these prizes six prizes were for Literature, five for peace, and tow for economics (Nobel Memorial Prize in Economics). *Finland* has been awarded only five Nobel Prizes so far[134]. One was for Peace, one for Economics, and one for Literature. *Austria* has been awarded 24 Nobel Prizes[135]. One for Peace, three for Literature and one for Economics. The latest Nobel Prize winner in 2022 was Anton Zeilinger in Physics.

Maybe the prizes for literature and economics the Nobel Memorial Prize in Economic Sciences may not be very relevant for stimulating TFP.

The EU as an international institution has also achieved a Nobel Prize. On 12 October 2012, Thorbjørn Jagland, Chairman of the Norwegian Nobel Committee, announced the award of the Nobel Peace Prize to the European Union[136]: *"The Norwegian Nobel Committee has decided that the Nobel Peace Prize for 2012 is to be awarded to the European Union (EU). The union and its forerunners have for over six decades contributed to the advancement of peace and*

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[132] See: https://en.wikipedia.org/wiki/List_of_Nobel_laureates_by_country and: https://www.nobelprize.org/
[133] Sweden: https://en.wikipedia.org/wiki/List_of_Nobel_laureates_from_Sweden
[134] Finland: https://en.wikipedia.org/wiki/Category:Finnish_Nobel_laureates
[135] Austria: https://en.wikipedia.org/wiki/Category:Austrian_Nobel_laureates
[136] See: https://www.nobelprize.org/prizes/peace/2012/summary/; and: https://www.consilium.europa.eu/de/documents-publications/library/library-blog/posts/nobel-peace-prize-for-the-european-union-10th-anniversary/

reconciliation, democracy and human rights in Europe". On 10 December 2012, European Council President Herman Van Rompuy and European Commission President José Manuel Barroso accepted the award from the Norwegian Nobel Committee in a ceremony at Oslo City Hall.

6.3.5 High School Rankings

Besides the Nobel Prize indicator, also High School Rankings may be indicating excellency in academic education. These rankings are highly disputed due to their different set of indicators. Nevertheless, they give a rough impression about the quality of academic education in a country compared to other countries.

According to the Academic Ranking of World Universities 2023 (Shanghai Ranking[137]) Sweden, again is best placed of the three countries. The Karolinska Institute ranks 41. Upsala University ranks 89, Stockholm University rank 100. In Finland Helsinki University has place 92. In Austria, the first best University of Vienna ranks in the range 150-200, the second-best, the Medical University of Vienna ranks 201-300.

Times Higher Education (THE) World University Rankin 2023[138] show a similar picture. In Sweden, the Karolinska Institute ranks 49, the Lun University place 119, Uppsala University 148, KTH Royal Institute of Technology 155, Stockholm University 176, University of Gothenburg 201-250, Chalmers University of Technology 251-300. In Finland, the University of Helsinki ranks 110, Aalto University 201-250. In Austria, the University of Vienna, ranks 124, Medical University of Graz 168, Medical University of Vienna 194, Medical University of Innsbruck 201-250.

Due to the critique of the existing World University Rankings the European Commission initiated a project "*U-Multirank*" which should consider the several biases of other rankings.

U-Multirank is an international, independent, and web-based initiative initiated by the European Commission in 2014 for the evaluation of colleges and universities[139]. The aim of the project is to create transparency about the high diversity of universities in the tertiary education sector. This is intended to enable students, parents and universities themselves to make a differentiated comparison between the educational institutions and their profiles. With the evaluation of more than 1700 universities from over 90 countries, U-Multirank is one of the most comprehensive and detailed evaluation programs for universities worldwide.

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[137] See: https://www.shanghairanking.com/
[138] See: https://www.timeshighereducation.com/
[139] See: https://www.umultirank.org/about/methodology/data-sources/

The annoying dominance of Anglo-Saxon universities in global rankings from a continental European perspective and their methodological deficits have prompted the European Commission to promote the development of methodologically demanding global and Europe-wide rankings, also with a project U-Multirank (consortium with several European partners, led by CHE – Centre for Higher Education[140]). The initial aim was to examine whether a methodology for a reliable, multidimensional global university ranking could be developed. In 2014 it started with 850 universities, today it includes 1948 universities from 97 countries. Several U-Multirank institutional and field level indicators are based on bibliometric and patent data included in high-quality, comprehensive international databases. This data is produced by the Centre for Science and Technology Studies (CWTS) at Leiden University.

In U-Multirank no one-number rankings are made but Universities are evaluated according to five indicators: 1) Teaching & Learning (Bachelor graduation rate, Graduating on time (masters), 2) Research (Citation rate, Research publications), 3) Knowledge Transfer (Co-publications with industrial partners, Patents awarded), 4) International Orientation (Student mobility, International joint publications), 5) Regional Engagement (Bachelor graduates working in the region, Regional joint publications). The following scores are given: A (Very good), B (Good), C (Average), D (Below average), E (Weak). One can now rank the Universities along the five indicators with the evaluations A to E. No single ranking figure is shown as in other University Rankings. With this evaluation system students an academic can evaluate according to their interests (where to study, where to cooperate in scientific projects).

6.3.6 Digital economy

Since 2014, the European Commission has monitored Member States' progress in digital and published annual *Digital Economy and Society Index (DESI)* reports[141]. Each year, the reports include country profiles, which help Member States identify areas for priority action, and thematic chapters providing an EU-level analysis in the key digital policy areas. The DESI Index ranks Member States according to their level of digitalisation and analyses their relative progress over the last five years, considering their starting point.

The Commission has adjusted DESI to align it with the four cardinal points set out in the Commission proposal for a decision *"Path to the Digital Decade Policy Programme"* which is being negotiated by the European Parliament and the Council. The proposal sets targets at EU

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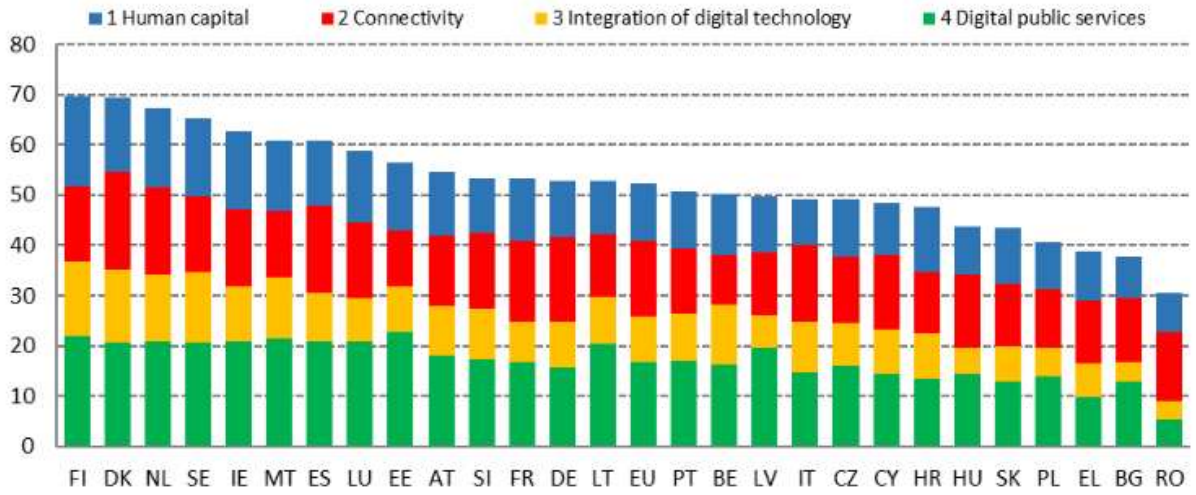
[140] See: https://www.che.de/en/
[141] See: https://digital-strategy.ec.europa.eu/en/library/digital-economy-and-society-index-desi-2022

level to be reached by 2030 to deliver a comprehensive and sustainable digital transformation across all sectors of the economy.

Of the DESI 2022 indicators, 11 measure targets set in the Digital Decade. In the future, the DESI will be aligned even more closely with the Digital Decade to ensure that all targets are discussed in the reports (see Figure 6.7).

Figure 6.7: Digital Economy and Society Index (DESI) 2022 ranking



Source: DESI 2002, European Commission (https://digital-strategy.ec.europa.eu/en/library/digital-economy-and-society-index-desi-2022)

Austria:

Austria ranks 10th of the 27 EU Member States in the 2022 edition of the Digital Economy and Society Index (DESI). From 2017 to 2022, the country has progressed at an average yearly relative growth rate of 8 percentage points as regards the DESI indicators1, well in line with the EU average. On Human capital, Austria performs better than the EU average in almost all indicators, except for the percentage of enterprises providing ICT training, which is slightly below the EU average. The proportion of ICT specialists in the workforce is at the level of the EU average. Austria's performance as regards connectivity is mixed: the country is above the EU average in 5G coverage but continues to perform significantly below the EU average for fixed very high-capacity network coverage and take-up. Ensuring access to higher speeds in rural areas remains Austria's biggest hurdle to achieve nationwide Gigabit connectivity by 2030. The country plans to address this challenge through its 2030 Broadband Strategy and public investments in fibre networks in rural areas, also benefitting from EU funds.

Finland:

Finland ranks 1st of 27 EU Member States in the 2022 edition of the Digital Economy and Society Index (DESI). Finland continues to lead the EU countries on the indicators tracking human capital. The proportion of employed people working as ICT specialists is above EU average by nearly 3 percentage points (7.4% against 4.5%), ICT graduates in Finland account for 7.5% of all graduates, and the share of companies providing ICT training to their employees in Finland is almost twice the EU average. Moreover, the share of SMEs with at least a basic level of digital intensity was considerably above the EU average (82% against 55%), 66% of companies use cloud solutions and 16% integrate AI technology in their operations. Although Finland has already reached the Digital Decade target of 80% of the population with at least basic digital skills, it still needs to increase the percentage of ICT specialists in employment and the share of ICT graduates.

Finland is a leader in 5G commercial services provision. However, it lags behind in the provision of very high-capacity network (VHCN) coverage in rural areas. The country intends to tackle that issue by implementing its national broadband plan and dedicated public funding. Its ability to meet the 2025-gigabit targets9 and the 2030 Digital Decade targets10 will depend on the impact of those measures in terms of overall availability of VHCN.

Sweden:

Sweden ranks 4th of 27 EU Member States in the 2022 edition of the Digital Economy and Society Index (DESI). Sweden performs well and has done so over the last couple of years and scores above the overall EU average although the progress is not as fast as previously. On connectivity, Sweden has fallen back to 9th place and is below the EU average on 5G coverage. Concretely, Sweden scores far below the EU average (66 %) in 5G coverage of populated areas at 18 %. To remain a digital front-runner globally and contribute to the Digital Decade targets, it is important that Sweden continues to improve its performance.

Additionally, to EU's DESI, EGovernment Monitor [142] - published annually since 2010 - makes a comparison of Germany, Austria and Switzerland concerning the use of e-government services. The EGovernment Monitor 2023 shows that mobile use of e-government is increasing in all three countries. Most e-government users now also use smartphones and tablets for digital

[142] See: https://initiatived21.de/publikationen/egovernment-monitor

government affairs. In Austria the share of users increased from 49% in 2022 to 56% in 2023; in Germany from 43% to 54%, and in Switzerland from 46% to 53%.

6.3.7 Complexity

The Observatory of Economic Complexity (OEC)[143] is a data visualization site for international trade data created by the Macro Connections group at the MIT Media Lab.

The higher an economic develops the more complex gets its structure: institutionally, economically, and sociologically. To evaluated complexity of a society complexity indices were constructed. Here we refer to the *The Economic Complexity Index (ECI)* as a holistic measure of the productive capabilities of large economic systems, in our case countries[144]. In particular, the ECI looks to explain the knowledge accumulated in a population and that is expressed in the economic activities. To achieve this goal, the ECI defines the knowledge available in a location, as the average knowledge of the activities present in it, and the knowledge of an activity as the average knowledge of the places where that economic activity is conducted. The product equivalent of the Economic Complexity Index (ECI) is the *Product Complexity Index (PCI)*.

Figure 6.8: Country Complexity Ranking according to the ECI

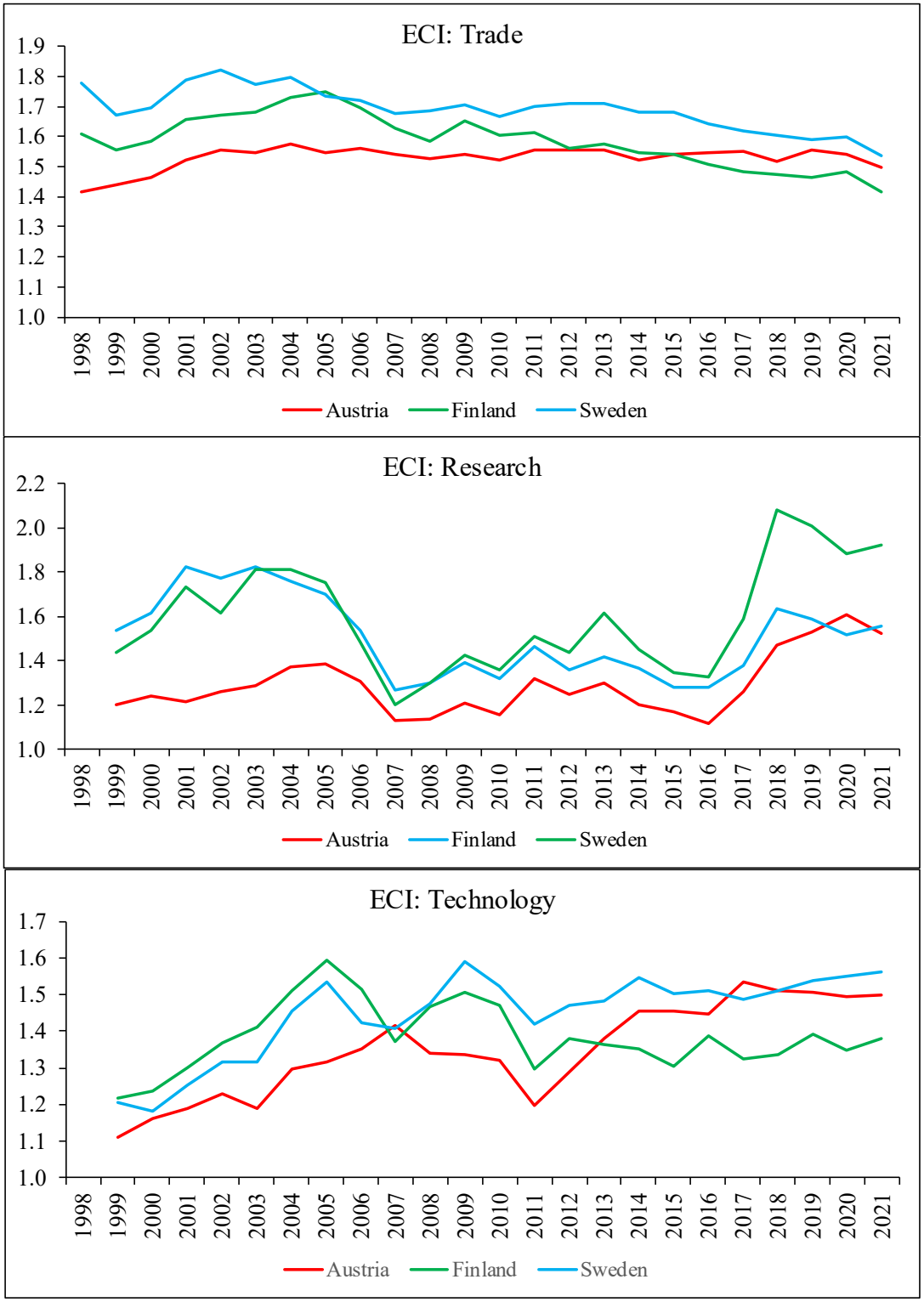
Source: Harvard Growth Lab's Country Rankings: https://atlas.cid.harvard.edu/rankings

The three countries rank high in the Economic Complexity Index (ECI; see Figure 6.8). In 2000, Sweden ranked at fifth place, followed by Finland (7) and Austria (8). Since then, Austria caught up and reached rank 4 in 2013, then in declined to rank 7. The biggest drop in the ECI ranking had Finland. It was at place 4 in 2007 and fell steadily down after the GFC in 2008 and

[143] See: https://oec.world/en
[144] See the Harvard Growth Lab: https://atlas.cid.harvard.edu/rankings

the following Great Recession in 2009 and landed at place 15 in 2021. Sweden lost gradually its high ranked position (place 5 in 2000), ending at place 10 in 2021.

Figure 6.9: Complexity in Trade, Research, and Technology: Austria, Finland, Sweden



Source: OEC: https://oec.world/en/rankings/eci/hs6/hs96?tab=ranking

Stoijkoski et al (2023) describe the methodology of the multidimensional economic complexity and their indices. The authors use the Economic Complexity Index (ECI) method (see their "Methods" section) to estimate three separate metrics of economic complexity: (1) *trade complexity* (ECI (trade)), using export data from the Observatory of Economic Complexity, (2) *technology complexity* (ECI (technology)), using patent applications data from World Intellectual Property Organization's International Patent System; and (3) *research complexity* (ECI (research)), using published documents data from SCImago Journal & Country Rank portal.

Also, in these three Complexity Ranking Indices[145] the three countries rank in the top league. The ECI Trade Index (Revealed comparative advantage, calculated with trade data: HS 96: 1998-2021) of 202 ranks Sweden at place 8, Austria at 9, and Finland at 13. The first five places take Japan, Switzerland, Chinese Taipei, South Korea, and Germany.

In the ECI Technology Index of the year 2021, Sweden stands at the first place, followed by Germany, Austria, and Finland. In the ECI Research Index (research publications) of the year 2021, Sweden ranks seven, Finland 17, and Austria 19.

There is a high positive correlation between GDP per capita of a country and its Complexity Index. The highest correlation exists in the ECI Trade, followed by the ECI Technology and the ECI Research (Patents).

Over a longer period, 1998-2021, complexity has increased in all three countries in the fields of Research and Technology (see Figure 6.9). In Technology Austria caught up remarkably towards the leader Sweden. In Research, Sweden is in the lead, the other two countries caught up. In all three countries, complexity declined since the early 2000ies.

Bittó et al (2024) use the concept of OEC complexity to analyse the complexity of Austria's foreign trade in relation to other trade competitors. Accordingly, over the last two decades, Austria has not only been able to almost triple the absolute volume of exports. The economic complexity of the export portfolio - a measure of the amount of know-how that an economy possesses relative to other economies worldwide - has also increased significantly. This is due to the sharp rise in exports of chemical products, a wide range of special tools and measuring instruments as well as metal and plastic products.

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[145] See: https://oec.world/en/rankings/eci/hs6/hs96?tab=ranking

Table 6.4: Rankings in multidimensional economic complexity (ECI Index 2021)

Rank	Country	ECI Exports	County	ECI Patents	Country	ECI Research
1	Japan	2.11	**Sweden**	1.56	USA	2.41
2	Switzerland	1.97	Germany	1.55	UK	2.31
3	Chinese Taipei	1.97	**Austria**	1.50	Canada	2.14
4	South Korea	1.86	**Finland**	1.38	Australia	2.08
5	Germany	1.82	Italy	1.34	Netherlands	2.07
6	Singapore	1.79	Norway	1.33	Switzerland	1.93
7	Czechia	1.58	France	1.24	**Sweden**	1.92
8	**Sweden**	1.56	Turkey	1.23	Germany	1.87
9	**Austria**	1.51	Spain	1.23	Belgium	1.80
10	USA	1.49	Switzerland	1.22	Israel	1.76
11	UK	1.45	Canada	1.20	Italy	1.74
12	Slovenia	1.43	Brazil	1.15	France	1.73
13	**Finland**	1.43	Australia	1.11	Spain	1.68
14	Hungary	1.37	UK	1.09	Norway	1.65
15	France	1.34	Belgium	1.08	Denmark	1.63
16	Slovakia	1.31	Netzerlands	1.08	New Zealand	1.56
17	Belgium	1.29	Russia	1.08	**Finland**	1.56
18	Ireland	1.29	Czechia	1.08	Ireland	1.54
19	Italy	1.27	Denmark	1.02	**Austria**	1.52
20	Israel	1.22	Poland	1.00	Brazil	1.38

Source: Bittó et al (2024), p. 8, based on Stoijkoski et al (2023); the rankings for ECI Patents (ECI Exports) are equivalent to those of ECI Technology (ECI Trade) in Figure 6.9.

Stoijkoski et al (2023) bring together several dimensions of economic complexity in order to describe a comprehensive and broad definition of complexity. They show that multidimensional economic complexity, which combines exports, patents and research papers summarizes can explain better key variables such as economic growth, income inequality and greenhouse gas emissions. Table 6.4 shows that Austria is highly complex in the area of patents, ranking 3rd behind Sweden and Germany, while in the area of research Austria only ranks 19th (Finland 17th, Sweden 7th). In the Export complexity ranking, Sweden has place 8, Austria 9, and Finland 13.

6.4 Productivity

In the context of the European Semester, the Council of the European Union in September 2016 issued a Recommendation on the establishment of National Productivity Boards[146]. National Productivity Boards are independent institutions that help to analyse economic productivity and

[146] See: Council Recommendation of 20 September 2016 on the establishment of National Productivity Boards (2016/C 349/01): https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32016H0924(01)

competitiveness developments and challenges. All euro area countries are invited to have such boards, while other EU countries are encouraged to do so[147][148].

Austria: The Austrian Productivity Board[149] was established in 2022 in accordance with the EU Council Recommendation 2016/C 349/01. It is an independent body consisting of five members who are economic experts not bound by instructions. The members of the Productivity Board are appointed for a term of six years by the federal government, the Austrian Economic Chambers, and the Federal Chamber of Labour. Representatives of the Oesterreichische Nationalbank (OeNB) and the Parliamentary Budget Office (PBO) as well as other experts attend Productivity Board meetings in an advisory capacity. The tasks of the Productivity Board are set out in the Fiscal Advisory Council and Productivity Board Act of 2021. The reports (in German) were published in June 2023 (Produktivitätsrat/Austrian Productivity Board, 2023) and in November 2024 (Produktivitätsrat/Austrian Productivity Board, 2024).

Finland: The Finnish Productivity Board exists since 2021[150]. The latest report was published in 2022 (Huovari et al., 2022).

Sweden: Sweden – a non-euro area country - has not installed such a board[151]. Of the 7 non-euro area Member States, only Denmark (Denish Council) and Hungary (National Competitiveness Council) have installed such bodies.

6.4.1 Labour productivity

Whatever measure of productivity one consults, Austria falls back compared to Finland and Sweden since acceding the EU in 1995 (see Figures 6.10, 6.11, and 6.12). Sweden leads by all standards.

According to AMECO data of the European Commission, since 1995 Austria's labour productivity per employment (Figures 6.10) performed the least compared to Finland and Sweden. The same picture emerges if one measures labour productivity per hours worked (Figure 6.11), although the performance in Austria is not so bad in this indicator.

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[147] See: https://economy-finance.ec.europa.eu/economic-and-fiscal-governance/national-productivity-boards_en

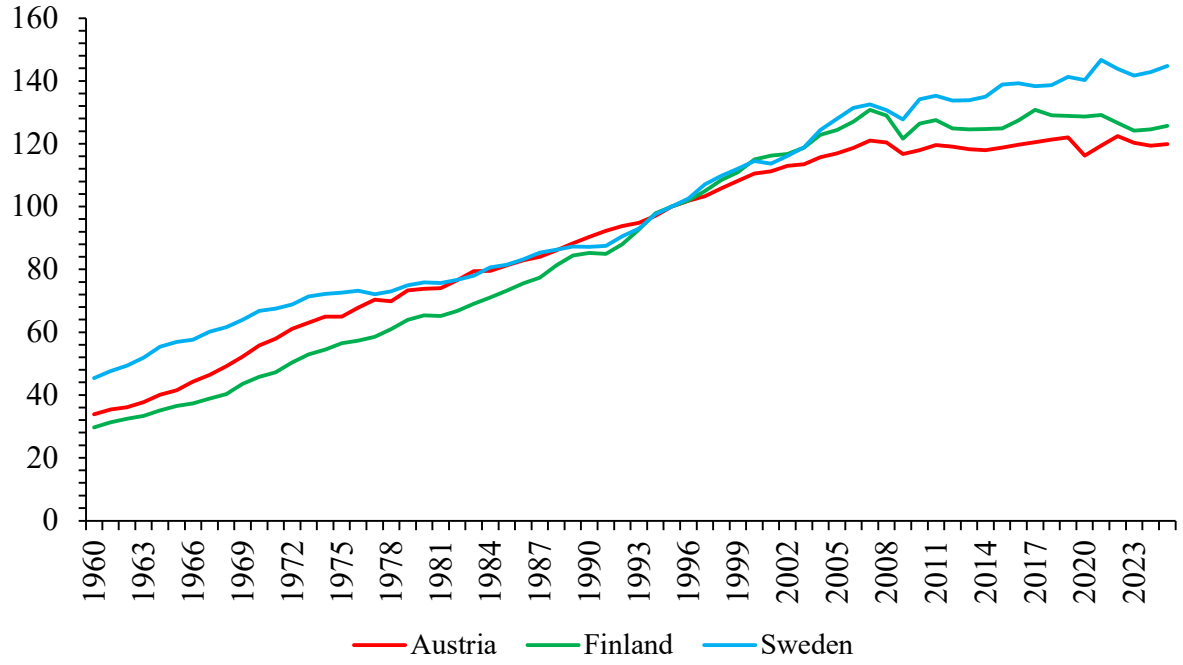
[148] See: Council Recommendation of 20 September 2016 on the establishment of National Productivity Boards (2016/C 349/01): https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32016H0924(01)

[149] See: https://economy-finance.ec.europa.eu/economic-and-fiscal-governance/national-productivity-boards/austria-national-productivity-board_en

[150] See: https://economy-finance.ec.europa.eu/economic-and-fiscal-governance/national-productivity-boards/finland-national-competitiveness-council_en

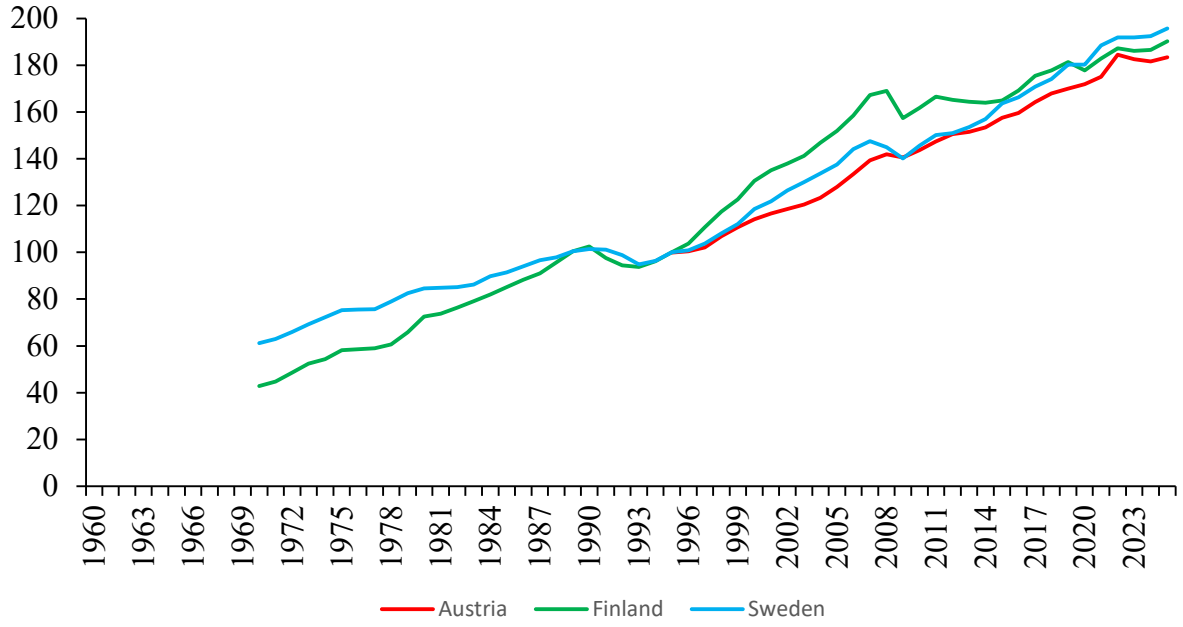
[151] See: https://economy-finance.ec.europa.eu/economic-and-fiscal-governance/national-productivity-boards_en#non-euro-area-member-states

Figure 6.10: Labour productivity per head: 1995=100
(GDP per person employed)



Source: AMECO database of the European Commission

Figure 6.11: Labour productivity per hours: 1995=100
(GDP per average annual hours worked per person employed)



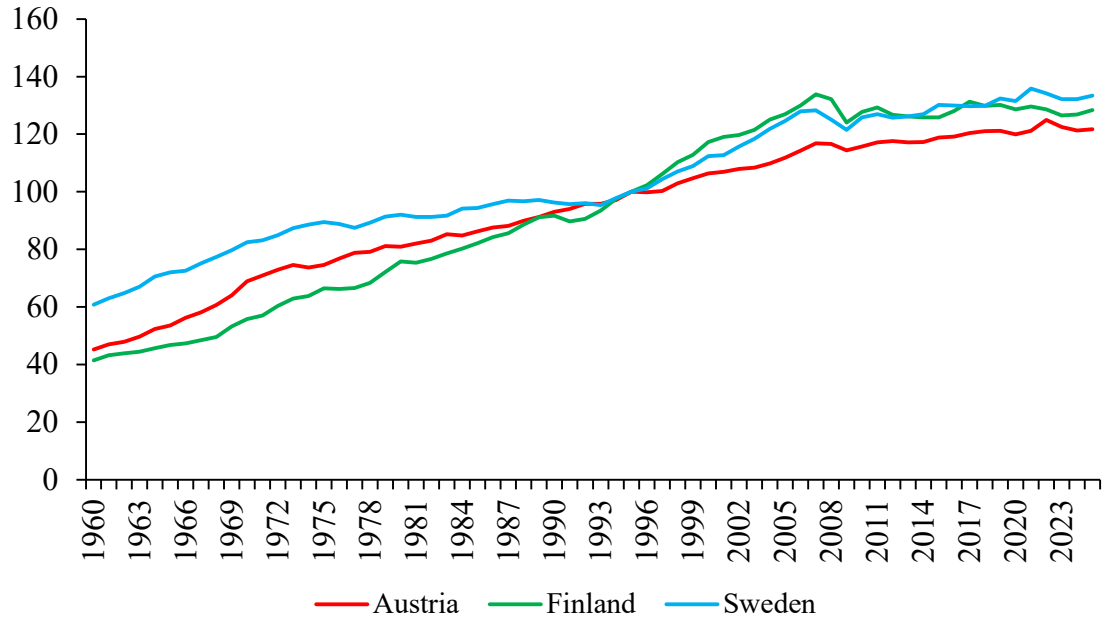
Source: AMECO database of the European Commission

6.4.2 Total factor productivity

From 1995 up to 2023, total factor productivity (TFP) grew in Sweden annually by 1.1%, in Finland by 1.0% and in Austria only by 0.7% (Figure 6.12). Compared with the growth

performance of the pre-EU membership period (1970-1994), only in Sweden TFP grow in the post-EU membership period (1995-2023) by 0.25 ppts faster. In Austria, TFP grow decreased by 0.9 ppts, in Finland by 1.5 ppts.

Figure 6.12: Total Factor Productivity (TFP): Austria falls behind Finland, and Sweden (Index 1995=100



Source: AMECO database of the European Commission

The big questions in the context of our analysis of the impact of EU membership on the economies of the three countries is how much of Sweden's leads, and Austria's lag is due to the influence of EU integration (Single Market, Euro, other policy actions) or is the lead just the result of national policy actions?

Anyhow, the outstanding lead of Sweden may explain her better macroeconomic performance, measured by GDP or GDP per capita (see chapter 4; Table 4.1). One thing is certain, Sweden's best economic performance is not due to trade-related EU impulses.

6.4.3 Productivity Paradox or Puzzle

The *productivity paradox*[152], also referred to as the *Solow paradox*, could refer either to the slowdown in productivity growth in the United States in the 1970s and 1980s despite rapid developments in the field of information technology (IT) over the same period, or to the slowdown in productivity growth in the United States and developed countries from the 2000s

[152] See: https://en.m.wikipedia.org/wiki/Productivity_paradox

to 2020s; sometimes the newer slowdown is referred to as the productivity slowdown, the *productivity puzzle*, or the productivity paradox 2.0. The 1970s to 1980s productivity paradox inspired many research efforts at explaining the slowdown, only for the paradox to disappear with renewed productivity growth in the developed countries in the 1990s. However, issues raised by those research efforts remain important in the study of productivity growth in general and became important again when productivity growth slowed around the world again from the 2000s to the present day.

There are numerous attempts to solve the productivity puzzle. In a recent study by the University of Cambridge (Ajayi et al., 2022), the problem lies in the energy sector. Accordingly, one possible explanation lies with the increased stringency of environmental regulations. The study investigates this possibility in the case of the regulated energy network industries in a sample of OECD countries over the period 1998-2016. First, they use the growth accounting method and estimate total factor productivity (TFP) growth in the electricity and gas sectors and find that these exhibit a lower TFP growth than the whole economy over the period. TFP growth falls further post-financial crisis. Second, the authors identify the impact of climate policies on productivity levels. They find that energy and climate policy indirectly reduced energy sector and economy-wide productivity.

The McKinsey Global Institute (Remes et al., 2018) claim to have solved the productivity puzzle. The report sheds light on the slowdown in labour productivity growth after the Great Recession in 2009 in the United States and Western Europe and outline prospects for future growth. They find that *three waves* collided to produce a productivity-weak but job-rich recovery: the waning of a productivity boom that began in the 1990s, financial crisis aftereffects, including weak demand and uncertainty, and digitization. The first two waves have dragged down productivity growth by 1.9 percentage points on average across countries since the mid-2000s, from 2.4 percent to 0.5 percent. In particular, financial crisis aftereffects include weak demand, uncertainty, excess capacity, contraction, and expansion of hours, and, in some sectors, a boom-bust cycle. The third wave, digitization, is fundamentally different from the first two because it contains the potential to reignite productivity growth, but the benefits have not yet materialized at scale. This is due to adoption barriers and lag effects as well as transition costs. As financial crisis aftereffects recede and more companies incorporate digital solutions, the authors expect productivity growth to recover. Accordingly, the productivity-growth potential could be at least 2 percent per year across countries over the next decade. Unfortunately, the COVID-19 pandemic destroyed these hopes.

The productivity puzzle of the three countries turns out quite differently. If one compares the period before EU accession in 1995 with the period since, one finds that only in Sweden there is no puzzle, because real GDP and TFP have grown faster in the post-EU period than before. Only the growth of labour productivity (real GPP per person employed) declined in all three countries after EU accession (see Table 6.5).

In Finland both productivity categories (labour and TFP) declined in the post-EU period faster than those in Austria (see Table 6.5). In both latter countries one could speak of a productivity puzzle. Has EU membership dampened productivity growth in Austria and Finland, whereas it was stimulated in Sweden?

Table 6.5: Growth performance of productivity and real GDP: pre- and post-EU accession (Average annual growth rates in %)

	1961-1969 A	1970-1994 B	1995-2025 C	Difference D=C_B
		Labour productivity per head, %		
Austria	4.95	2.52	0.70	-1.82
Finland	4.35	3.31	0.83	-2.48
Sweden	3.87	1.72	1.30	-0.42
		Total factor productivity (TFP), %		
Austria	3.95	1.70	0.74	-0.96
Finland	2.82	2.47	0.91	-1.56
Sweden	3.03	0.84	1.02	0.19
		Real GDP, %		
Austria	4.45	2.98	1.62	-1.36
Finland	4.54	2.93	1.88	-1.05
Sweden	4.44	1.93	2.24	0.31

Source: AMECO database of the European Commission

How much of these heterogeneous productivity developments can now be attributed to EU accession? A simple regression analysis – average annual real GDP growth is explained by TFP growth - may give a hint.

Over the period 1961-2025, average annual TFP growth explains around 60% of real GDP growth in Austria. The GDP/TFP elasticity is only 1.0, i.e. a growth of 1ppt TFP increases real GDP by 1 ppt (see Table 6.6). In Finland and Sweden, TFP growth explains nearly 80% of GDP growth, and the GDP/TFP elasticities are higher (1.2 in Finland, 1.1 in Sweden).

In the EU membership period (1995-2025) the pictures changes. In Austria, again 60% of TFP growth can explain real GDP growth, however, the GDP/TFP elasticity increased to 1.4, meaning that since 1995, a 1 ppt TFP growth increased real GDP by 1.4 ppts. Also, the

GDP/TFP elasticities of Finland, and Sweden went up, but not so stark than in Austria. Now, the GDP/TFP elasticities of the two Scandinavian countries are lower than those of Austria.

Table 6.6: How much does TFP growth explain real GDP growth?
(Average annual real GDP growth in % regressed on TFP growth in %: 1961-2025)

Dependent variable		Explanatory variable		
Real GDP%		Constant	TFP%	R^2
		1961-2025		
Austria		1.025	1.0250	0.61
	t-statistics	(4.39)	10.03)	
Finland		0.4587	1.2458	0.78
	t-statistics	(1.99)	(15.22)	
Sweden		1.0087	1.1408	0.77
	t-statistics	(6.08)	(14.61)	
		1995-2025		
Austria		0.6862	1.4289	0.60
	t-statistics	(2.37)	(6.79)	
Finland		0.7794	1.3026	0.92
	t-statistics	(4.57)	(18.52)	
Sweden		1.1210	1.3339	0.77
	t-statistics	(4.83)	(10.01)	

Source: Own regressions with AMECO data.

If one keeps in mind that – according to all trade-based EU integration analyses (see chapter 12) - Austria is the EU growth winner, one can conclude from the simple regression analysis above that EU membership had a positive impact on the development of FTP. The macro model approach by Breuss (2022B) considers a direct link of EU membership (embedded in trade impulses) and TFP development.

6.5 Competitiveness

There is a long dispute about the concept of competitiveness. Krugman (1994A, 1994B) speaks of a „dangerous obsession" when one talks about the competitiveness of countries. It would only make sense to talk about competitiveness of companies. He argues that, trying to define the competitiveness of a nation is much more problematic than defining that of a corporation. Many other authors and institutions, nevertheless, try to define international competitiveness by using a myriad of indicators. One of the most prominent critics of Krugman's position, is Michael Porter (about the controverse, see: Alexandros and Theodore, 2015).

Porter (1990) developed a theory of clusters, saying that companies in order to be competitive, must constantly improve the operational effectiveness of their activities.

According to Michael Porter (1990), if a state creates such a business environment, where conditions are favourable for business and where the state provides maximum support to companies that perform functions in local and global markets, then these conditions are the current competitive advantage of the nation. That assertion, according to Porter (1990), can also be applied at national and regional level. Krugman (1994A, 1994B) does not agree with Porter.

In a 4-years project (2012-2016) WWWforEurope (Welfare, Wealth, and Work for Europe[153]) provided the analytical basis for a socio-ecological transition in Europe: the change to a new growth path with smart, sustainable and inclusive growth as is envisaged in the EU 2020 strategy. In order to support the transition, the project participants analyse the need, the feasibility and best practice for change, specifying the institutional changes needed at all policy levels to implement these options. The old and new challenges Europe is facing define the starting point: globalisation, new technologies and post industrialisation, demographic change, and ecology in the context of welfare systems that have come under stress due to high public deficits. The vision is that Europe will become a role model for a ""high road growth path"" which actively incorporates social and ecological goals, employment, gender, and cultural aspects in an ambitious, forward looking way while continuing to be competitive in a globalised world. In this project, the term "international competitiveness" has been defined multidimensionally.

The project has been carried out by a consortium of 34 partners from universities and research institutes with international and interdisciplinary expertise. It represented 12 member states. It was coordinated by the Austrian Institute of Economic Research (WIFO), Vienna.

6.5.1 International rankings

Many international institutions produce annually or regularly, competitiveness reports (see European Commission[154]) or international competitiveness rankings by IMD or the World Economic Forum.

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[153] See: https://cordis.europa.eu/project/id/290647; see also: Aiginger (1998), and Aiginger et al. (2013).

[154] See: "Competitiveness Report of the European Commission". Since 1998 WIFO (Reporter: Michael Peneder) coordinates studies commissioned by the European Commission analysing the competitiveness of the European Union and its member countries. The research is carried out by a WIFO-led consortium of 20 specialised research institutes from 14 European countries (https://www.wifo.ac.at/en/research/current_projects/competitiveness_report).
The EU looked also on competitiveness beyond 2030 at the occasion of the 30th anniversary of the Single Market (https://ec.europa.eu/commission/presscorner/detail/en/ip_23_1668).

The *IMD World Competitiveness Ranking 2023*[155] work with a concept of competitiveness based on a multitude of indicators, some of them based on hard statistics, survey data, and background data. Essentially four kinds of efficiencies are analysed[156]:

- *Economic Performance*: Domestic economy, international trade, international investment (FDI), employment, prices
- *Government Efficiency*: public finance, tax policy, institutional framework, business legislation, societal framework
- *Business Efficiency*: productivity & efficiency, labour market, finance, management practices, attitudes & values
- *Infrastructure:* Basic infrastructure, technological infrastructure, scientific infrastructure, health & environment, education.

Overall, in 2023 Austria's international competitiveness according to the IMD ranking of 64 developed and developing countries hold only place 24, down from place 18 in 2019. Finland ranks 11, up from rank 15 in 2019. Sweden ranks best with place 8, up from place 9 in 2019. Concerning "Economic Performance", Austria with rank 22 performed better than Finland (39), and Sweden (28). In the field of "Government Efficiency" Austria (36) is worse positioned than Finland (13), and Sweden (14). The same is true in the field of "Business Efficiency": Austria 26, Finland 9, Sweden 6. Finally, in "Infrastructure", Austria (15), again lags Finland (3), and Sweden (4).

The three countries occupy similar positions concerning international competitiveness in the *Global Competitiveness Report 2019* of the *World Economic Forum*, a ranking before the COVID-19 Pandemic[157]. The World Economic Forum no longer produces such reports. In the 2019 ranking, Sweden was the best-ranked countries, concerning international competitiveness. In 2008, Sweden had rank four, in 2019 rank 8. Finland ranks 6 and 11, Austria, 14 and 21. All three countries lost competitiveness.

The Economic Experts Survey (EES) is conducted by the ifo Institute in Munich and the Institute for Swiss Economic Policy (IWP) and comprises a survey of around 8,000 economic

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[155] See: https://www.imd.org/centers/wcc/world-competitiveness-center/rankings/world-competitiveness-ranking/

[156] See the list of criteria: https://imd.widen.net/view/pdf/kzqx1pambc/All_criteria_list_WCY_2023.pdf

[157] See: https://www.weforum.org/reports?year=2023#filter. The World Economic Forum does no longer make a report on Global Competitiveness. At the beginning of the COVID-19 Pandemic crises, The World Economic published Special Edition 2020: The Global Competitiveness Report: How Countries are Performing on the Road to Recovery: https://www3.weforum.org/docs/WEF_TheGlobalCompetitivenessReport2020.pdf

experts from more than 130 countries (see Dörr et al., 2024). The survey is conducted quarterly and replaced the World Economic Survey Economic Survey (WES), which focused primarily on the economic outlook. The last waves of the WES and the EES have also been used for research questions such as tax reforms, public debt, fiscal rules, and terrorism. The latest survey from 26 September 2023 to 1 October 2023 deals with the assessments of *location competition*. The question on the attractiveness for national entrepreneurs to invest in Europe. Austria and Sweden are attractive by 80 to 90 points (a scale from 0 to 100), Finland has 60 to 70 points (a similar result as in Germany and France). The question of about the attractiveness for international companies to invest in Europe sees Austria, Finland, and Sweden with 60 to 70 points equally attractive. Germany gains only 30 to 40 points is getting less attractive than France and even Italy.

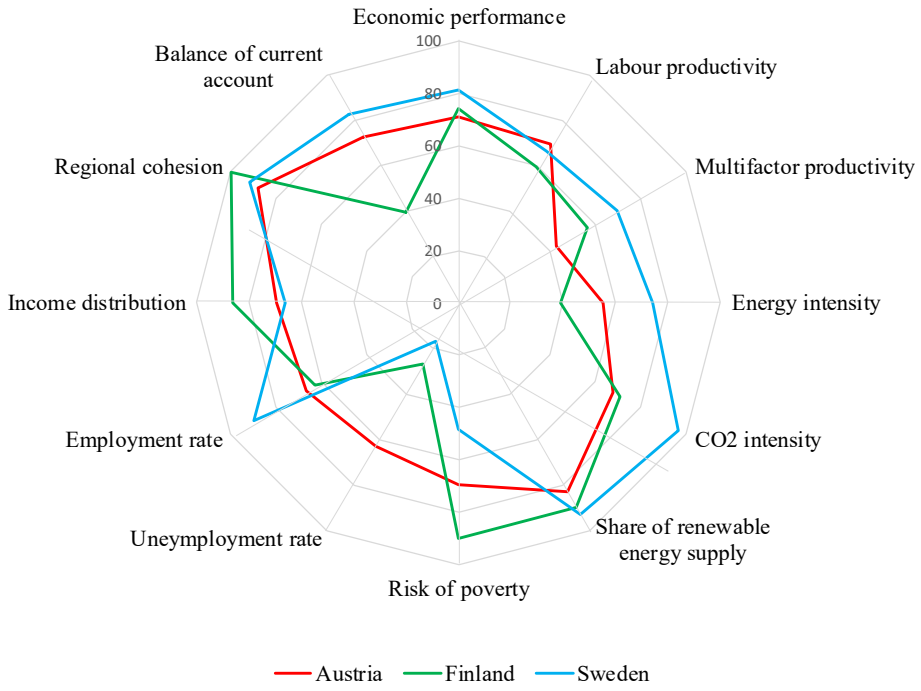
Following the tradition of the Competitiveness Report of the European Commission and the project WWWforEurope, WIFO since 2020 is publishing a *"Radar of Competitiveness",* which pictures the performance of the Austrian economy in a European comparison along four dimensions (see Peneder et al, 2023):

- Real income and productivity, including regional distribution
- Labour market and social living conditions
- Use of natural resources
- Foreign trade

The *WIFO Radar of Competitiveness* covers 30 European countries and 24 performance indicators (12 main indicators and 12 additional indicators). The Radar does not – as other international rankings – present an overall ranking of the 30 countries.

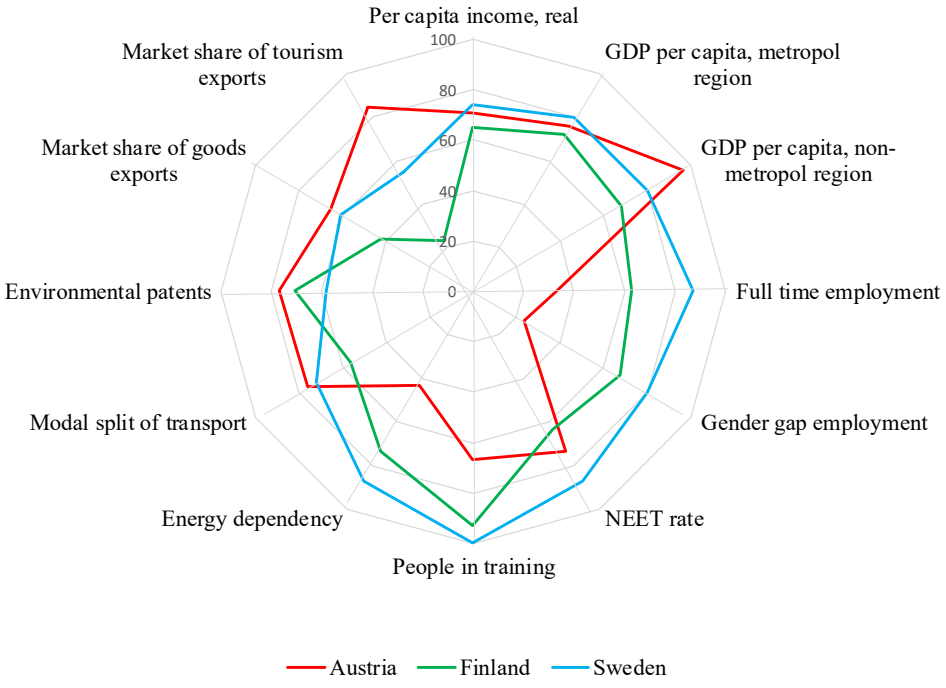
The WIFO Radar of competitiveness does not present an overall ranking but ranks only the 12 main indicators (Figure 6.13) and the 12 additional indicators per country (Figure 6.14). In our case Sweden ranks seven times out of the 12 main indicators at the first place, Finland three times, and Austria only in two times (in labour productivity and in unemployment rate; see Figure 6.13). Out of the 12 additional indicators Sweden ranks seven times at the first place, Austria five times. That means that Finland reached no first place concerning the 12 additional indicators (see Figure 6.14). Taking both categories of indicators together (12 main and 12 additional indicators), Sweden ranks fifteen times at the first place, Austria six times and Finland only three times.

Figure 6.13: WIFO Radar of international competitiveness: Main indicators (2020)



Source: Peneder et al. (2023) and WIFO "Radar der Wettbewerbsfähigkeit": https://www.wifo.ac.at/themen/wettbewerbsfaehigkeit/radar_der_wettbewerbsfaehigkeit

Figure 6.14: WIFO Radar of international competitiveness: Additional indicators (2020)



Source: Peneder et al. (2023) and WIFO "Radar der Wettbewerbsfähigkeit": https://www.wifo.ac.at/themen/wettbewerbsfaehigkeit/radar_der_wettbewerbsfaehigkeit

What does this tell us about the competitiveness of the three countries? Not very much. It seems we are back at the critical position of Krugman with respect of a country's competitiveness.

6.5.2 Re-globalization after slowbalisation?

Since the Global Financial Crisis (GFC) in 2008 and the following Great Recession 2009, the upward trend of Globalization seems to have declined. The last decade has been characterized by a slowdown in globalization, referred to by some as "slowbalisation" (The Economist in 2019[158]) and "deglobalization". The COVID-19 pandemic has reinforced this impression. This has been documented by international organisations, like IMF and WTO and by KOF. Additionally, new topics are addressed in the context of international trade. The World Trade Organization (WTO) in its World Trade Report 2022[159] explores the complex interlinkages between climate change and international trade.

In the face of multiple global crises, starting with the COVID-19 crisis, the war in Ukraine, the bottlenecks in the Panama Canal (due to drought, the passage of ships is reduced) and in the Suez Canal (due to the recent attacks by Houthis following the Gaza conflict), supply chains continue to be disrupted. The implementation of the upcoming major free trade agreements could be a remedy to stop globalization and help to revive globalization (Breuss, 2022C; WTO, 2023).

To overcome the deadlock in the Doha round negotiations at WTO the major players in world trade are negotiating or have already implemented several free trade agreements (FTAs) as a second-best solution. Breuss (2022C) has analysed within a common framework nine mega FTAs, some of them are already in effect, others will be enacted soon. Overall, not the big players in world trade, the EU and the United States win by a simultaneous implementation of the nine FTAs. Japan would be the winner because it participates in four combinations (overlaps) of FTAs: EU-Japan, USA-Japan, CPTPP (The Comprehensive and Progressive Agreement for Trans-Pacific Partnership of 11 countries), and RCEP (The Regional Comprehensive Economic Partnership of ten member states of the Association of Southeast Asian nations, ASEAN). The United States hardly gain from further globalization. Similarly, the EU27 cannot profit much from further globalization.

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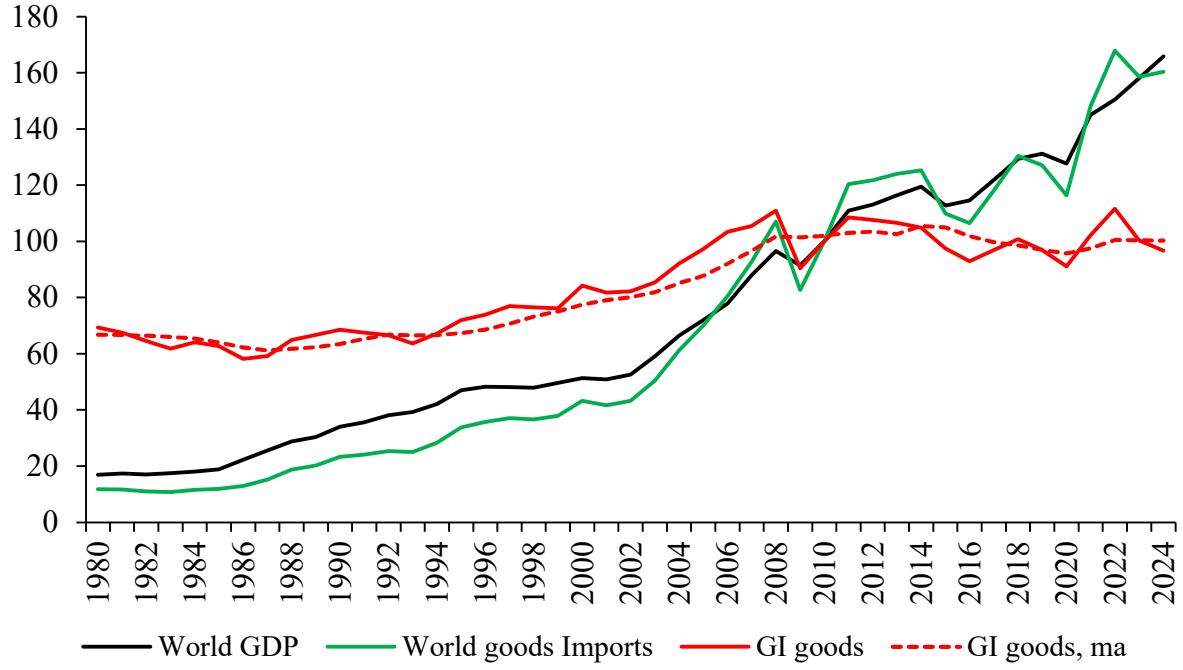
[158] See: "Slowbalisation: The future of global commerce", The Economist, Jan 246h 2019: https://www.economist.com/weeklyedition/2019-01-26

[159] See: https://www.wto.org/english/res_e/publications_e/wtr22_e.htm

The WTO (2023) in its World Trade Report 2023 pleads for Re-globalization for a secure, inclusive, and sustainable future. The reports asks whether WTO members' objectives would be better served by fragmentation of the world economy (by unilateral trade measures) or a renewed drive towards a broader and more inclusive integration – what the WTO has termed "re-globalization". The report also examines some of the most contentious issues currently shaping trade policy: how globalization relates to security, the extent to which it has enhanced economic inequality, and how it interplays with environmental sustainability.

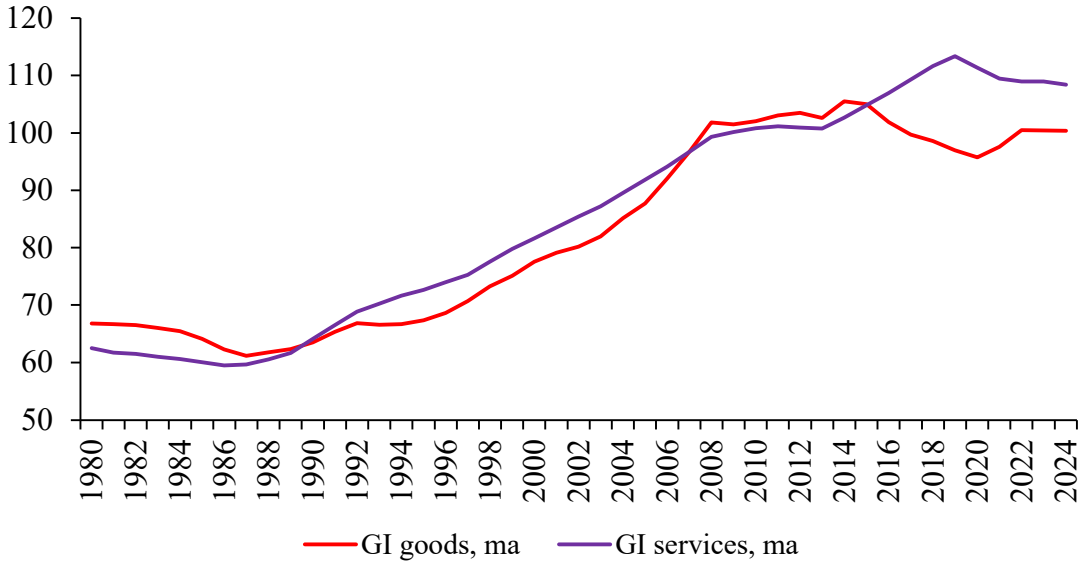
Figure 6.15: Globalization slowdown: world imports of goods, world GDP, globalization index (2010=100)



Globalization index (GI) = (world imports/world GDP; at current Mio. USD); ma = moving 5yrs average.
Source: Oxford Economics

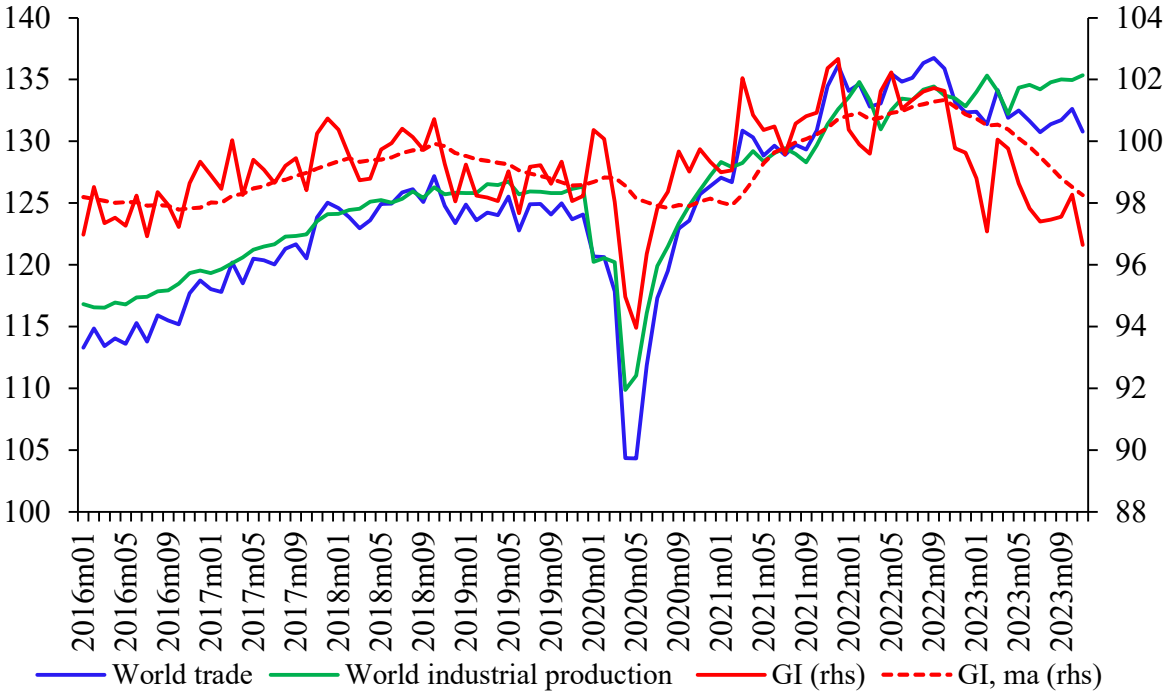
Figure 6.15 shows that globalization (Globalization index: the ratio of world trade of goods to world GDP) has risen continuously since 1980 until the Great Recession 2009. Since then, one sees a clear decline in the upward trend of the globalization index. In the eighties and early nineteenth the growth of world GDP surpassed those of world trade, but continuously converged up to the GFC in 2008. Since 2009 both indicators developed firstly parallel, then GDP again increased faster than trade.

Figure 6.16: Globalization index (2010=100): world goods and services trade



Globalization index (GI) = (world imports/world GDP; at current Mio. USD); ma = moving 5yrs average; imports of services = imports of goods and services minus imports of goods, at current Mio. USD.
Source: Oxford Economics

Figure 6.17: Declining Globalization: World Trade of goods and world industrial production (Globalization index (GI): 2010=100)



Globalization index (GI) = (world trade of goods/world industrial production), seasonally adjusted; ma = GI moving 12 months average; world trade = (world exports plus world imports)/2
Source: CPB World Trade Monitor: https://www.cpb.nl/en/world-trade-monitor-november-2023

The decline in globalization appears to be more pronounced in world trade in goods than in services. Figure 6.16 shows that the globalization index (world trade/world GDP) of world

goods trade declined by around 10 ppts since 2008, whereas the world trade of goods and services increased by around 5 ppts.

The slowdown in globalization can also be clearly seen in the short term (see Figure 6.17). Here, the globalization index (world trade/industrial production) is measured with monthly data and therefore with industrial production instead of GDP.

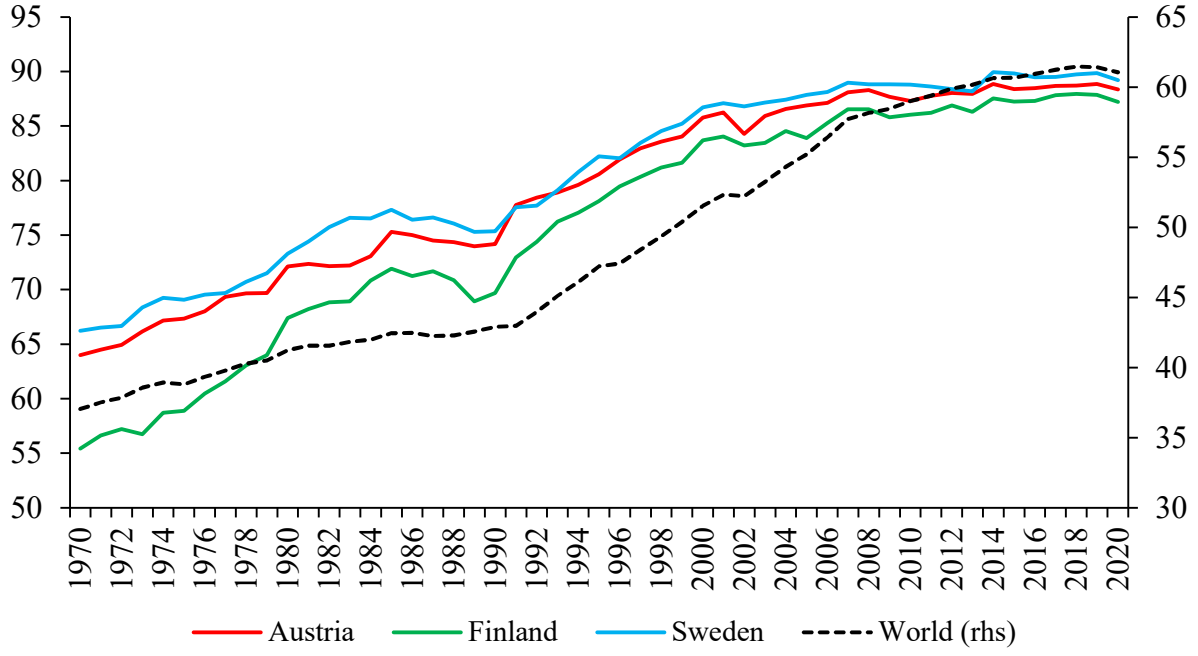
The gradual slowdown in globalization is also reflected in the KOF Globalization Index[160] Figure 6.18 shows that small open economies are more globalized than large countries. Accordingly, Sweden ranks in 2020 at place four, followed by Austria at place seven and Finland in nine. The next large country, UK ranks five, Germany six, France ten, but USA only at 24.

The overall Globalization index consists of the following three sub-indices:

1) Economic globalization (trade, finance),
2) Social globalization (interpersonal, information, cultural),
3) Political globalization.

According to the KOF analysis, the biggest decline of "globalization" is that of trade globalization. The least decline is shown in financial and information globalization. Political globalization runs parallel to overall globalization.

Figure 6.18: KOF Globalization Index: Overall (KOFGI)



Source: KOF – Swiss Economic Institute

[160] See: https://kof.ethz.ch/en/forecasts-and-indicators/indicators/kof-globalisation-index.html

6.5.3 Price and cost competitiveness

In the following we report the data about price and cost competitiveness of the European Commission[161], which are published quarterly. The price and cost competitiveness indicators cover nominal and real effective exchange rates of the euro area, of the individual EU Member States and several non-EU countries. They include data for the United States and Japan, Switzerland, Norway, Turkey, the United Kingdom, Canada, Australia, New Zealand, Mexico, Russia, China, Brazil, Hong Kong, and Korea.

A common measure of international price competitiveness is the real effective exchange rate (REER). It is the nominal effective exchange rate (a measure of the value of a currency against a weighted average of several foreign currencies) divided by a price deflator or index of costs. For most high-income countries weights are derived from industrial country trade in manufactured goods. All international organizations (IMF, World Bank, OECD, European Commission) are regularly publishing REER indices, either monthly, quarterly, or annually.

In the following analysis of the international competitiveness of the three countries we refer to REER data of the European Commission. First, we look at the intra-Euro area competitiveness, i.e. the development of the REER of the three countries is compared to competitors of 20 Euro Area countries. Second, we compare the price and cost competitiveness of the three countries, compared to 42 competitor countries. The relative prices are calculated by dividing the nominal effective exchange rates (NEER) by four price/cost indices (see Figure 6.19): the harmonized index of consumer prices (HICP), Unit labour costs (ULC), GDP deflator, and export prices.

Intra-Euro area competitiveness

The first observation is that the REERs of Sweden fluctuates heavily, whereas the REERs of Austria and Finland develop quite smoothly. This is due to the fact, that the non-Euro country Sweden uses still the Swedish Krona as an instrument of gearing competitiveness (see Figure 6.20). In the case of Sweden, the REER vis à vis 20 other Euro area countries is determined by two factors: the fluctuation of the SEK and the relative prices or costs. In the case of Austria and Finland the intra-Euro area price/cost competition is only determined by relative prices or costs (see Figure 6.19).

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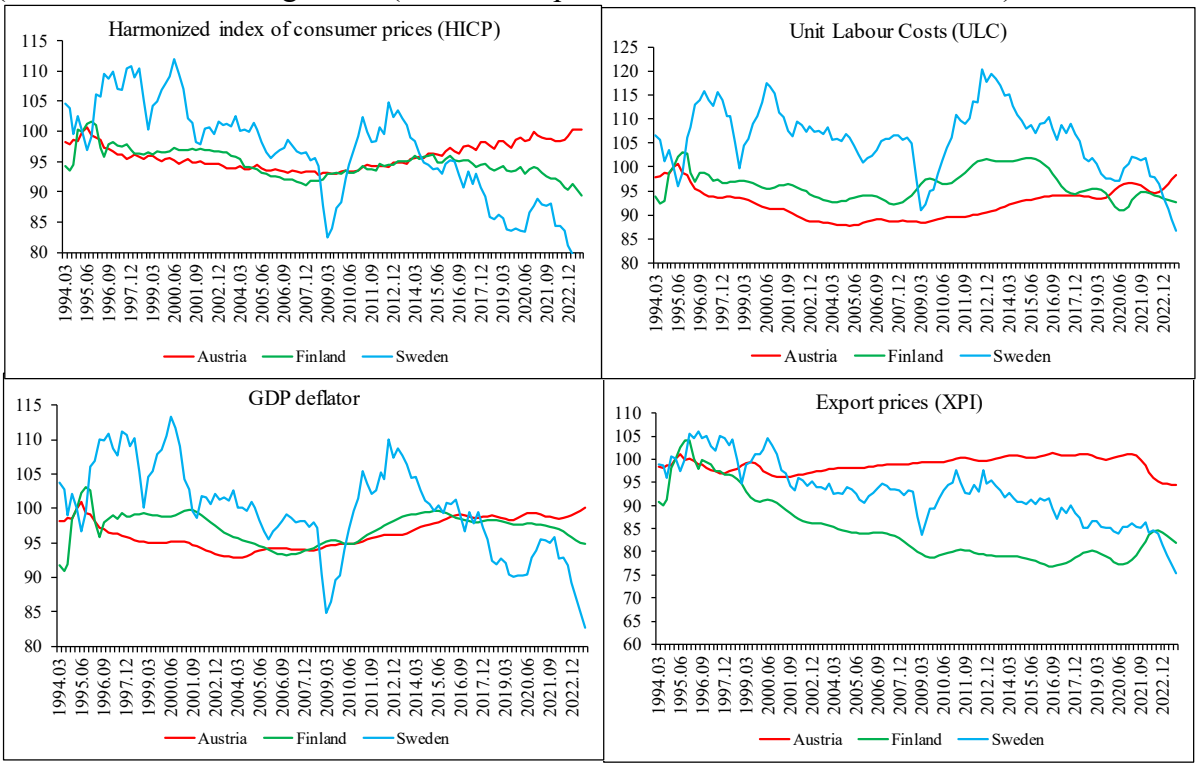
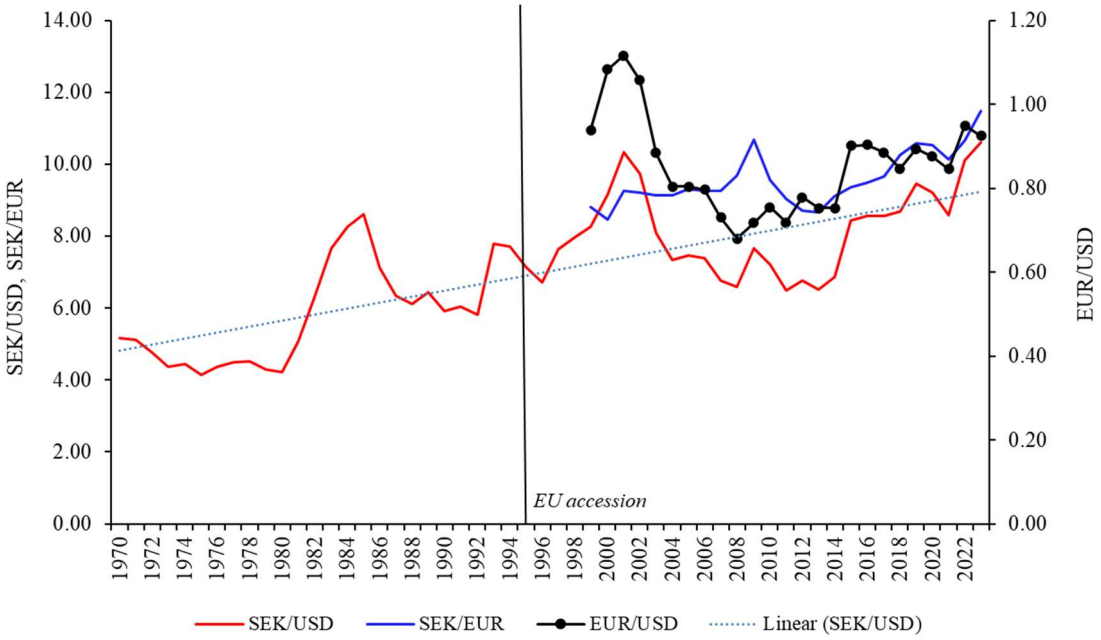
[161] See: https://economy-finance.ec.europa.eu/economic-research-and-databases/economic-databases/price-and-cost-competitiveness/what-price-and-cost-competitiveness-report_en

Figure 6.19: Intra-Euro Area price and cost competitiveness: 1Q1995=100
(Real effective exchange rates (REER; competitors are 20 Euro Area countries)



Increase (decrease) of the REER means a deterioration (improvement) of relative price and cost competitiveness.
Euro Area 20: Belgium, Germany, Estonia, Greece, Spain, France, Croatia, Ireland, Italy, Cyprus, Latvia, Lithuania, Luxembourg, Netherlands, Malta, Austria, Portugal, Slovenia, Slovakia, Finland.
Source: European Commission: Price and Cost Competitiveness: https://economy-finance.ec.europa.eu/economic-research-and-databases/economic-databases/price-and-cost-competitiveness/price-and-cost-competitiveness-data-section_en

Figure 6.20: Swedish Krona (SEK) versus USD and versus Euro (EUR)



Increase (decrease) means depreciation (appreciation) against USD/EUR
Source: IMF: International Financial Statistics: https://data.imf.org/regular.aspx?key=61545854

Figure 6.20 shows that the Swedish Krona (SEK) exhibits an increasing trend against the US Dollar (USD) from 1970 to 2022 which implies a depreciation of 1.4 ppts per year against the USD. Since the inception of the Euro (EUR) in 1999 the SEK depreciated against the EUR by 1.1 ppts per year. Hence, Sweden, by not introducing the Euro, continuously improved its price competitiveness against the other Euro are member states (Austria, and Finland). Sweden's abstention from EMU membership has given it extra (unfair) advantages over Euro area members and may explain (partly) the higher GDP growth performance of Sweden compared to Austria, and Finland.

Figure 6.19 gives the impression, that Sweden over the whole period of EU membership would have improved its price and cost competitiveness (the REER indices declined), whereas Austria and Finland deteriorated theirs (the REER indices increased). This is confirmed if one calculates annual average percent changes since 1995 (see Table 6.7). Averaging over all four REER categories, Sweden has improved its price and cost competitiveness by 0.5 ppts per year, Finland by 0.1 ppts, and Austria by 0.06 ppts. This lead for Sweden is the result of the improvement of its competitiveness in all four REER categories, mostly measured by relative HICPs. Austria's relative weak performance is not at least due to the most recent development.

Table 6.7: Intra-Euro Area price and cost competitiveness since 1995
(Average annual growth rates, 1995-2022, ppts)

	REER_HICP	REER_ULC	REER_GDP	REER_XPI	REER average
Austria	0.01	-0.13	0.01	-0.11	-0.06
Finland	-0.17	-0.02	0.12	-0.34	-0.10
Sweden	-0.74	-0.28	-0.39	-0.60	-0.50

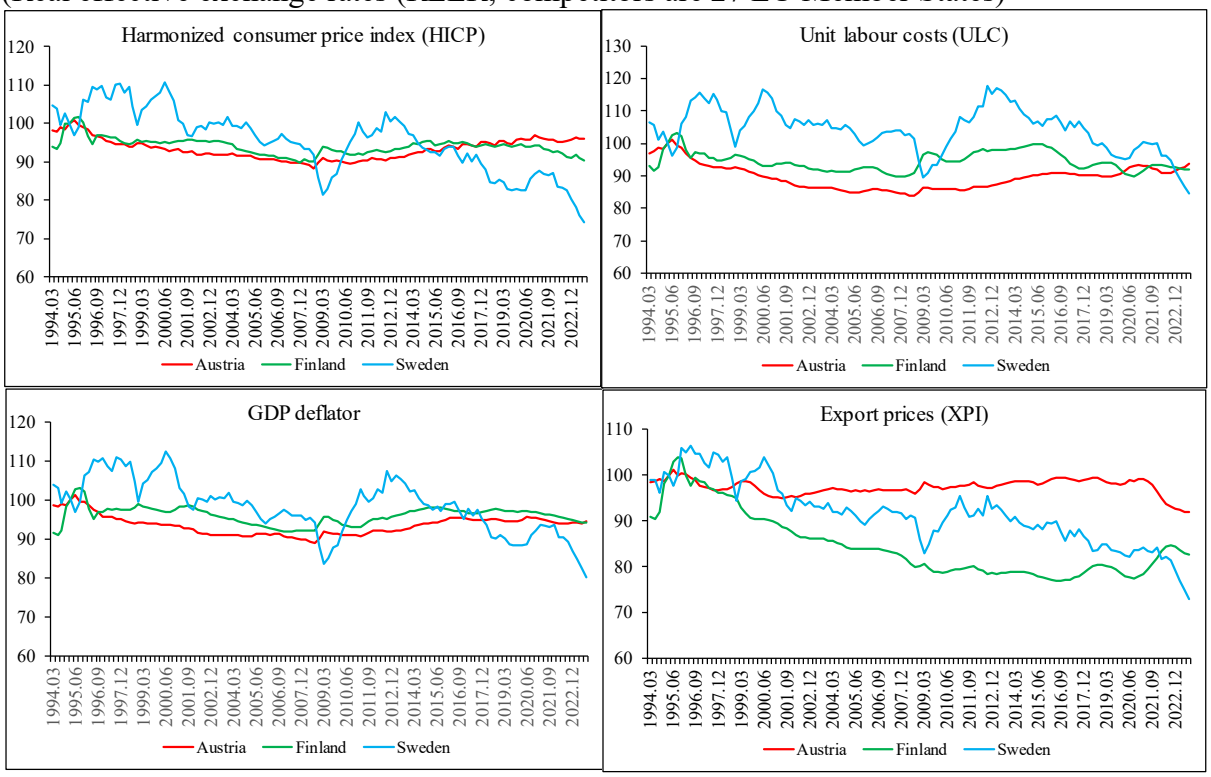
Increase (decrease) of the REER means a deterioration (improvement) of relative price and cost competitiveness.
Source: European Commission: Price and Cost Competitiveness:

In all European countries, inflation since the CORONA crises was triggered first by a heavy expansionary fiscal policy stance to mitigate the negative effects of the CORONA crises. Second this inflation trend was reinforced after the energy crisis following the Russian invasion of Ukraine. Since then, the Austrian inflation rate was continuously higher by around two ppts compared to the Euro area average. Because of the higher consumer price inflation also the wages increased more than in the Euro area partners. Therefore, REER measured by ULC increased in Austria since 2022 stronger than in the other countries.

Intra-EU27 competitiveness

The price and cost competitiveness of the three countries compared to 27 EU Member States did even more improve than those against 20 Euro area countries (see Figure 6.21). Again, Sweden leads as the most price competitive country, primarily due to a strong depreciation against the Euro since 1999 (see Figure 6.20). Sweden improved its relative price competitiveness against the other EU27 Member States since 1995 by 0.6 ppts per year, Austria by 0.2 ppts, and Finland by 0.1 ppts (see Table 6.8). By not being an Euro area member, this gave Sweden a relative price advantage against Finland and Austria of around 0.3 ppts per year.

Figure 6.21: Intra-EU27 price and cost competitiveness: 1Q1995=100
(Real effective exchange rates (REER; competitors are 27 EU Member States)



Increase (decrease) of the REER means a deterioration (improvement) of relative price and cost competitiveness.
Source: European Commission: Price and Cost Competitiveness: https://economy-finance.ec.europa.eu/economic-research-and-databases/economic-databases/price-and-cost-competitiveness/price-and-cost-competitiveness-data-section_en

Table 6.8: Intra-EU27 price and cost competitiveness since 1995
(Average annual growth rates, 1995-2022, ppts)

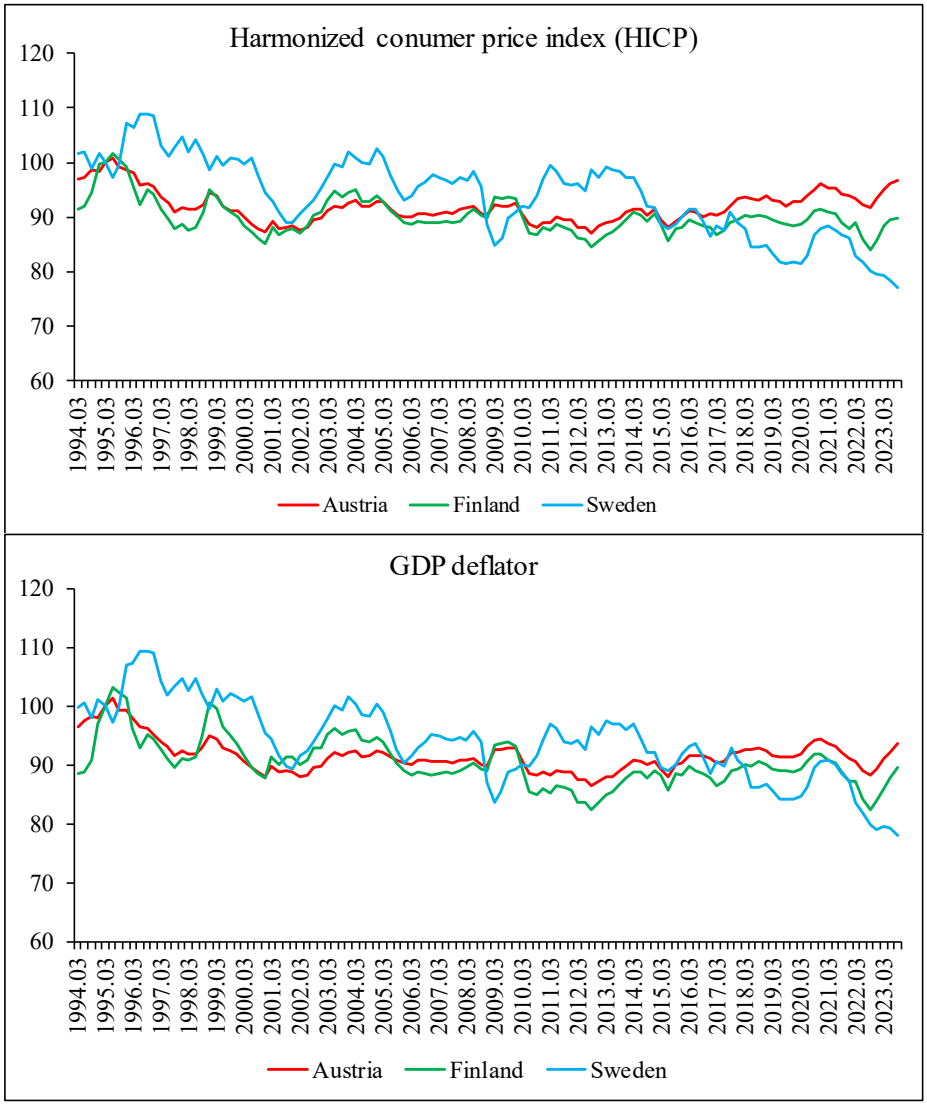
	REER_HICP	REER_ULC	REER_GDP	REER_XPI	REER average
Austria	-0.11	-0.26	-0.18	-0.20	-0.19
Finland	-0.14	-0.05	0.07	-0.35	-0.11
Sweden	-0.80	-0.35	-0.49	-0.71	-0.59

Increase (decrease) of the REER means a deterioration (improvement) of relative price and cost competitiveness.
Source: European Commission: Price and Cost Competitiveness:

International competitiveness

Measuring the international price and cost competitiveness with the REER relative to 42 competitor countries reinforces the picture of the intra-Eurozone competitiveness position of the three countries.

Figure 6.22: International price and cost competitiveness: 1Q1995=100
(Real effective exchange rates (REER; competitors are 42 countries)



Increase (decrease) of the REER means a deterioration (improvement) of relative price and cost competitiveness.
Broad group of competitors (42): EU27 + Australia, Canada, Japan, Mexico, New Zealand, Norway, Switzerland, Turkey, United Kingdom, USA, Brazil, China, Hong Kong, Korea, Russia.
Source: European Commission: Price and Cost Competitiveness: https://economy-finance.ec.europa.eu/economic-research-and-databases/economic-databases/price-and-cost-competitiveness/price-and-cost-competitiveness-data-section_en

All three countries could continuously improve their relative competitiveness over the period 1995 to 2023 (see Figure 6.22). Sweden again did profit the most by an average annual

improvement of 0.8 ppts (Table 6.9). Finland comes second in gaining relative price competitiveness, and Austria third, with annual improvement of 0.3 ppts)[162].

Table 6.9: International price and cost competitiveness against 42 countries since 1995 (Average annual growth rates, 1995-2022, ppts)

	REER_HICP	REER_GDP	REER average
Austria	-0.23	-0.36	-0.30
Finland	-0.36	-0.33	-0.34
Sweden	-0.84	-0.79	-0.81

Increase (decrease) of the REER means a deterioration (improvement) of relative price and cost competitiveness.
Source: European Commission: Price and Cost Competitiveness:

6.5.4 State aid

State aid is a policy instrument used by all countries. It can help to improve competitiveness but can also easily turn into discriminatory policy acts. The post-CORONA-19 crisis and the jump in inflation in the shadow of Russia's invasion of the Ukraine on 24 February 2023 led to a race in state interventions[163].

State aid is ruled under the topic "Common Rules on Competition", TFEU, TITLE VII, Chapter 1, Articles 107 and 108. It states that the Commission, in cooperation with Member States shall review all systems of aid existing in those States. The Commission also adopts regulations relating to the categories of State aid.

Keeping competition effective in the EU is a prerequisite to the well-functioning of the Single Market. Competition in goods and services in the European Single Market provides companies with incentives to innovate, enter new markets and improve productivity, which in turn bring a greater variety of choice and lower prices for consumers. These forces also play a fundamental role in making European firms more competitive on the global stage.

State aid control is a key pillar to ensure fair competition and a level playing field across companies in the EU. State aid is an advantage in any form whatsoever conferred on a selective basis to undertakings by public authorities. A company that receives government support through State aid gains a competitive advantage over the other players in the market. Favouring some firms to the detriment of others might create inefficiencies by allowing less efficient

[162] A similar picture emerges from the surveys in the EU's "Business and Consumer Surveys" (https://economy-finance.ec.europa.eu/economic-forecast-and-surveys/business-and-consumer-surveys_en). Since the end of the COVID-19 crisis and the inflation hike, wages in Austria have risen more sharply than in Finland and Sweden. As a result, the relative competitiveness of Austria's manufacturing sector has deteriorated dramatically.
[163] See "Competition Policy": https://competition-policy.ec.europa.eu/index_en

companies to survive or even expand at the expense of the more efficient. This is why the Treaty on the Functioning of the EU (TFEU) generally prohibits State aid unless its positive effects outweigh the negative impact of distorted competition. This balancing is more likely to be positive when the aid is aimed at addressing market failures or correcting market inefficiencies.

The latest "*State aid Scoreboard 2023*" of the European Commission (2024B, p. 15-16[164]) gives an overview of the state aid policy of EU Member States. The years 2020-2022 were exceptional due to two major crises: (i) the COVID-19 outbreak in March 2020 and (ii) the aggression against Ukraine by Russia in February 2022. The TFEU leaves room for a number of exceptions to the general prohibition of State aid, as mentioned above.

The TFEU also explicitly states that aid *"to remedy a serious disturbance in the economy of a Member State" (TFEU, Article 107, 3.b))* may be considered compatible with the internal market. The sudden and wide-spread diffusion of the COVID-19 outbreak across Europe in March 2020 and the drastic containment measures taken by all Member States perfectly fitted this provision of the TFEU. On this basis, the Commission promptly put in place a *Temporary Framework* for State aid, after consultation of Member States. These temporary measures have enabled Member States to use the full flexibility under State aid rules to keep otherwise viable companies afloat through the various waves of the pandemic, while preserving the level playing field in the EU Single Market. Given the improved health and economic situation in the first months of 2022, the European Commission has decided not to prolong the State aid COVID Temporary Framework beyond 30 June 2022, with the exception of investment and solvency support measures, that were in place until 31 December 2023 given their importance to kick-start the economy and crowd-in private investment for a faster, greener and more digital recovery.

In 2022, the EU economy experienced another serious crisis caused by the aggression against Ukraine by Russia. On 23 March 2022, the Commission has adopted a *Temporary Crisis Framework*, which recognises that the EU economy is experiencing another serious disturbance and provided Member States with a toolbox to help EU companies cope with problems such as disruptions in supply chains, blockage in the supply of energy and raw materials and the surge of energy prices. The Temporary Crisis Framework has been amended on the 20 July 2022 and on 28 October 2022. On 9 March 2023, taking into account the feedback received from Member States in the context of a survey and a targeted consultation, the Commission adopted a new *Temporary Crisis and Transition Framework (TCTF)*, amending and prolonging in part the Temporary Crisis Framework, to foster support measures in sectors which are key for the transition to a net-zero economy in light of the Green Deal Industrial Plan. The Temporary Crisis and Transition Framework is designed taking into account cohesion objectives (with higher support possibilities for companies located in disadvantaged regions) and with safeguards to

[164] See for data the "State aid Scoreboard 2022": https://competition-policy.ec.europa.eu/document/16b908d6-5319-4d11-9c56-d26ffc65ada8_en

ensure that the aid does not trigger relocation of investments between Member States. On 20 November 2023, the Commission decided to delay the phase-out of sections 2.1 (limited amounts of aid) and 2.4 (aid to compensate for high energy prices) by six months until 30 June 2024 in light of the persisting uncertainties in the energy market and to facilitate administrative implementation. The other sections in response to the immediate crisis (sections 2.2 to 2.3 on liquidity support and section 2.7 on reducing peak energy demand) were phased out on 31 December 2023. The transition rules in the TCTF allow Member States to accelerate investments in renewable energy production and storage (section 2.5) as well as industrial decarbonisation (section 2.6). In addition, besides the normal State aid rules, e.g. on regional aid, environmental and energy aid or support for research and innovation, the Commission has temporarily provided additional flexibility for such support in section 2.8 of the TCTF, which covers productive investments in certain essential clean technologies (batteries, solar panels, wind turbines, heat-pumps, electrolysers and carbon capture usage and storage) as well as their key components and critical raw materials. The sections of the TCTF intended to support the transition to a net-zero economy (sections 2.5, 2.6 and 2.8) are applicable until 31 December 2025.

In 2021, Member States continued to disburse massive amounts of State aid to mitigate the devastating economic effects of the pandemic – EU 27 Member States spent EUR 334.54 billion, corresponding to 2.3% of their 2021 GDP, on State aid for both COVID-19 and other measures. Total expenditure for COVID-19 measures amounts to EUR 190.65 billion, covering around 57% of the total spending and representing 1.3% of EU27 GDP. As in 2020, Member States mobilized unprecedented levels of support under temporary COVID-19 measures to ensure that otherwise viable businesses hard-hit by the COVID-19 pandemic crisis could keep afloat.

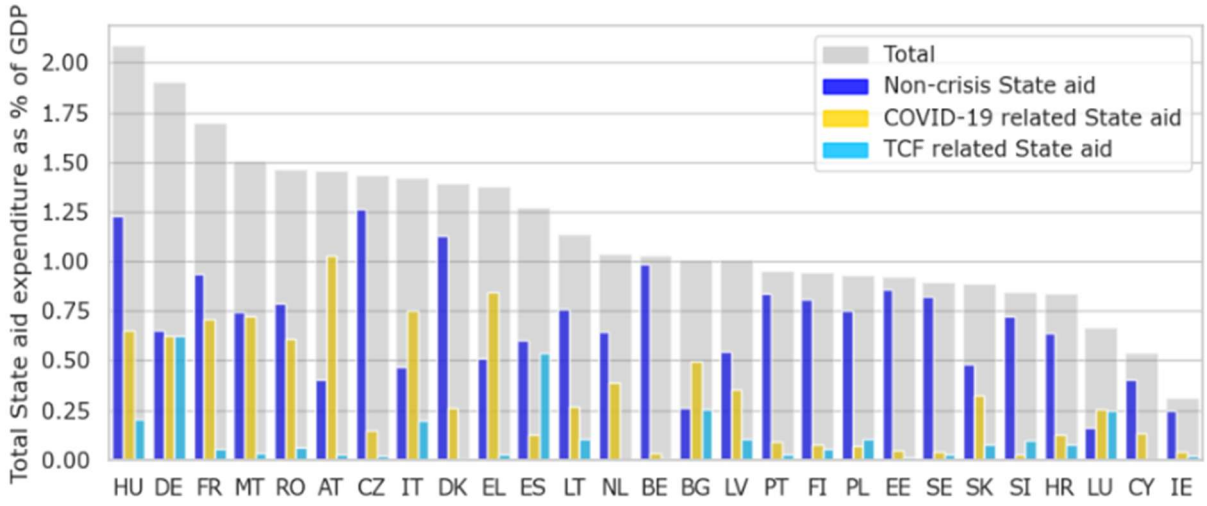
In 2022 State aids declined compared to 2021 (see European Commission, 2024B, p. 25[165]). EU 27 Member States spent EUR 227.98 billion, corresponding to 1.4% of their 2022 GDP, on State aid for both crisis and other measures. Total expenditure for COVID-19measures amounted to EUR 76.66 billion, covering around 34% of the total spending and representing 0.48% of EU27 GDP, while expenditure for measures related to the Russian invasion of Ukraine (TCF related measures) amounted to 39.33 billion, around 17% of the total spending and 0.25% of the EU27 GDP. Although crisis measures represent a minority of all active measures in 2022 (around 7%), they mobilised significant levels of support to ensure that otherwise viable businesses hard-hit by the COVID-19 pandemic crisis and by the energy crisis following the Russian war of aggression against Ukraine could keep afloat.

There still a significant spending dispersion across Member States, although consistently reduced if compared to 2021. While in the previous year, the dispersion ranged between 4.6 and 0.9 percent of national GDP, in 2022 it ranged between 2.1 and 0.3 percent of national GDP. The Member States spending the most, spent around 2.1-1.8 of their national GDP (Hungary and Germany), while the

[165] See "2023 State aid Scoreboard shows reduction in State aid expenditures in 2022": https://ec.europa.eu/commission/presscorner/detail/en/ip_24_1890

Member State spending the least, spent around 0.3 percent of GDP (Ireland), followed by Cyprus and Luxembourg, with around 0.5-0.8 percent of their national GDP.

Figure 6.23a: Total State Aid expenditure, as % of 2022 GDP (breakdown between COVID-19, State aid in response to the Russian invasion of Ukraine (TCF) and other State aid measures)



Source: European Commission (2024B), p. 27

Figure 6.23a shows that Austria is the Member State with the largest share of COVID-19 State aid expenditure relative to 2022 national GDP (1.03%), followed by Greece, Italy, and Malta. Slovenia and Belgium are the Member States that spent the least in relative terms, followed by Ireland, Sweden, Estonia and Poland.

Germany and Spain are the Member States with the largest share of State aid expenditure in response to the Russian invasion of Ukraine relative to 2022 national GDP (0.62% and 0.54% respectively). Cyprus and the Netherlands are the Member States that spent the least in TCF related State aid in relative terms, followed by Estonia and Malta.

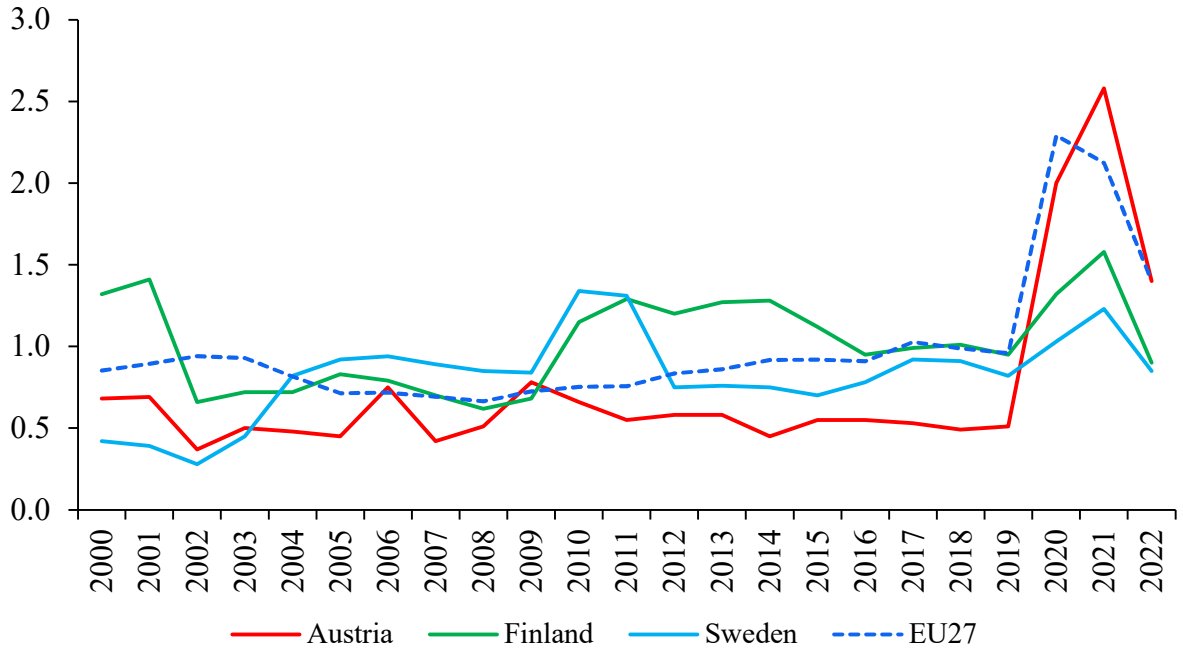
Looking at the proportion between non-crisis State aid and different types of crisis aid, COVID-19 aid accounts for more than 50% of the expenditure in Austria, Greece, and Italy. Spain is the Member State dedicating more than 40% of the State aid expenditure in 2022 to address the negative consequences of the Russian invasion of Ukraine. In Finland and Sweden total State aid of 0.9% and 0.85% are primarily targeted for non-crisis purposes. In contrast, Austrias total State aid expenditure amounted to 1.4% of GDP, of which 50% went to combat the COVID-19 crisis.

In *Austria* the Covid19-related expenditures in the years 2020 and 2021 were much higher than on average in the EU27 and in Finland and Sweden. They amounted in Austria in 2021 to EUR 8566.5 million, i.e. 81.8% of the total State aid expenditure. In 2020 this amounted to EUR 5334.5 million, i.e. 70.1% of the total. In 2022, the total State aid spending for Austria amounted to EUR 6.5 million (see European Commission, 2024B, p. 140-141). Around 82.8% of State aid spending in Austria was

concentrated in two main policy objectives. Around 72.3% was directed towards "Remedy for a serious disturbance in the economy" while 10.5% to "Environmental protection, including energy savings". Furthermore, Austria devoted around 4.6% towards "Research, development and innovation" and 4.4% to "Agriculture, Forestry, and Rural areas"

In 2021 the Covid19-related expenditure for *Finland* amounted to EUR 1387.3 million, i.e. 35.0% of the total State aid expenditure. In 2020 this amounted to EUR 755.3 million, i.e. 24.0% of the total. In 2022, the total State aid spending for Finland amounted to EUR 2.5 million (see European Commission, 2024B, p. 187-188). Around 65.2% of State aid spending in Finland was concentrated in two main policy objectives. Around 50.6% was directed towards "Environmental protection, including energy savings" while 14.6% to "Remedy for a serious disturbance in the economy". Furthermore, Finland devoted around 9.7% towards "Research, development and innovation" and 8.9% to "Agriculture, Forestry, and Rural areas".

Figure 6.23b: State Aid, total (in % of GDP)



Source: European Commission (2024B): Competition: https://webgate.ec.europa.eu/comp/redisstat/databrowser/view/AID_SCB_OBJ/default/table?lang=en&category=AID_SCB_OBJ)

In *Sweden* the Covid19-related expenditure amounted to 1153.1 million EUR i.e. 17.4% of the total State aid expenditure in 2021 (2020 1177.8 million EUR, i.e. 23.8% of the total). In 2022, the total State aid spending for Sweden amounted to EUR 5 million (see European Commission, 2024B, p. 271-272). Around 69.9% of State aid spending in Sweden was concentrated in two main policy objectives. Around 49.9% was directed towards "Environmental protection, including energy savings" while 20% to "Sectoral development".

Furthermore, Sweden devoted around 7.7% towards "Remedy for a serious disturbance in the economy" and 22.4% to "Other policy objectives".

What are the dimensions of state aid policy in the three countries in the longer run. According to the statistics of Eurostat, the picture is the following (see Figure 6.23b). In the long-run Finland and Sweden (an EU27 on average) gave more state aid to companies (higher share of GDP) than Austria. The CORONA crisis 2020-2022 changed the picture. Austria increased state aids faster than the Scandinavian countries and the EU average (see Figure 6.23b).

EU response to the US IRA

The EU Single Market is constantly challenged by unfair trade practices by third countries. A current example is the US Inflation Reduction Act of 2022 (IRA) which was implemented by the Biden administration (signed into law on 16 August 2022) to curb inflation by reducing the deficit, lowering prescription drug prices, and investing into domestic energy production while promoting clean energy[166]. With the IRA the Biden Administration embarked in a "New Paradigm" of climate policy. IRA represents the largest effort into addressing climate change in US history and is a radical departure from the politics of the Trump era. The law, as passed, will raise USD 738 billion and authorize $391 billion in spending on energy and climate change, USD 238 billion in deficit reduction, three years of Affordable Care Act subsidies, prescription drug reform to lower prices, and tax reform. The law represents the largest investment into addressing climate change in United States history. It also includes a large expansion and modernization effort for the Internal Revenue Service (IRS). According to several independent analyses, the law is projected to reduce 2030 U.S. greenhouse gas emissions to 40% below 2005 levels. The projected impact of the bill on inflation is disputed. Overall, the IRA contains USD 500 billion in new spending and tax breaks that aim to boost clean energy, reduce healthcare costs, and increase tax revenues.

The IRA includes tax incentives designed to lower costs for working families, grow the clean energy economy, and strengthen America's supply chains. According to the IRA qualified for a tax credit for electric vehicles assembled in North America of up to USD 7,500[167].

Outside the US, its resolute pro-climate aspects have been broadly hailed, yet the local-content requirements (LCRs), such as "Made in America" requirement for cars and batteries,

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[166] For details, see: https://en.wikipedia.org/wiki/Inflation_Reduction_Act_of_2022

[167] See the information on Electric Vehicle tax credit under the newly enacted IRA of the U.S. Department of the Treasuries: https://home.treasury.gov/news/press-releases/jy0923

have come under severe criticism. Beyond US-EU relations, LCRs also have the potential to undermine the free trade principles that are at the core of the World Trade Organization (WTO).

The European industry fears an unfair US competition by this "Buy American" doctrine implemented into the IRA. 20% of German industrial players from the famous "Mittelstand" (medium-sized companies) are currently pondering relocation their production sites to third countries due to the high energy prices and tax incentives elsewhere" (EURACTIVE, 30 Nov 2022). Less pessimistic is Hüther (2023). In his opinion criticism and scandalization of IRA appear to be self-righteous and exaggerated - self-righteous because the USA is now taking climate protection seriously and wants to restructure the industry using perfectly legitimate means, exaggerated because it is never just one factor that causes locations to erode. Above all, Germany has the location conditions in its own hand. Germany can also try to expand the quality of transatlantic trade relations based on the "Trade and Technology Council" and embedded in the Climate Club.

The EU reacted to the introduction of the IRA with a series of measures[168]. One is the opening of bilateral talks (the dialogue), the others are EU-internal measures.

A) US-EU Dialogue on IRA

On 26 October 2022, the European Commission launched a *US-EU Task Force on the Inflation Reduction Act (IRA)*. The Task Force will address specific concerns raised by the EU related to the IRA[169]. Both sides agreed on the importance of close coordination to support sustainable and resilient supply chains across the Atlantic, including to build the clean energy economy. On 5 December 2022[170], the EU and the US held the third Ministerial Meeting of the *Trade and Technology Council (TTC)* in College Park, Maryland to address common challenges (e.g., the irritation about the IRA) and responds to global crises (e.g., Russia's unprovoked war of aggression against Ukraine).

In a Joint Statement by US President Biden and Commission President von der Leyen on 10 March 2023, they reaffirm that the US and the EU are committed to addressing the climate crisis, accelerating the global clean energy economy, and building resilient, secure, and diversified clean energy supply chains. Both parties recognise that these objectives are at the heart of the U.S. Inflation Reduction Act and the EU Green Deal Industrial Plan. They announce

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[168] In a report on the briefing requested by the ECON Committee as of June 2023, the European Parliament (see Scheinert, 2023[168]) lists the numerous measures taken by the EU in response to the IRA (See: https://www.europarl.europa.eu/RegData/etudes/IDAN/2023/740087/IPOL_IDA(2023)740087_EN.pdf)

[169] See: https://ec.europa.eu/commission/presscorner/detail/en/STATEMENT_22_6402

[170] For details about these talks, see: https://ec.europa.eu/commission/presscorner/detail/en/IP_22_7433

the begin of negotiations on a targeted critical minerals agreement for the purpose of enabling relevant critical minerals extracted or processed in the European Union to count toward requirements for clean vehicles in the Section 30D clean vehicle tax credit of the Inflation Reduction Act. They announced the launch of the *Clean Energy Incentives Dialogue* to coordinate the respective incentive programs so that they are mutually reinforcing. Both sides vow to take steps to avoid any disruptions in transatlantic trade and investment flows that could arise from their respective incentives.

The TTC is a key forum to deepen transatlantic cooperation to facilitate trade and develop global standards on technology and security. Geostrategic challenges, including Russia's unprovoked war of aggression against Ukraine, have reinforced the importance of close coordination under the TTC. In a speech on 4 December 2022 at the College of Europe in Bruges, President von der Leyen[171] addressed the European concerns with IRA and offers cooperation with the USA but urges also counter measures in Europe in order to cushion competitive disadvantages. The EU regulations for public investments would have to be relaxed. In addition, additional European funds are needed to promote clean technologies and cooperation with the USA, for example in setting industry standards and purchasing critical raw materials.

Further elements of responses to US climate policy are negotiations and attempts of cooperations. Several channels for discussion and negotiation, both already established and newly created, can be used to defuse possible conflicts.

The *EU-US Energy Council* is the lead transatlantic coordination forum on strategic energy issues for policy exchange and coordination at political and technical levels. It was created in 2009 and last met on 4 April 2023, to re-affirm the common commitment to achieving net zero emissions by 2050 and working jointly with the global community to keep a 1.5 degrees Celsius limit in global temperature rise within reach, while pursuing a just and inclusive energy transition to climate neutrality.

The *Joint Energy Security Task Force* was set up in March 2022 by Commission President von der Leyen and US President Biden with the aim of supporting the rapid elimination of the EU's reliance on Russian fossil fuels by diversifying its natural gas supplies, taking steps to minimise the sector's climate impact, and reducing the overall demand for natural gas. A progress report was published on 3 April 2023. The Task Force has facilitated engagement with

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[171] See: https://ec.europa.eu/commission/presscorner/detail/en/speech_22_7487

the U.S. LNG industry on the EU Energy Platform and its upcoming implementation to attract U.S. LNG to Europe.

B) EU-internal measures

One of the major responses to the IRA was EU's *Green Deal Industrial Plan*[172], to avoid clean-energy companies to leave the EU for the US. It builds predominantly on relaxing State aid rules further, thus allowing more national support, including through tax benefits. When comparing US and EU action in favour of climate, it is necessary to also consider measures introduced before the IRA was adopted. In this respect, the EU Recovery and Resilience Facility (RRF) plays an important role, as it concentrates on the green and digital transition, with most of the subsidies allocated to the green part.

The Commission's Green Deal Industrial Plan, which was presented on 1 February 2023, is destined to enhance the competitiveness of Europe's net-zero industry and support the fast transition to climate neutrality. The Plan aims to provide a more supportive environment for the scaling up of the EU's manufacturing capacity for the net-zero technologies and products required to meet Europe's ambitious climate targets. It is based on four pillars: a predictable and simplified regulatory environment, speeding up access to finance, enhancing skills, and open trade for resilient supply chains. It proposed the *Net-Zero Industry Act*, to provide a regulatory framework suited for quick deployment of a net-zero industrial capacity, ensuring simplified and fast-track permitting, promoting European strategic projects, and developing standards to support the scale-up of technologies across the Single Market. It also announced the *Critical Raw Materials Act* (see chapter 9.3.2), and a reform of the electricity market design. On 15 September 2022, the Commission announced it would be proposing a *European Sovereignty Fund*[173].

When comparing US and EU action in favour of climate, it is necessary to also consider measures introduced before the IRA was adopted. In this respect, the *EU Recovery and Resilience Facility (RRF)* plays an important role, as it concentrates on the green and digital transition, with most of the subsidies allocated to the green part.

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[172] See: https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal/green-deal-industrial-plan_en; See also the statement by Executive Vice-President Dombrovskis at the ECON Committee of the European Parliament on the EU's reaction to the US Inflation Reduction Act (IRA): https://ec.europa.eu/commission/presscorner/detail/en/STATEMENT_23_3926

[173] See: https://ec.europa.eu/commission/presscorner/detail/en/STATEMENT_22_5543

Other instruments have also to be considered[174]. Launched in May 2022, *REPowerEU* is helping the EU to save energy, produce clean energy, and diversify its energy supplies following the adaptation of EU's energy supply to the war in Ukraine. The *InvestEU* Programme supports sustainable investment, innovation, and job creation in Europe.

After IRA was enacted, the EU, to counter the IRA's negative effects on EU industry, decided upon additional support to industry to be made available through the *relaxation of EU State aid rules*. This is based on an extension of the more generous application of State aid rules in response to the Russian invasion of Ukraine, for which the *Temporary Crisis Framework* was created in March 2022. On 9 March 2023, its latest modification transformed it into the *Temporary Crisis and Transition Framework* (TCTF), which de facto also made it a response to the IRA. The framework uses the flexibility foreseen under State aid rules to support the economy. In 2022, the Commission declared specific categories of State aid compatible with the Treaty if they fulfil certain conditions. Under the TCTF, in most cases State aid still must be notified, however, if certain conditions are fulfilled, the aid will be declared compatible. Under the revised *General Block Exemption Regulation* (GBER) the respective thresholds have been increased to allow that many cases of aid do not need to be notified anymore. The actual policy measures, i.e. subsidies, are then handed out at national level, using national resources.

6.5.5 Regional Competitiveness Index

On 27 March 2023, the European Commission has published the Regional Competitiveness Index (RCI), a fully revised version of a now long-established tool that measures different competitiveness dimensions for all EU regions[175].

The fully revised RCI 2.0 shows that there are still large differences between EU regions, but also that the less developed regions have been improving their competitiveness. The index also shows that the regions of Utrecht, Zuid-Holland and the French capital region of Île-de-France are the most competitive regions in the EU.

The RCI 2.0 uses a large number of indicators (see European Commission, 2023D, p. 29ff). The RCI 2.0 shows a highly positive - albeit non-linear – relationship between GDP per capita of a country and the RCI (European Commission, 2023C, p. 23).

The RCI reveals a remarkable spatial pattern across EU regions (Figure 6.24). Regional competitiveness is above the EU average in all regions in Austria (AT), Benelux, Germany, and

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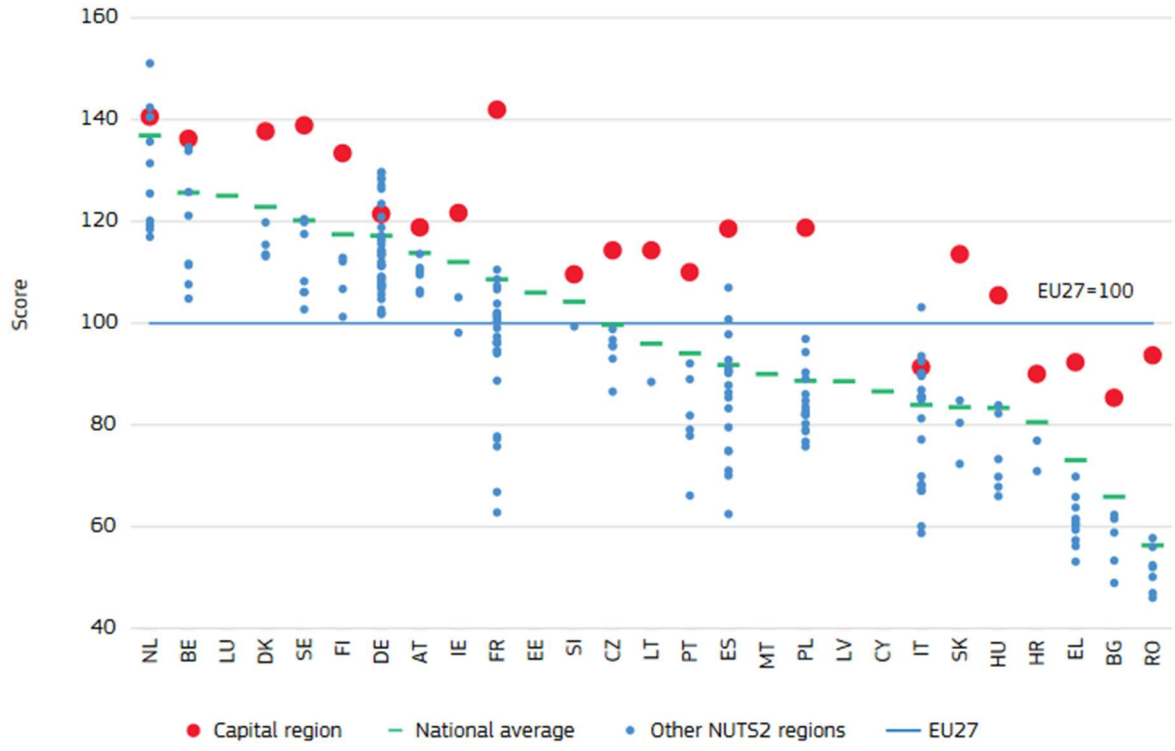
[174] See: https://www.europarl.europa.eu/RegData/etudes/IDAN/2023/740087/IPOL_IDA(2023)740087_EN.pdf
[175] See: https://ec.europa.eu/regional_policy/information-sources/maps/regional-competitiveness_en

the Nordic Member States (Finland – FI, and Sweden - SE). In contrast, all the eastern regions, except most capital city regions, score below the EU average. The regions of southern EU Member States tend to score below the EU average, with only five exceptions: Cataluña, Madrid and País Vasco in Spain, Lombardia in Italy and Área Metropolitana de Lisboa in Portugal. Ireland and especially France has a mix of regions above and below the EU average.

Figure 6.24: Regional Competitiveness Index (RCI 2.0): Regional variation by Member States



Source: European Commission (2023C, p. 12)

6.5.6 Energy intensity

The European Commission stated that energy efficiency is a key area of action, without which the full decarbonisation of the Union´s economy cannot be achieved. The proposal to revise the *Energy Efficiency Directive*, along with other proposals, tackles the energy aspects of the EU's climate transition under the 'Fit for 55' package.

The European Commission presented the *"Fit for 55"* package on 14 July 2021[176]. This package aims to align the EU's climate and energy legislative framework with its 2050 climate neutrality objective and with its objective of reducing net greenhouse gas emissions by at least

[176] See: https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal/delivering-european-green-deal/fit-55-delivering-proposals_en

55% by 2030 compared to 1990 levels. The package consists of a series of interrelated proposals, which either modify existing pieces of legislation or introduce new initiatives in a range of policy areas and economic sectors. On 9 October 2023, the European Commission welcomed the completion of key "Fit for 55" legislation[177].

In addition, as part of the REPowerEU plan, the Commission proposed on 18 May 2022 a series of additional targeted amendments to the *Energy Efficiency Directive* to reflect the recent changes in the energy landscape. The elements of the proposal were integrated into the interinstitutional negotiation process between the Council and the Parliament. The current Energy Efficiency Directive, in force since December 2018, sets a target of reducing both primary and final energy consumption by 32.5% by 2030 at EU level, compared with the energy consumption forecasts for 2030 made in 2007.

The (Energy Efficiency) Directive of the European Parliament and of the Council on energy efficiency and amending Regulation (EU) 2023/955 (recast) as of 13 July 2023[178] states that for an increased climate ambition of a 55 % decrease of GHG emissions by 2030, the impact assessment of the Climate Target Plan assessed what level of efforts would be needed in the different policy areas. It concluded that, in relation to the baseline, achieving the GHG emissions target in a cost-optimal way meant that primary energy consumption and final energy consumption are to decrease by at least 39 to 41 % and 36 to 37 % respectively.

Under the European Climate Law[179], the EU committed to reduce its net greenhouse gas emissions by at least 55% by 2030. The 'Fit for 55' package of legislation makes all sectors of the EU's economy fit to meet this target. It sets the EU on a path to reach its climate targets in a fair, cost-effective and competitive way. The Commission proposals for the "Fit for 55" program consist of the following reforms[180] which were all adopted by October 2023:

- EU Emission Trading System (ETS) reform
- New EU Emissions Trading System for building and road transport fuels
- Social Climate Fund
- Effort Sharing Regulation
- Regulation on Land Use, Forestry and Agriculture (LULUCF)
- CO2 emissions standards for cars and vans

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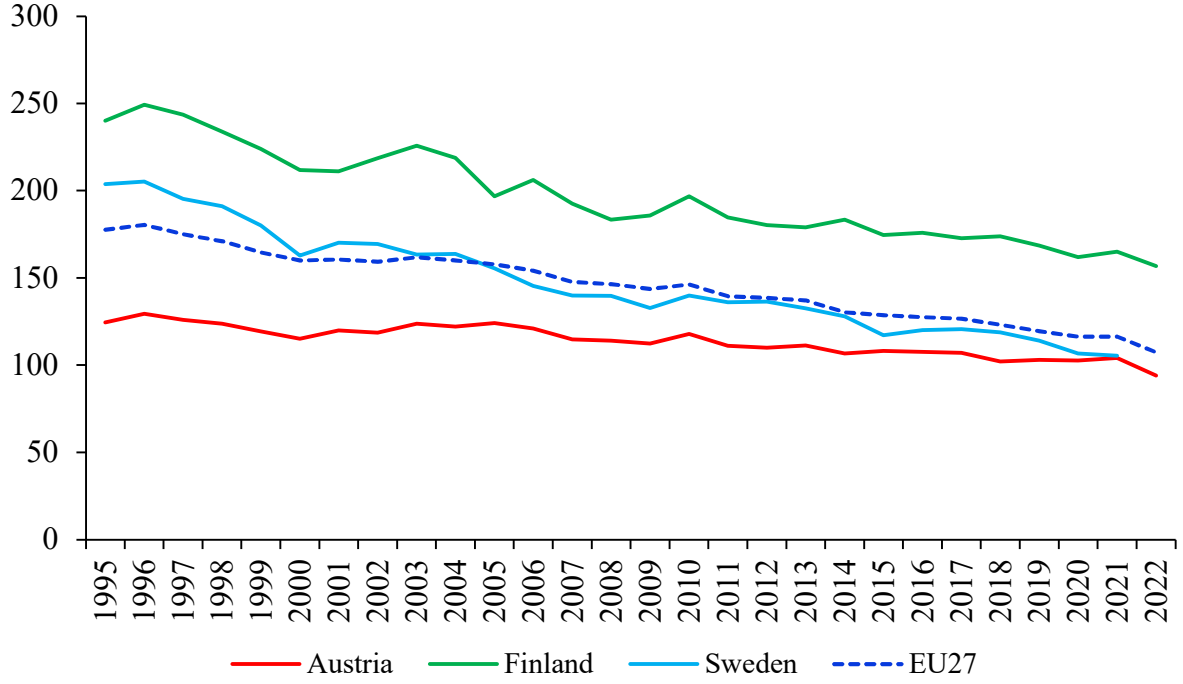
[177] See: https://ec.europa.eu/commission/presscorner/detail/en/ip_23_4754
[178] See: https://data.consilium.europa.eu/doc/document/PE-15-2023-INIT/en/pdf
[179] See: https://climate.ec.europa.eu/eu-action/european-climate-law_en
[180] See: The European Green Deal – Delivering the EU's 2030 climate targets; see: https://www.consilium.europa.eu/en/policies/green-deal/fit-for-55/

- Carbon Border Adjustment Mechanism (CBAM)
- Renewable Energy Directive
- *Energy Efficiency Directive*[181]
- Alternative Fuels Infrastructure Regulation (AFIR)
- RFuel EU Aviation Regulation
- FuelEU Maritime Regulation

Figure 6.25: Energy intensity of GDP in chained linked volumes (2010)
(Kilograms of oil equivalent (KGOE) per thousand euro)



Source: Eurostat:
https://ec.europa.eu/eurostat/databrowser/view/nrg_ind_ei__custom_10810472/default/table?lang=en

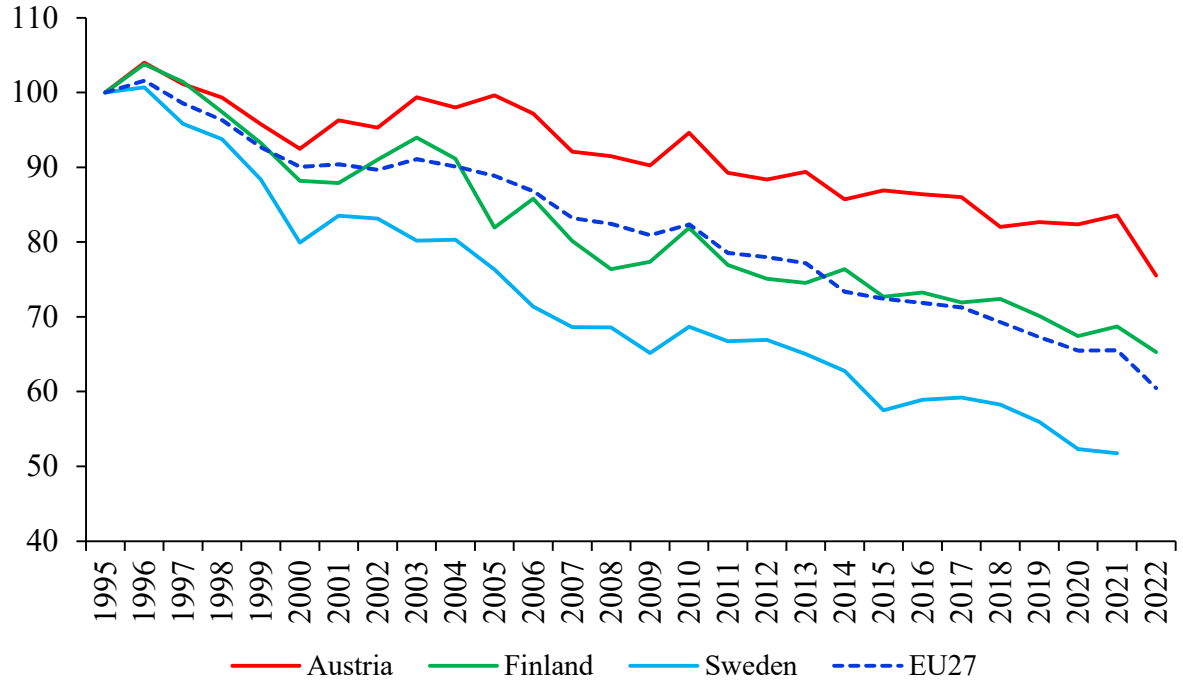
Lower energy intensity is an expression of a more efficient use of energy. In this indicator, measured as energy consumption divided by real GDP. Austria is below the weighted average of the EU27 (see Figure 6.25). Sweden's energy intensity develops close with those of the EU27 average. Finland, however, is above EU average. Energy efficiency is determined by the economic structure, the design of the transport and energy system and the climate and weather conditions. In the report of the World Economic Forum "Fostering Effective Energy Transition:

[181] On 25 July 2023, the European Council adopted the new Energy Efficiency Directive: https://www.consilium.europa.eu/en/press/press-releases/2023/07/25/council-adopts-energy-efficiency-directive/; see the proposal: https://data.consilium.europa.eu/doc/document/PE-15-2023-INIT/en/pdf

2023 Edition"[182], Sweden ranks first in the Energy Transition Index (ETI), followed by Finland at place four and Austria at place eight.

If one only looks at the development of the energy intensity since the EU accession of the three countries in 1995, on sees that Sweden (-50%) made the biggest progress in reducing energy intensity, followed by Finland (-45%) which reduced energy intensity in line with EU average. Austria (-25%), starting from a lower level as the others, however – although reducing energy intensity – lies behind the others in the pace of reduction[183] (see Figure 6.26).

Figure 6.26: Energy intensity of GDP: Index 1995=100



Source: Eurostat:
https://ec.europa.eu/eurostat/databrowser/view/nrg_ind_ei__custom_10810472/default/table?lang=en

The EU Emissions Trading System (EU-ETS) is a cornerstone of the EU's climate policy and its key tool to reduce greenhouse gas emissions cost-effectively. It is the world's first carbon market and remains among the largest ones globally[184].

The EU ETS applies in all EU Member States, the European Free Trade Association countries (Iceland, Liechtenstein and Norway) as well as Northern Ireland for electricity generation (under the Protocol of Ireland and Northern Ireland). The old ETS1 covers

[182] See World Economic Forum: https://www.weforum.org/publications/fostering-effective-energy-transition-2023/; and: https://www3.weforum.org/docs/WEF_Fostering_Effective_Energy_Transition_2023.pdf
[183] See also similar findings in the report of the Produktivitätsrat/Austrian Productivity Board (2023, p. 111).
[184] See: https://climate.ec.europa.eu/eu-action/eu-emissions-trading-system-eu-ets_en

greenhouse gas emissions from around 10,000 installations in the energy sector and manufacturing industry as well as aircraft operators flying within the EU and departing to Switzerland and the United Kingdom. From 2024, the EU ETS2 also covers emissions from maritime transport.

As part of the 2023 revisions of the ETS Directive, a new emissions trading system named ETS2 was created, separate from the existing EU ETS. This new system will cover and address the CO_2 emissions from fuel combustion in buildings, road transport and additional sectors (mainly small industry not covered by the existing EU ETS).

The ETS2 will complement other policies of the European Green Deal in the covered sectors, helping Member States achieve their emission reduction targets under the Effort Sharing Regulation (ESR).

So far, emission reductions in those sectors have been insufficient to put the EU on a firm path towards its 2050 climate neutrality goal. The carbon price set by the ETS2 will provide a market incentive for investments in building renovations and low-emissions mobility.

The ETS2 will become fully operational in 2027. Although it will be a 'cap and trade' system like the existing EU ETS, the ETS2 will cover emissions upstream. It will be fuel suppliers, rather than end consumers such as households or car users, that will be required to monitor and report their emissions. These entities will be regulated under the ETS2, which means they will be required to surrender sufficient allowances to cover their emissions. Regulated entities will purchase these allowances at auctions. The ETS2 cap will be set to bring emissions down by 42% by 2030 compared to 2005 levels. All emission allowances in the ETS2 will be auctioned, and a share of the revenues will be used to support vulnerable households and micro-enterprises through a dedicated Social Climate Fund (SCF). Member States will be required to use the remaining ETS2 revenues for climate action and social measures, and they will report on how this money is spent.

In a study by the BertelsmannStiftung, Weber et al. (2024) find that the EU's reliance upon its EU-ETS can give rise to inflation ("carbonflation"). Through simulations using an input-output price model for Germany, they show that the sectors which are essential for human livelihoods, production and commerce are vulnerable to carbonflation. The results are uncertain because of the uncertain of future levels and volatility of carbon prices. Cumulative inflation impact from 2023 to 2030 ranges from 2 percent (lower bound CO_2 price estimates od EUR 95/tCO_2 for ETS1 sectors and EUR 210/t CO_2 for ETS2) to 4.5 percent (upper bound estimates). The simulated annual carbonflation ranges from 0.2 percentage points to 1.7 percentage points. Six sectors are significant for these results: electricity, heating and colling, coke; coke and

petroleum products; oil and gas; real estate services; food and tobacco products; and land transport.

6.5.7 International tax competition

To avoid harmful tax competition in the area of corporate taxes (a "race to the bottom"), international organizations are trying to implement globally uniform tax rules. The *global minimum corporate tax rate*, or simply the global minimum tax (abbreviated GMCT or GMCTR), is a minimum rate of tax on corporate income internationally agreed upon and accepted by individual jurisdictions in the OECD/G20 Inclusive Framework. Each country would be eligible for a share of revenue generated by the tax. The aim is to reduce tax competition between countries and discourage multinational corporations (MNC) from profit shifting that avoids taxes[185].

In June 2021, a meeting of the Group of Seven finance ministers in the leadup to the 2021 G7 Summit endorsed a global minimum corporate tax rate of at least 15% on the 100 largest multinational companies to disincentivize a "race to the bottom" by countries to attract such multinationals. On 8 October 2021, 136 countries agreed to a plan of Organisation for Economic Co-operation and Development (OECD) to implement 15% global minimum tax rate, starting in 2023. 4 countries are yet to sign up (Kenya, Nigeria, Pakistan, and Sri Lanka). A two-pillar solution has been implemented by the OECD to address issues connected to digitalization of the economy. Consenting governments are currently discussing implementation plans and turning the agreement into law. For example, the European Union is on its way to developing new rules for this new agreement and getting deadlines for the implementation. A unanimous agreement among the 27 EU member states is still required but it should be done by 2023. For Switzerland, a constitutional amendment is required to adopt this new accord, and it will likely wait until 2024 for the Swiss rules to change. Finally, the United States is studying changes to its own approach, but it is not yet known when these changes will be adopted.

The tax works on a *two-pillar system* which should improve current corporate taxation rules. These rules prevent countries from taxing MNCs' income generated in their jurisdictions unless MNCs have nexus (physical presence) in that country.

- *Pillar one* (Reallocation of profits): It is concerned with new profit allocation rules applying to the largest and most profitable MNCs with worldwide revenue greater than €20 billion

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[185] See "Global minimum corporate tax rate": https://en.wikipedia.org/wiki/Global_minimum_corporate_tax_rate

and profitability above 10%. This amount could also be in 7 years reduced to €10 billion if the implementation succeeds.

- *Pillar two* (global minimum corporate tax of 15%): This introduces a new global minimum corporate tax of 15% for corporations in scope. It will apply to multinational groups with revenue exceeding EUR 750 million. This regime is estimated to generate around US$150 billion additional tax revenues annually. It addresses the relationship between parent MNCs and their subsidiaries. If the MNC's subsidiary has low-taxed income, then the MNC must pay a top-up tax to increase the tax rate related to the income to 15%. According to current rules subsidiaries located in tax havens pay little to no taxes. This will not be possible in the future. The global minimum tax consists of three principal rules: *inclusion rule (IIR), the undertaxed payments rule (UTPR)* and *the subject to tax rule (STTR)*. IIR works in a similar and complementary fashion as the UTPR. Both refer to the already mentioned 15% minimum effective tax rate. Together they are referred to as GloBE.

  In 2020, the group of then 137 member states called already the blueprint for “Pillar Two”, as solid basis to solve and address remaining base erosion and profit shifting (BEPS) challenges.

If countries with CIT (Corporate Income Tax) lower than 15% decide to do nothing, they might lose out on taxing rights. These taxing rights on locally generated income might go to another country. For example, if the parent MNC is located in a low tax jurisdiction which has not implemented the IIR, then the top-up tax will be calculated by the next intermediary holding company in the ownership chain. In this case the low tax jurisdiction would lose out on tax revenue over which it would have had primary taxing rights.

Countries with low or no CIT might take different approaches:

- Maintain status quo and not implement globally agreed Pillar two. This is unlikely for countries included in the OECD agreement
- Raise current CIT to meet 15%
- Create divided tax policies, where the global minimum tax would apply to only MNC meeting the EUR750m threshold.

For that reason, tax havens such as British Virgin Islands or the Cayman Islands will no longer have incentive to offer reduced or zero tax rates to MNC and will have to increase their headline corporate tax rates making them less attractive to multi-national companies.

As of July 2022, the UK and Japan have drafted implementation guidelines for the agreement, while the overwhelming majority of other signatories has not yet taken steps in implementing the agreement.

On 2 February 2023, the OECD released technical guidelines for the actual implementation of the global minimum tax. The document provides guidance on several aspects of the Global Anti-Base Erosion (GloBE) Rules. This includes guidance on the recognition of the United States' minimum tax, known as the Global Intangible Low-Taxed Income (GILTI), under the GloBE Rules. It also provides guidance on the design of Qualified Domestic Minimum Top-up Taxes and on the scope, operation, and transitional elements of the GloBE Rules. This guidance is intended to assist Inclusive Framework members in implementing the rules in a coordinated manner through their domestic legislation. The guidance addresses technical issues raised by stakeholders, such as the collection of top up tax in a jurisdiction in a period where the jurisdiction has no GloBE income and the treatment of debt releases and certain tax credit equity structures.

At present the three countries have rather similar corporate income tax rates[186]: Austria 25%, Finland 20%, Sweden 22%. The three countries have higher national CIT than the 15% Global Minimum corporate tax rate (GMCTR); therefore, there is no problem for them concerning tax collection for their national budgets.

Personal income tax rates (marginal tax rates) are 50% in Austria, 31.75% in Finland, and only 25% in Sweden which was formerly a high-income tax state.

Will Switzerland, of all countries, be the quickest to implement the minimum tax? However, the business associations are no longer in a hurry to introduce the tax - it's up to the Federal Council to decide. The business umbrella organization Economiesuisse no longer wants to introduce the OECD minimum tax by 2024. It is calling for the reform to be postponed by at least one year and implemented in 2025 at the earliest (see Neue Zürcher Zeitung, 11 November 2023, p. 9).

6.6 New bureaucratic hurdles for companies

Under the title "New Green Deal" of President von der Leyen's presidency of the European Commission, more and more new measures are being adopted to achieve the goal of

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[186] See OECD Tax Statistics: https://www.oecd-ilibrary.org/taxation/data/corporate-income-tax/corporate-income-tax-rates_7cde787f-en?parent=http%3A%2F%2Finstance.metastore.ingenta.com%2Fcontent%2Fcollection%2Ftax-data-en

transforming the EU into a green economy. These present themselves as ever-increasing bureaucratic hurdles for European companies competing internationally.

In the following, only the most important hurdles are mentioned that have either already been adopted as EU law recently or are about to be adopted.

6.6.1 CSRD

On 5 January2023, the Corporate Sustainability Reporting Directive (CSRD) entered into force[187]. This new directive modernises and strengthens the rules concerning the social and environmental information that companies have to report. A broader set of large companies (except listed micro-enterprises), as well as listed SMEs, will now be required to report on sustainability.

The new rules will ensure that investors and other stakeholders have access to the information they need to assess the impact of companies on people and the environment and for investors to assess financial risks and opportunities arising from climate change and other sustainability issues. Finally, reporting costs will be reduced for companies over the medium to long term by harmonising the information to be provided.

The first companies will have to apply the new rules for the first time in the 2024 financial year, for reports published in 2025.

Companies subject to the CSRD will have to report according to European Sustainability Reporting Standards (ESRS). The standards were developed by the EFRAG, previously known as the European Financial Reporting Advisory Group, an independent body bringing together various stakeholders. The standards will be tailored to EU policies, while building on and contributing to international standardisation initiatives.

The rules introduced by the Non-Financial Reporting Directive (NFRD) remain in force until companies have to apply the new rules of the CSRD. Under the NFRD, large companies have to publish information related to

- environmental matters
- social matters and treatment of employees
- respect for human rights
- anti-corruption and bribery

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[187] See: https://finance.ec.europa.eu/capital-markets-union-and-financial-markets/company-reporting-and-auditing/company-reporting/corporate-sustainability-reporting_en. Directive (EU) 2022/2464 of the European Parliament and of the Council of 14 December 2022 amending Regulation (EU) No 537/2014, Directive 2004/109/EC, Directive 2006/43/EC and Directive 2013/34/EU, as regards corporate sustainability reporting, OJEU, L 322/15, 16.12.2022.

- diversity on company boards (in terms of age, gender, educational and professional background)

These reporting rules apply to large public-interest companies with more than 500 employees. This covers approximately 11700 large companies and groups across the EU, including

- listed companies
- banks
- insurance companies
- other companies designated by national authorities as public-interest entities

In chapter 6.2 it was shown that Sweden, followed by Austria and Finland, has the largest number of large companies, so Sweden's company landscape is also likely to be most affected by this new reporting requirement.

6.6.2 CSDDD

On 23 February 2022, the Commission adopted a proposal for a Directive on corporate sustainability due diligence (CSDDD)[188]. The aim of this Directive is to foster sustainable and responsible corporate behaviour and to anchor human rights and environmental considerations in companies' operations and corporate governance. The new rules will ensure that businesses address adverse impacts of their actions, including in their *value chains* inside and outside Europe.

On 1 June 2023 the European Parliament accepted an amended text to the CSDDD proposal by the European Commission[189].

The European Commission lists the benefits of these new rules[190] for citizens (better protection of human rights, including labour rights; healthier environment), for companies (greater customer trust in businesses; better risk management; higher innovation; better access to finance), and for developing countries (better protection of human rights; sustainable investment; take-up of international standards; improved living conditions).

The core elements of this duty are identifying, bringing to an end, preventing, mitigating and accounting for negative human rights and environmental impacts in the company's own

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[188] See: https://commission.europa.eu/business-economy-euro/doing-business-eu/corporate-sustainability-due-diligence_en. Proposal for a Directive of the European Parliament and of the Council on Corporate Sustainability Due Diligence and amending Directive (EU) 2019/1937, Brussels, 23.2.2022.

[189] See: https://www.europarl.europa.eu/doceo/document/TA-9-2023-0209_EN.html

[190] See: https://commission.europa.eu/business-economy-euro/doing-business-eu/corporate-sustainability-due-diligence_en

operations, their subsidiaries and their value chains. In addition, certain large companies need to have a plan to ensure that their business strategy is compatible with limiting global warming to 1.5 C in line with the Paris Agreement. Directors are incentivised to contribute to sustainability and climate change mitigation goals.

Which companies will the new EU rules apply to?

Large EU companies:

- Group 1: +/- 9,400 companies - 500+ employees and net EUR 150 million+ turnover worldwide.
- Group 2: +/- 3,400 companies in high-impact sectors. - 250+ employees and net EUR 40+ million turnover worldwide, and operating in defined high impact sectors, e.g. textiles, agriculture, extraction of minerals. For this group, the rules start to apply two years later than for group 1.

Non–EU companies: +/- 2,600 companies in Group 1 and +/- 1,400 in Group 2

Third country companies active in the EU with turnover threshold aligned with Group 1 and 2, generated in the EU.

SMEs: Micro companies and SMEs are not concerned by the proposed rules. However, the proposal provides supporting measures for SMEs, which could be indirectly affected.

Even the European Commission is aware of the additional costs for companies due to these additional bureaucratic hurdles. Businesses will have to bear:

- The costs of establishing and operating the due diligence procedures.
- Transition costs, including the expenditure and investments to change a company's own operations and value chains to comply with the due diligence obligation, if needed.

As one of the first EU Members States, Germany introduced a "Supply Chain Act" (*Lieferkettengesetz,* LKS[191]), already in 2021. This law entered into force on January 1, 2023. After negative experiences, The EU's planned supply chain law (CSDDD) was near to fail because of the veto of Germany. The major business associations in Germany had called for a no to the EU plans. They criticized that the plans went far beyond the current German Supply

[191] See "Gesetz über die unternehmerischen Sorgfaltspflichten in Lieferketten" vom 16. Juli 2021: https://www.bgbl.de/xaver/bgbl/start.xav?startbk=Bundesanzeiger_BGBl&jumpTo=bgbl121s2959.pdf#__bgbl__%2F%2F*%5B%40attr_id%3D%27bgbl121s2959.pdf%27%5D__1707148914960

Chain Due Diligence Act. European companies are already withdrawing from third countries where they could encounter problems[192].

On 15 March 2024, the majority of EU member states agreed on a watered-down proposal version of the CSDDD. It will apply only to large companies with more than 1.000 employees and a turnover of more than EUR 450 million. On 24 May 2024 the Council has adopted the revised CSDD[193].

The study by Wolfmayr et al. (2024, p. 95) estimated the welfare effect of an "escalation scenario" of EU's CSDDD. In this scenario imports of high-impact sectors (agricultural products, food, textiles, leather, basic metals etc.; a full list gives Wolfmayr et al., 2024, p.87) from high-risk countries (defined as countries with no guarantee of rights according to the Global Rights index and countries which are conflict-affected; see Wolfmayr et al., 2024, p. 89) are hindered from entering the EU Single Market since they do not comply with the CSDDD requirements, portrays larger and more substantial welfare losses. Particularly firms in EU countries are hurt by not being able to source high-impact inputs from high-risk countries. Due to higher import prices from alternative sources, and higher production costs, the real production and real income in the EU declines on average by 1.0%, with Austria (-0.6%) slightly below the EU average. EU Member States that are particularly well integrated through value chain linkages with high-risk countries, such as Malta (-3.0%), Belgium (-2.26%), and Lithuania (-1.93%) experience much higher welfare losses.

Only in the "success scenario" where major EU trading partners comply with the due diligence regulations without costly investments and additional trade friction, the EU (+0.02%; Austria +0.027%) and its trading partners experience welfare increases.

On 9 December 2021, the European Commission proposed a set of measures to improve the working conditions in platform work and to support the sustainable growth of digital labour platforms in the EU[194]. The proposal for a Directive on improving working conditions in platform work" (short "*platform work directive*") includes new rules which will ensure that people working through digital labour platforms can enjoy the labour rights and social benefits they are entitled to. They will also receive additional protection as regards the use of algorithmic

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[192] See: https://www.tagesschau.de/wirtschaft/lieferkettengesetz-eu-deutschland-102.html

[193] See: https://www.consilium.europa.eu/de/press/press-releases/2024/05/24/corporate-sustainability-due-diligence-council-gives-its-final-approval/

[194] See: https://ec.europa.eu/commission/presscorner/detail/en/ip_21_6605

management (i.e. automated systems that support or replace managerial functions at work). A common set of EU rules will provide increased legal certainty, therefore enabling digital labour platforms to benefit fully from the economic potential of the Single Market and a level playing field. On 11 March 2024 ministers of the EU labour council adopted it, after Estonia and Greece, which had abstained int the past, voted in favour "in the spirit of compromise"[195].

The various shocks in recent years – from COVID-19 pandemic-related production interruptions abroad, to disruptions of maritime transport routes caused by pirates or extreme weather, to politically imposed sanctions and counter-sanctions – have led to bottlenecks in supply chains. These had a lasting impact on industrial production and triggered, at least partly, higher prices. Increasing geopolitical tensions and higher climate risks make such disruptions more likely. In this context, Felbermayr and Janeba (2024) ask the question whether there is a rationale for policy intervention. In their policy brief they use welfare theoretic arguments that explain why private incentives do not generally lead to an optimal diversification of supply sources or technologies. First, measures to improve the general quality of the business location strengthen protection against and resilience in the face of shocks. A key measure must be to deepen and complete the EU single market. Second, governments should refrain from policies that further disincentivize diversification such as the ex-post skimming of excess-profits or the granting of short-time wage compensation without a deductible when adverse shocks force a stop of production. Third, they should work on framework conditions that facilitate diversification, e.g., by concluding trade or investment agreements. Finally, in the case of non-diversifiable risks, it makes sense to invest in common strategic reserves. Importantly, most measures are best taken at the EU-level. The EU advocates de-risking to reduce unilateral dependencies without leading to isolation vis-à-vis trading partners (de-coupling). Trade wars are costly and welfare damaging.

6.6.3 DSA

Following the entry into force of the Digital Services Act (DSA)[196] on 16 November 2022, online platforms had three months to report the number of active end users on their websites. Based on the numbers provided, the Commission was able to assess whether a platform was

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[195] See: https://www.consilium.europa.eu/en/press/press-releases/2024/03/11/platform-workers-council-confirms-agreement-on-new-rules-to-improve-their-working-conditions/

[196] See: https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/europe-fit-digital-age/digital-services-act-ensuring-safe-and-accountable-online-environment_en. Regulation (EU) 2022/2065 of the European Parliament and of the Council of 19 October 2022 on a Single Market for Digital Services and amending Directive 2000/31/EC (Digital Services Act), L 277/1, 27.10.2022.

designated a very large online platforms (VLOPs) or very large online search engines (VLOSEs) status.

For the first time a common set of rules on intermediaries' obligations and accountability across the *single market* will open new opportunities to provide digital services across borders, while ensuring a high level of protection to all users, no matter where they live in the EU.

On 25 April 2023, the first designation decisions were made. Following such a designation decision by the Commission, the entity in question will have 4 months to comply with the obligations under the DSA, including carrying out and providing the first annual risk assessment exercise.

EU Member States will need to empower their Digital Services Coordinators by 17 February 2024, the general date of entry in application of the DSA, when the DSA is fully applicable for all entities in its scope.

The new rules are proportionate, foster innovation, growth and competitiveness, and facilitate the scaling up of smaller platforms, SMEs and start-ups. The responsibilities of users, platforms, and public authorities are rebalanced according to European values, placing citizens at the centre. The rules

- Better protect consumers and their fundamental rights online
- Establish a powerful transparency and a clear accountability framework for online platforms
- Foster innovation, growth and competitiveness within the *single market*
- Greater democratic control

Besides the benefits, the DSA has also a lot of additional costs in form of new bureaucracy[197]. This is especially true for companies in digital business, who have additional reporting obligations (transparency requirements, reporting criminal offenses, etc.).

6.6.4 CBAM

The carbon border adjustment mechanism (CBAM) is a new regulation creating incentives for non-EU producers to reduce emissions. It is an essential part of the *Fit for 55 package* - a set of proposals to revise and update existing EU law to make sure the EU policies are in line with EU climate goals (reducing net greenhouse gas emissions by at least 55% by 2030).

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[197] The European Commission lists the additional reporting requirements in detail on its website: https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/europe-fit-digital-age/digital-services-act-ensuring-safe-and-accountable-online-environment_en.

The idea behind the CBAM concept to stop carbon leakage and its functioning is the following[198]:

- *Production in the EU:* Producers have to cover CO_2 emissions with allowances from the EU Emissions Trading System (EU ETS[199]). Therefore, production costs are higher in the EU for the same product than production outside the EU where ETS does not apply. As a result, carbon-intensive production could move to countries with less strict climate policy ("Carbon leakage"). Imported products could have price advantages at the expense of the environment.
- *CBAM* should reduce/eliminate this problem with the following mechanism: Producers in the EU have to cover CO_2 emissions with ETS allowances. EU importers from outside the EU have to buy CBAM certificates to cover price differences. This should equalize the production costs of production in the EU with those outside the EU, and hence obey the obligation of the WTO rules of non-discrimination.
- *CBAM* is designed to function in parallel with the EU's Emissions Trading System (EU ETS) which encourages high-emission industries in the EU to reduce emissions. CBAM would mirror the EU ETS effects for non-EU producers. Moreover, it would encourage other countries to establish carbon pricing policies.

The EU's Carbon Border Adjustment Mechanism (CBAM)[200] is – as part of the targets of the "Green Deal" and "Fit for 55" - EU's landmark tool to put a fair price on the carbon emitted during the production of carbon intensive goods that are entering the EU, and to encourage cleaner industrial production in non-EU countries. The gradual introduction of the CBAM is aligned with the phase-out of the allocation of free allowances under the EU Emissions Trading System (EU ETS) to support the decarbonisation of EU industry.

Climate change is a global problem that needs global solutions. As the EU raises its own climate ambition ("Green Deal"), and as long as less stringent climate policies prevail in many non-EU countries, there is a risk of so-called 'carbon leakage'. Carbon leakage occurs when

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[198] See European Council: https://www.consilium.europa.eu/en/infographics/fit-for-55-cbam-carbon-border-adjustment-mechanism/

[199] See EU Emissions Trading System (EU ETS): https://climate.ec.europa.eu/eu-action/eu-emissions-trading-system-eu-ets_en. After the Brexit, the UK introduced an own UK ETS. The UK Emissions Trading Scheme (UK ETS) replaced the UK's participation in the European Union Emissions Trading Scheme (EU ETS) on 1 January 2021: https://www.gov.uk/government/publications/participating-in-the-uk-ets/participating-in-the-uk-ets

[200] See: https://taxation-customs.ec.europa.eu/carbon-border-adjustment-mechanism_en. Legal acts: a) CBAM regulation: Regulation (EU) 2023/956 of the European Parliament and of the Council of 10 May 2023 establishing a carbon border adjustment mechanism, OJEU, L 130/52, 15.5.2023, and b) CBAM Implementing Regulation for the transitional phase: Commission Implementing Regulation (EU) 2023/1773 of 17 August 2023, OJEU, L 228/94, 15.9.2023).

companies based in the EU move carbon-intensive production abroad to countries where less stringent climate policies are in place than in the EU, or when EU products get replaced by more carbon-intensive imports.

By confirming that a price has been paid for the embedded carbon emissions generated in the production of certain goods imported into the EU, the CBAM will ensure the carbon price of imports is equivalent to the carbon price of domestic production, and that the EU's climate objectives are not undermined. The CBAM is designed to be compatible with WTO-rules.

On 1 October 2023, the CBAM entered into application in its transitional phase, with the first reporting period for importers ending 31 January 2024.

The CBAM will initially apply to imports of certain goods and selected precursors whose production is carbon intensive and at most significant risk of carbon leakage: *cement, iron and steel, aluminium, fertilisers, electricity, and hydrogen***.** With this enlarged scope, CBAM will eventually – when fully phased in – capture more than 50% of the emissions in ETS covered sectors. The objective of the transitional period is to serve as a pilot and learning period for all stakeholders (importers, producers and authorities) and to collect useful information on embedded emissions to refine the methodology for the definitive period.

The additional costs for companies in the EU consist of the reporting obligation as follows:

- EU importers of goods covered by the CBAM registers with national authorities where they can also buy CBAM certificates (prices on wheely ETS allowances)
- EU importer declares the emissions embedded in its imports and surrenders the corresponding number of certificates each year
- If importers can prove that a carbon price has already been paid during the production of the imported goods, the corresponding amount ca be deducted.

To implement CBAM the following phasing in plan is foreseen:

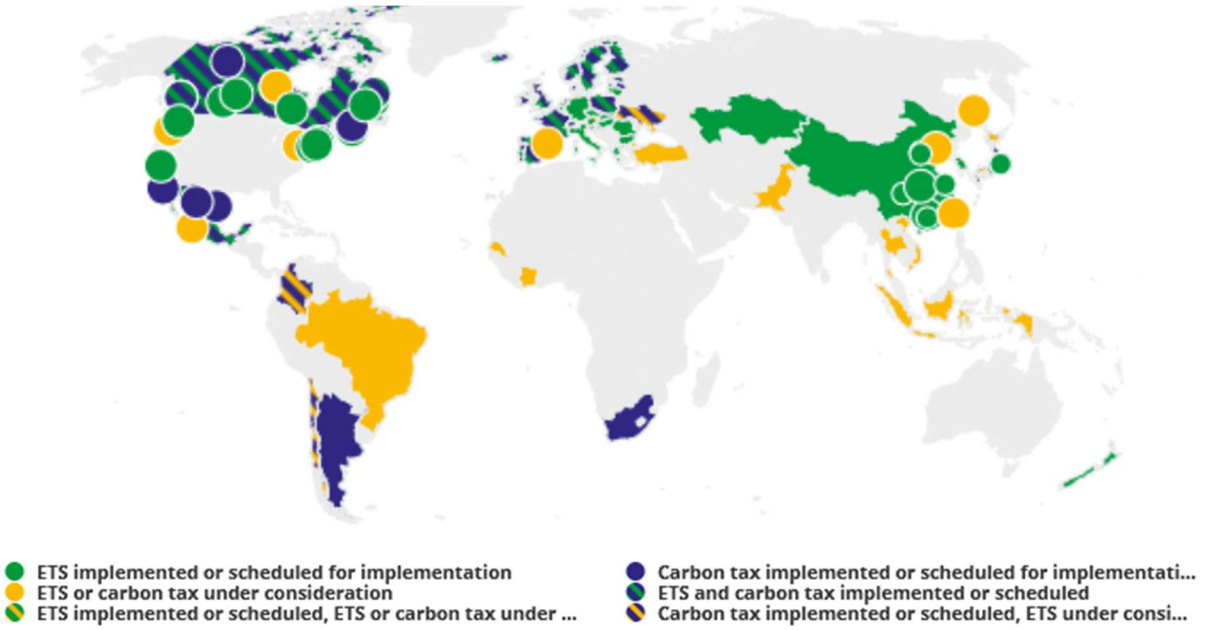
- Transition period from 1 October 2023 until 31 December 2025: reporting about the imports of the six products (cement, iron and steel, aluminium, fertilizers, electricity, and hydrogen) from third countries
- Starting with 1 January 2026, CBAM certificates must be purchased: over a nine-year period between 2026 and 2034 free allocation of ETS allowances will gradually phase-out as CBAM gradually phases-in.
- Until 2026, the European Commission checks whether further commodities are included in the CBAM (maybe polymers and organic chemicals)
- Any revenue generated from 2026 onwards will be allocated toward the general EU budget.

CBAM is very burdensome in the initial stages because importers have extensive reporting requirements[201]. Until 2026 reporting costs prevail. After 2026 additional costs arise when CBAM certificates must be paid for imports of the six selected products. The import tax equivalent for the imports of these products is unknown so far. It depends on the price of the EU ETS price per tons CO2 at that date. The European Commission (2021A, p. 76-79) in its assessment report addresses also the huge administrative costs of implementing the CBAM.

Statistics

The World Bank offers two dashboards, one for world-wide carbon pricing[202] (see Figure 6.27) and another on the CBAM exposure. The latter informs about the "Relative CBAM Exposure Index".

Figure 6.27: Carbon pricing around the world



Source: The World Bank: Carbon Pricing Dashboard (https://carbonpricingdashboard.worldbank.org/); and: European Commission (2021C), p. 4

The World Bank's "Relative CBAM Exposure Index"[203] is designed to identify countries with a high exposure to the EU CBAM, using carbon emissions intensity and exports of CBAM

[201] See the Guide of CBAM implementation for importers of Goods into the EU by the European Commission (2023A): https://taxation-customs.ec.europa.eu/system/files/2023-08/CBAM%20Guidance_EU%20importers_0.pdf

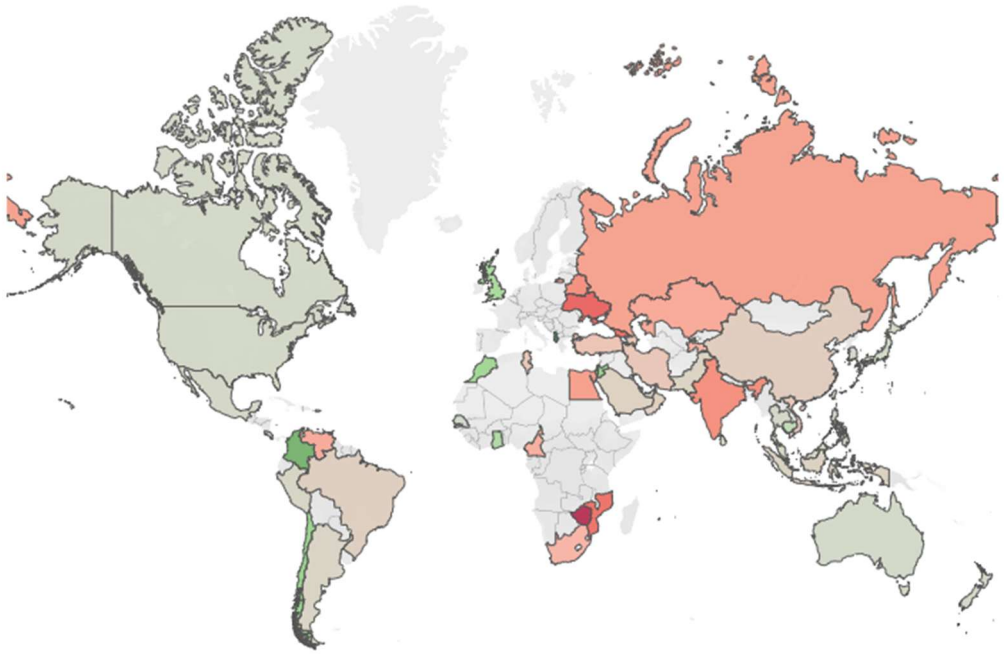
[202] See: https://carbonpricingdashboard.worldbank.org/

[203] See: https://www.worldbank.org/en/data/interactive/2023/06/15/relative-cbam-exposure-index

products to the EU. Assuming the carbon price ($100 per metric ton), the index measures the additional cost of CBAM certificates for exporters compared to the average EU producer, adjusted by the proportion of exports to the EU market. It recognizes cost changes in the EU market, where EU producers also bear emissions costs, enabling relatively clean exporters to gain competitiveness despite the requirement to purchase certificates. In the index, green signifies an increase in relative competitiveness while red implies a decrease. The aggregate relative index represents the trade-weighted relative exposure across all CBAM products.

Figure 6.28 shows the aggregate relative CBAM exposure index based on: (1) trade weighted relative CO2 emissions intensity of exporters (kg CO_2eq/USD) compared to EU average, (2) exports to EU (% of country's exports to CBAM products to world) and, (3) carbon price at USD 100/ton CO_2eq. The dashboard allows to extract the data for all world countries and five CBAM goods (aluminium, cement, electricity, fertilizer, iron, and steel).

Figure 6.28: Aggregate Relative CBAM Exposure Index



CO_2 emissions intensity of exports (kg CO_2eq/USD): green (red) signifies cleaner (mor carbon intensive) than the EU average; grey is EU average.
Source: The World Bank: Relative CBAM Exposure Index (https://www.worldbank.org/en/data/interactive/2023/06/15/relative-cbam-exposure-index#4)

In 2022, the EU imported CBAM goods in the amount of € 104.3 bn from non-EEA countries (not members of the European Economic Area, EEA, and Switzerland), whereby the five most important countries account for € 52.1 bn (see Table 6.10). However, EU's CBAM imports make up only a small share of EU's total world imports (1.5%) or imports from non-EEA countries (3.9%).

In an overall perspective, China is by far the largest provider of CBAM goods to the EU, accounting for 14.5% of total CBAM imports. Over the last 5 years, China has replaced Russia from the first place as Russia's importance has declined due to the Ukraine crisis. However, it should be noted that Russia is the second most significant country, responsible for around 11% of CBAM imports, with Turkey, the United Kingdom, and India following closely behind.

Table 6.10 shows that among the specific CBAM six product groups (*iron and steel, aluminium, fertilizers, cement, electricity, and hydrogen*) EU imports of *iron and steel* (52.4 bn €) as well as *aluminium* (27.4 bn €) from non-EEA countries are largest. For both product groups China is the most important supplier, followed by Tukey and Russia, whereby the importance of Turkey as supplier of these goods has increased substantially since 2019 as against Russia.

Table 6.10: CBAM goods imported by the EU from Non-EEA countries

	Iron and steel	**Aluminium**	**Fertilizers**	**Cement**	**Electricity**	**Hydrogen**	**All CBAM goods**
	(Share of CBAM goods imports by top 5 exporters in %)						
China	19.7	16.4					14.5
Russian Federation	9.4	10.3	22.0		6.8		10.9
Turkey	9.9	13.7		39.0			9.5
UK							9.4
India	7.2	7.6					5.6
India	6.4						
Taiwan							
VAE		7.8					
Algeria			15.3	13.6			
Egypt			14.4				
USA			6.1				
Trinidat & Tobago			7.9				
Ukraine				10.4			
UK				7.7	46.5	85.9	
Tunesia				6.6			
Serbia					19.3	6.1	
Montenegro					10.1		
North Macedonia					4.2		
Japan						4.0	
Others	47.4	44.2	34.3	22.7	13.1	4.0	50.1
Sum	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Wolfmayr et al. (2024), p. 129

Overall, the top-5 trading partners account for more than 50% of overall imports from non-EEA countries. For *fertilisers*, Russia is by far the largest exporter to the EU, covering one fifth of EU imports, followed by Algeria (15.3%) and Egypt (14.4%). But also imports from the USA will be subject to CBAM as transatlantic trade ties represent 6.1% of EU fertiliser imports. In terms of *electricity*, EU imports are highly concentrated among the top-5 trading partners, accounting for 87.0% of total imports form non-EEA countries. With a share of 46.5% the United Kingdom is by far the largest EU supplier, however, exports from the United Kingdom

surged only recently and replaced Serbia as top EU supplier, which now ranks second and covers almost 20% of EU extra-EEA imports. Additionally, the EU imports a substantial amount of electricity from Montenegro (10.1%), Russia (6.8%) and North Macedonia (4.2%). In terms of CBAM exposure, the United Kingdom is exceptionally affected by *hydrogen* supplies as more than 85% of EU imports originate from the United Kingdom in 2022. Serbia (6.1%) and Japan (4.0%), with much smaller shares, also rank among the top three most important hydrogen exporters. These three countries together account for 96.0% of EU imports from non-EEA countries. While EU imports of *cement*, with a trade volume of € 0.86 bn, are of minor importance, the top-5 suppliers accounting for around 77% of EU extra-EEA imports will be impacted by CBAM. Representing 39.0% of EU cement imports, Turkey is the largest supplier, followed by Algeria (13.6%), Ukraine (10.4%), the United Kingdom (7.7%) and Tunisia (6.6%).

The European Union Emissions Trading System (EU ETS[204]) is a carbon emission trading scheme (or *cap and trade* scheme) which began in 2005 and is intended to lower greenhouse gas emissions by the European Union countries. Cap and trade schemes limit emissions of specified pollutants over an area and allow companies to trade emissions rights within that area. The EU ETS covers around 45% of the EUs greenhouse gas emissions.

Figure 6.29 shows the price of European allowances (EUA), i.e. the price of emitting 1 tonne of CO_2 equivalent for a European industrial installation or airline covered by the Emissions Trading System (ETS). It does not mean that this price is always paid by polluters, as many of them receive free allowances. EUAs are traded between buyers and sellers, either directly "over the counter" or via organised markets. They can be traded either with immediate delivery (spot) or with delivery in the future, usually at slightly different prices. Up until 12 April 2021, the price shown is based on spot-month continuous contract calculation. After that date, it is the future contract with delivery in the nearest December traded on New York Mercantile Exchange. The EU ETS is linked to the Swiss Emissions Trading System since 1 January 2020 which creates a larger market[205]. Marketplaces for emission allowances include the European Climate Exchange (ECX) in London and the Energy Exchange Austria (EXAA) in Vienna. The transatlantic exchange company NYSE Euronext offers a global trading platform with the

[204] See: https://climate.ec.europa.eu/eu-action/eu-emissions-trading-system-eu-ets/what-eu-ets_en?prefLang=de; and: https://en.wikipedia.org/wiki/European_Union_Emissions_Trading_System
[205] See: https://en.wikipedia.org/wiki/European_Union_Emissions_Trading_System

BlueNext environmental exchange. On the EXX in Leipzig, the EEX Carbon Index, or Carbix for short, serves as a reference price for emission allowances.

The Carbon Price Viewer (Figure 6.29) shows that the EUA price is very volatile. Before 2021 the CO_2 price was below 20 EUR/t. After the latest revision of the ETS Directive in 2021 (reform Phase IV: 2021-2030) in the context of the Green Deal project "Fit for 55". Since then, the CO_2 price shot up an reached a peak of 104 EUR/t in February 2023. Since then, it plummeted down to 57 EUR/t. The price is expected to rise since the cap on carbon emissions will go down every year and because free allowances are being slowly withdrawn.

Figure 6.29: EU Carbon Price – EUA price (EUR/ton)

Source: https://tradingeconomics.com/commodity/carbon; and Sandbag Carbon Price Viewer: https://sandbag.be/carbon-price-viewer/

The volatility of the CO_2 price in the EU makes it difficult to forecast the economic implications of the CBAM. The studies, mentioned in the following make therefore quite different assumptions on the future CO_2 price, ranging from 50 EUR/t to 100 EUR/t. That means in all estimations of the possible impact of CBAM there is a high degree of uncertainty which is also shown by the rather different results of the following studies.

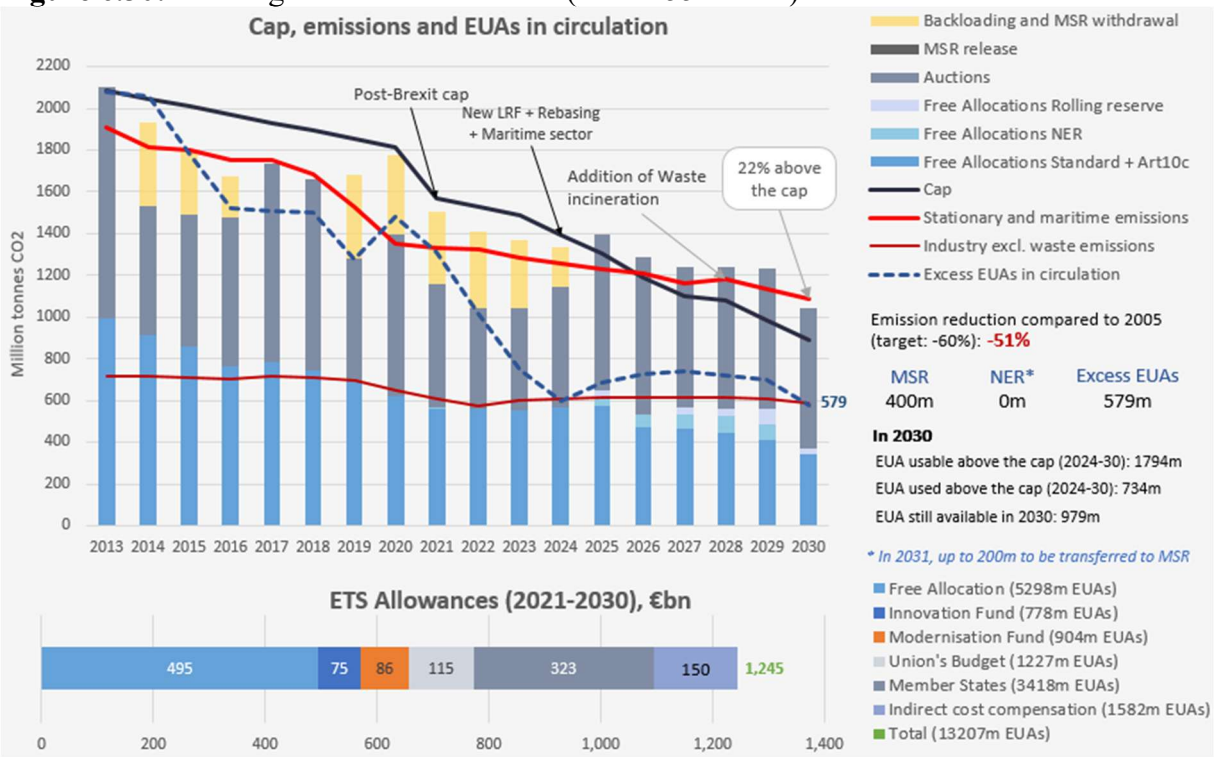
Some publicly available simulation models give an impression about the possible outcome of EU's CBAM (CLIMACT: Is the EU ETS proposal fit for 55%?[206]). With Sandbag's EU ETS simulator (Fit For 55 Model) one can also get a good impression of the interaction of the EU ETS system with the newly implemented CBAM[207]). The European Commission has also

[206] See: https://climact.com/en/is-the-eu-ets-proposal-fit-for-55/
[207] See: https://sandbag.be/euets-simulator/

commissioned model simulations which were carried out by the Vivid Economics EU Emissions Trading System model[208]. This, however, is not publicly available.

Figure 6.30 (Sandbag's EU ETS Simulator) shows the annual emissions by the industry and other sectors (power, aviation, and maritime), the cap, and the number of auctions and free allocations issued every year[209]. The graph also shows unused allowances from previous years (Excess EUAs in circulation) as well as two pools of free allowances that can be used on top of the cap (the NER and the "rolling reserve").

Figure 6.30: Sandbag's EU ETS Simulator (Fit for 55 Model)



Assumed EUA price of €100/t.
Source: https://sandbag.be/euets-simulator/

The stacked bar graph on the bottom shows an estimate of ETS revenues received by different entities with an assumed EUA price of EUR 100/t. This figure is the amount of greenhouse gas emissions permits (EUAs) left each year in the system after all installations have surrendered the permits that cover their emissions. It is therefore a surplus of EUAs which installations do not need.

This figure is similar to the Total Number of Allowances in Circulation (TNAC) published yearly by the European Commission to calculate the number of withdrawals into the Market

[208] See: https://web.jrc.ec.europa.eu/policy-model-inventory/explore/models/model-vivid-eu-ets-model/
[209] For the following explanation, see: https://sandbag.be/euets-simulator/

Stability Reserve (MSR), except for an aviation-related adjustment made by the EU in the MSR's current design, which is not replicated in this surplus figure. Under the "Fit For 55" proposal, and from 2024 onward in the simulator, the TNAC includes the net aviation demand.

Allowances from the New Entrants' Reserve (NER) are used for new entrants but also to adjust the level of free allocations given to installations whose operations have increased or decreased over the last two years by more than 15%.

As for the "rolling reserve", it consists of any remaining allowances from the free allocation share (43% of the cap) that have not been distributed to installations, but that "shall be used to prevent or limit reduction of free allocations in later years".

At the bottom right, key figures are displayed:

- EUAs available to exceed the cap: this equals the MRS's upper threshold (inherited surplus) plus the amount of EUAs in the NER, the MSR, the rolling reserve and the reserve of 25m EUAs made available to Greece.
- EUAs used above the cap: this is the amount of EUAs effectively used above the cap.
- EUAs available after 2030: this equals the amount of excess EUAs left (always 0 if the "maximum pathway" option is selected), plus the EUAs from the MSR and any remaining EUAs left in the NER (minus 200m, diverted to the MSR) and the rolling reserve.

Studies

Numerous studies tried to estimate the potential economic impact of the CBAM[210]. A study by the Deutsche Bundesbank (Ernst et al, 2022) uses a dynamic, three-region environmental multi-sector general equilibrium model (called EmuSe). The authors find that carbon pricing generates a recession initially as production cost rise. Benefits from lower emissions damage materialize only in the medium to long run. CBAM mitigates but does not prevent carbon leakage, but it protects dirty domestic production sectors.

Ernst et al. (2022, p. 1-2) derive several conclusions of the introduction of a CBAM:

1) The introduction of a carbon price (after phasing out of free CBAM certificates) has an adverse impact on production because it gets more expensive. However, emissions reduction may decrease emissions-induced (production) damage and generates positive economic effects. This takes time.

[210] Gritz and Wolff (2024) made a case study in which they examine the hydrogen partnership between Germany, the EU and Egypt in the context of the EU's CBAM.

2) The more regions participate in carbon pricing, the shorter is the downturn for countries introducing it.
3) If one or more regions introduce carbon pricing, there is no incentive for the non-participating regions to do so. Trade spillovers in non-participating regions emerge because agents substitute expensive goods by cheaper but dirtier goods produced in non-participating regions. This is called "carbon leakage".
4) CBAM dampens carbon leakage. Dirty foreign sectors may be affected negatively. Conversely, dirty domestic production sectors can benefit as demand is tilted towards them.
5) It takes time until positive effects from carbon pricing materialize may take a generation's lifetime or more. Hence, public measures compensating the negative effects may be worth considering. Deficit-financing such measures could foster the well-being of those generations that bear downturn-implied cost now and shift the burden to those that benefit. Carbon pricing and CBAM are therefore intergenerational projects.
6) Welfare analysis shows that introducing a world-wide carbon price is good for the "rich" countries that price carbon already or are planning to do so. However, it is harmful for "poor" regions with low per-capita income from the start. This negative effect of EU's CBAM project on developing countries is also stressed by Xiaobei et al. (2022) [211].
7) Ernst et al. (2022, p. 2) make additional model simulations which combine regionally differentiated carbon prices and per-capita transfers to the poor countries, which is also discussed in IMF (2022). The transfers are financed by proceeds of carbon pricing in the rich countries (e.g. EU). This leads to relative welfare gains for everyone, even though the rich countries then face lower welfare gains and a prolonged downturn relative to the baseline simulations without price differentiation and transfers.

The *EmuSe model* consists of three regions and 11 sectors:

- region a (EU27, Switzerland, Norway, UK),
- region b (USA, Australia, Canada, Japan, Mexico, South Korea),
- region c (Brazil, China, India, Indonesia, Russia, Turkey, Taiwan, ROW).

[211] Xiaobei et al. (2022), analysing the CBAM with a dynamic CGE model, find that CBAM widens the gap between developed and developing countries in terms of GDP and welfare. It may worsen the unequal income and welfare distributions between rich and poor economies, and further erode the capacity of some low-income countries to decarbonize their economies. To overcome this dilemma the authors discuss the launching of an Equitable Decarbonization Fund, from the proceeds of the CBAM to support decarbonization project in low-income countries and the development of green technologies.

The eleven sectors are agriculture plus five manufacturing sectors plus five services sectors. All of the sector-specific parameters are derived using the most recent release of the World Input-Output Database (WIOD), covering the years 2000-2014. To calibrate sector-specific CO2 emissions per unit of output, the authors rely on environmental accounts provided by the European Commission that are consistent with WIOD.

Five policy scenarios are dealt with:

1) Carbon pricing (PM) is increased in region a only (assumption: steady increase in the period 2020 to 2100, when it reaches a level of 12% higher than in 2020).
2) The same carbon price (PM) is introduced in region a, and also CBAM by taxing all imports of regions without (or lower) carbon prices.
3) The carbon price (PM) is introduced in a and b
4) Carbon pricing (PM) in a and b plus CBAM vis-à-vis region c ("*Climate club*" scenario, proposed by Nordhaus (2015)).
5) The carbon price (PEM) is introduced in all regions a, b and c.

The model parametrizes also a damage function which implies that sectoral output losses almost double I the pollution stock increases by 10% relative to its initial steady state level. Due to the lack of data, the authors assume abatement cost and damage functions to be qual across sectors and regions.

Table 6.11: Long-run effects of carbon pricing and CBAM

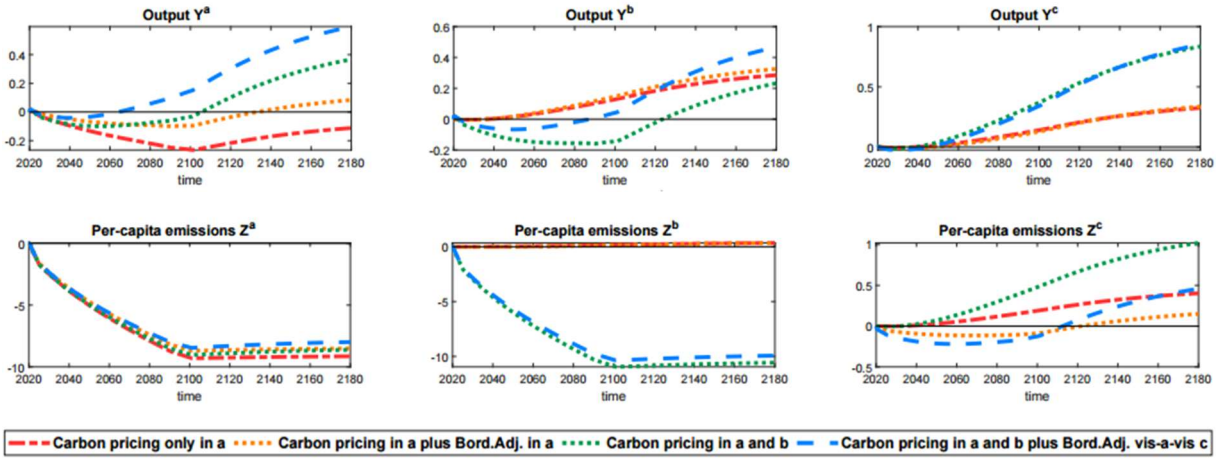
	Scenario 1	**Scenario 2**	**Scenario 3**	**Scenario 4**	**Scenario 5**
	(Percentage deviations from initial steady state)				
Region a					
Output	-0.04	0.16	0.55	0.80	2.99
Welfare	-0.05	0.18	0.68	0.97	3.74
Emissions	-9.07	-8.43	-8.43	-7.78	-5.78
Region b					
Output	0.35	0.40	0.41	0.66	2.60
Welfare	0.44	0.50	0.50	0.80	3.24
Emissions	0.42	0.43	-10.40	-9.73	-8.18
Region c					
Output	0.40	0.42	1.04	1.08	2.16
Welfare	0.50	0.53	1.29	1.35	2.69
Emissions	0.49	0.25	1.26	0.72	-13.21

Source: Ernst et al. (2022), p. 17, 23

The simulation results of the long-run effects of the introduction of carbon prices and a CBAM according to the five scenarios are shown in Table 6.11. The best solution economically and also concerning global worming for all three regions is scenario 3 where carbon price is introduced in all three regions. The second-best long-run solution is the "Climate club" scenario 4, where regions a and b introduce carbon prices and an CBAM vis-à-vis region c. In scenario a (only carbon pricing in a), region a loses output and welfare whereas the other regions benefit from this policy. Only the realistic EU climate policy (scenario 2: introducing carbon prices and CBAM against third countries leads – after a long transition period with negative output and welfare (see Figures 6.31 and 6.32) – to a positive impact on output and welfare.

The advantage of the dynamic CGE model (EmuSe) over static CGE models is that the simulations of climate policy also show the long transitional phase from introduction of such policies and its long-run effects. As mentioned earlier, it takes time until positive effects from carbon pricing materialize may take a generation's lifetime or more. The Figures 6.31 and 6.32 show the temporal transition from the implementation of the CBAM policy and its final impact over a period of 160 years, from 2020 to 2180 for four scenarios (1 to 4). Figure 6.31 shows the long-run development of output and emissions.

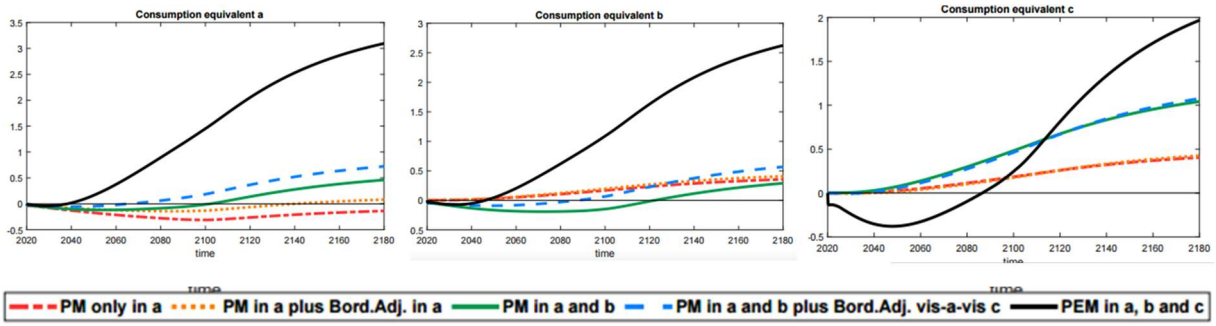
Figure 6.31: Implications of carbon pricing and CBAM on output and emissions



Source: Ernst et al. (2022), p. 19, 21

Figure 6.32 shows the impact of the transition of EU's climate policy over 160 years for welfare. Welfare is measured by the lifetime consumption-equivalent gain of the representative household as a result of the change in (climate) tax policy.

Figure 6.32: Implications of carbon pricing and CBAM on welfare



Source: Ernst et al. (2022), p. 19, 25

The study by Korpar et al. (2022) analyses in several scenarios the CBAM of the EU for trade, FDI, and welfare with a focus on the Austrian Economy. The simulations are carried out with a multi-sector quantitative trade model for trade and FDI. Two main scenarios are defined: scenario 1 ("future ETS price scenario") assumes a carbon price of EUR 44/t, and a continuation of the current practice of free allowances; scenario 2 ("IMF carbon tax scenario") assumes a carbon price of EUR 67/t. The conclusions of the authors are the following: The effects on exports and CO_2 emissions are small. Hence, the CBA mechanism provides no solution to the climate challenge but is seen as one of many tools. A synchronized implementation of a CBA mechanism not only by the EU but by major trading partners ("Climate clubs"[212]) would be more effective. CBAM is more effective when introduced together with border tax and export rebates.

Siy et al. (2023) analyse specifically the implications of EU's CBAM on China. Using GTAP10 database of 2014, the authors analyse CBAM with a CGE model. The study only looks at the impact of the introduction CBAM tariffs for CBAM goods. It does not consider the EU internal increase of the carbon price. The results are somewhat counterintuitive by stating that CBAM would reduce carbon emissions in China, Russia, and the US, but increase in the EU. At the same time EU's CBAM would have a negative impact on social welfare in the US, but a positive one in China, Russia, the EU, and in the rest of the world.

The study by Dy and Yang (2023) uses a general equilibrium trade model, which incorporates endogenous carbon emissions, carbon taxes, and tariffs, to assess the potential impacts of CBAM on real income and carbon emissions worldwide. The model incorporates

[212] The G7 already forms a "climate club", initiated by chancellor Olaf Scholz in 2022. Switzerland applied for membership (see Neue Zürcher Zeitung, 22 September 2023, p. 23. See G7 Statement on Climate Club (https://www.g7germany.de/resource/blob/974430/2057926/2a7cd9f10213a481924492942dd660a1/2022-06-28-g7-climate-club-data.pdf).

carbon emissions, carbon taxes and tariffs into a multi-country general equilibrium model by Caliendo and Parro (2015) with multiple sectors. The model uses the 2016 release of the World Input-Output Database (WIOD). The database tracts the flow of goods and services across countries at the industry-level during the period 2001–2014. The year 2014 is set as the initial baseline economy. The model has 42 countries and 54 sectors, which are aggregated into 20 sectors. Assumed is an average carbon price in the EU and in linked ETS systems of USD 86.5/t. But the model endogenously searches for optimal carbon prices in regions (non-EEA countries) exposed to EU's CBAM import tariffs. This requires finding the carbon price that maximizes the real income of non-abating countries in response to EU's CBAM and evaluating its global equilibrium effects.

The main astonishing findings are collected in Table 6.12. First the implementation of CBAM with the increase of carbon prices in the EU plus the introduction of CBAM import tariffs on CBAM goods, implies a loss in real income in most regions, prominently in the EU27 (-0.6%). CO_2 emissions even go up in EU countries, whereas they go down in non-EU countries. It true, these results would imply that EU's Green Deal extended to its trade policy is counterproductive on all lines. It hurts its own economy without getting GHG emissions down.

Table 6.12: Full effects of EU's CBAM on Austria, Finland, and Sweden and selected countries

	Real income (Change in %)	**CO2 emissions**
Austria	-0.016	0.258
Finland	-0.024	0.148
Sweden	-0.011	0.140
EU27	-0.609	6.031
USA	0.000	-2.408
Russian Federation	0.096	-12.063
Turkey	-0.028	-2.405
China	-0.002	0.162
World (42 countries)	-0.002	-1.245
Global	-	-1.527

Source: Dy and Yang (2023), p. 41

To meet the objective of a climate-neutral EU by 2050 in line with the Paris Agreement, the EU needs to increase its ambition for the coming decade and update its climate and energy policy framework. As announced in the "European Green Deal"[213], the Commission has

[213] See: https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal_en

proposed a new EU target for 2030 of reducing greenhouse gas (GHG) emissions by at least 55 % compared to levels in 1990, based on a comprehensive impact assessment. This objective has been endorsed by the European Council. To deliver on these GHG emissions reductions, the Commission proposes to revise where necessary all relevant policy instruments by June 2021 in a "Fit for 55 Package", which covers in particular the review of sectorial legislation in the fields of climate, energy, transport, and taxation. The initiative for a Carbon Border Adjustment Mechanism (CBAM), which is subject to examination in this impact assessment, is part of that package and will serve as an essential element of the EU toolbox to meet the objective of a climate-neutral EU by 2050 in line with the Paris Agreement by addressing risks of carbon leakage following the increased EU climate ambition.

The EU's CBAM is the EU's tool to put a fair price on the carbon emitted during the production of carbon intensive goods that are entering the EU, and to encourage cleaner industrial production in non-EU countries.

By confirming that a price has been paid for the embedded carbon emissions generated in the production of certain goods imported into the EU, the CBAM will ensure the carbon price of imports is equivalent to the carbon price of domestic production, and that the EU's climate objectives are not undermined. The CBAM is designed to be compatible with WTO-rules.

CBAM will apply in its definitive regime from 2026, while the current transitional phase lasts between 2023 and 2026. This gradual introduction of the CBAM is aligned with the phase-out of the allocation of free allowances under the EU Emissions Trading System (ETS) to support the decarbonisation of EU industry.

The CBAM consist of three regulations:

(i) CBAM regulation: Regulation (EU) 2023/956 of the European Parliament and of the Council of 10 May 2023 establishing a carbon border adjustment mechanism, Official Journal of the European Union (OJEU), L 1030/52, 15.5.2023[214],

(ii) CBAM implementing Regulation for the transitional phase: Commission Implementing Regulation (EU) 2023/1773 of 17 August 2023 laying down the rules for the application of Regulation (EU) 2023/956 of the EP and the Council as regards reporting obligations for the purposes of the carbon border adjustment mechanism during the transitional period, OJEU L 228/94, 15.9.2023[215], and

(iii) Annexes to the CBAM Implementation Regulation for the transitional phase[216].

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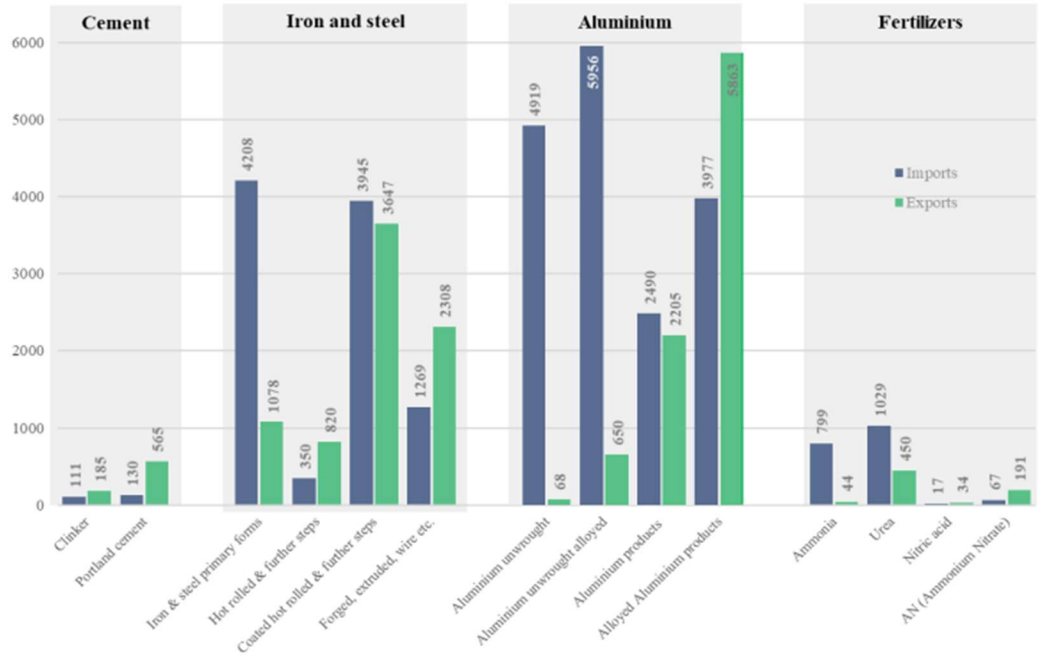
[214] See: https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32023R0956
[215] See: https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32023R1773
[216] See: https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32023R1773

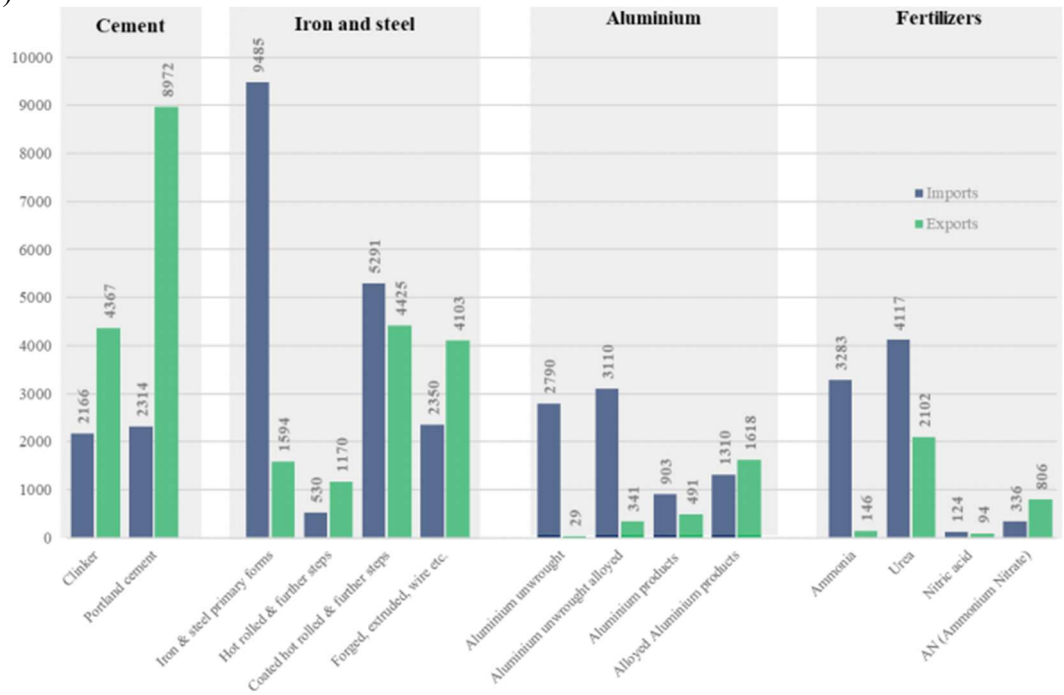
In the CBAM Regulation 2023/956, Annex I, the six relevant CBAM goods are listed: Cement, Electricity, Fertilisers, Iron and steel, Aluminium, and Hydrogen (Chemicals).

Figure 6.33: Value of total imports and exports of 4 CBAM goods of EU-27 in 2019 (Mio. EUR)



Source: European Commission (2021C), p. 23

Figure 6.34: Volume of total imports and exports of 4 CBAM goods of EU-27 in 2019 (in KTns)



Source: European Commission (2021C), p. 24

Directive (EU) 2023/959 of the European Parliament and of the Council of 10 May 2023 amending Directive 2003/87/EC establishing a system for greenhouse gas emission allowance trading within the Union and Decision (EU) 2015/1814 concerning the establishment and operation of a market stability reserve for the Union greenhouse gas emission trading system, OJEU L 130/134, 15.6.2023 rule the exact conditions for phasing out free allocation, starting in 2026. From 2026 onwards, the free allocation of emission allowances to the 20 % stationary installations with the highest emission intensities under a given product benchmark should also be conditional on the setting-up and implementation of climate-neutrality plans.

The Figure 6.33 gives the value of total imports and exports of four CBAM goods (cement, iron and steel, aluminium, fertilizers). Figure 6.34 gives the same information for the volumes of the four CBAM goods.

Accompanying the proposal for a regulation of a CBAM, the European Commission made a comprehensive impact assessment (European Commission, 2021D, 2021E). As announced in the "European Green Deal", the Commission has proposed a new EU target for 2030 of reducing greenhouse gas (GHG) emissions by at least 55 % compared to levels in 1990. To deliver on these GHG emissions reductions, in June 2021 the Commission proposed a "Fit for 55 Package", which covers the review of sectorial legislation in the fields of climate, energy, transport, and taxation. The initiative for a Carbon Border Adjustment Mechanism (CBAM), is part of that package and will serve as an essential element of the EU toolbox to meet the objective of a climate-neutral EU by 2050 in line with the Paris Agreement of 2015 by addressing risks of carbon leakage following the increased EU climate ambition.

The European Green Deal underlined that 'should differences in levels of ambition worldwide persist, as the EU increases its climate ambition, the Commission will propose a CBAM, for selected sectors, to reduce the risk of carbon leakage. Indeed, carbon leakage could result in an overall increase in non EU emissions hence undermining the effectiveness of EU climate policies.

For the assessment of CBAM, the JRC-GEM-E3 model[217] (a General Equilibrium Model for Economy-Energy-Environment) was applied. The model had to be adapted to cover at least four CBAM sectors, namely, aluminium, fertilisers, cement (and lime) and iron and steel (called the

[217] The JRC-GEM-E3 model is described in detail in European Commission (2021D), p. 25-28.

CBAM sectors). In modelling terms these sectors still represent more aggregate representations of the products to which the CBAM would apply. This would imply that the sectors analysed embed both the CBAM product and certain of its downstream processes. The CBAM's impacts on electricity imports is analysed separately. The CBAM sectors that form the scope of this analysis account for about 55 % of all industrial emissions in the EU-27 in 2020. The sector iron and steel is the highest emitter accounting for nearly 30 % of industrial emissions, followed by cement and fertilisers. Aluminium is last in terms of direct emissions.

The 2021 study by the European Commission (2021A) with the JRC-GEM-E3 model operated with six scenarios because at that time the exact design was not yet know (see Table 6.13).

Table 6.13: Scenarios for CBAM simulations with the JRC-GEM-E3 model

Scenario	**Specification**
MIX	Increased climate ambition to meet 55% emission reduction target. Free allocation continues in the CBAM sectors at 100% - No CBAM applies
MIX-full auctioning	MIX with full auctioning assumed in the CAM sectors from 2023 – No CBAM applies *(baseline scenario)*
Options 1 and 2	CBAM on imports along with full auctioning in CBAM sectors – the CBAM applies based on EU average emission intensities
Option 3	Options 1 and 2, but using emission intensities of exporting country
Option 4	Option 3 but free allocation in CBAM sectors is phase-out after 2025 to reach up to 50% in 2030, with the CBAM being fully phased-in by 2035 at the earliest *(resembles actual CBAM design)*
Option 5	Option 3 with the CBAM extended to import of downstream sectors along with full auctioning in CBAM sectors
Option 6	Excise duty on use of products of CBAM sectors, excise duty/rebate in downstream sectors at the border

Source: European Commission (2021C), p. 45

The simulation of the six scenarios (Table 6.13) with the JRC-GEM-E3 model indicate that *real GDP* for the EU 27 contracts by 0.22 % to 0.23 % in 2030 with negligible differences between options. Impact on the investment side is modest. Investment under a CBAM is slightly lower than the MIX-full auctioning, but effects are too small to derive meaningful conclusions. On the consumption side the CBAM appears to have very similar effect to the MIX scenario.

Trade impact: Overall, the resulting reduction in imports is approximately 11.1 % in 2030 for options 3 and 5, and slightly stronger for option 4 at 11.9 %. The exceptions are options 1, 2 and 6, which result in import levels closer to those in the baseline.

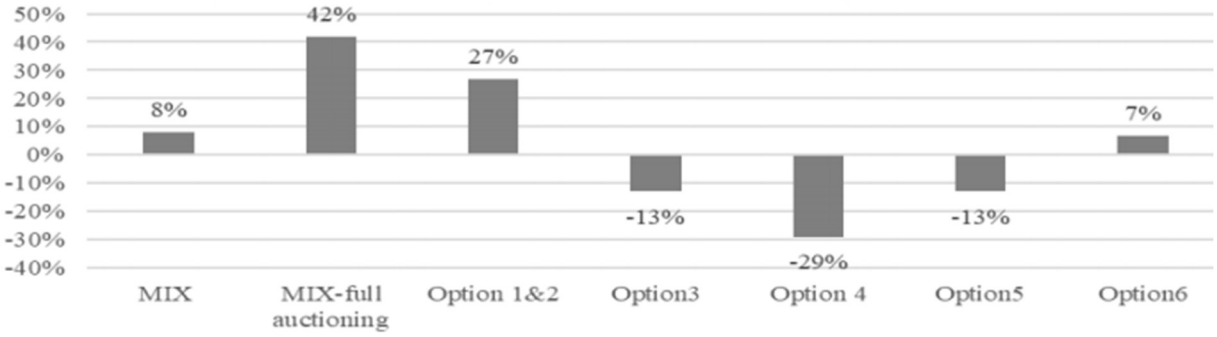
Revenue generation: All options where free allocation is fully removed (1, 2, 3, and 5) as well as option 6 generate additional revenues, above EUR 14 billion per year in 2030. Option 5 provides the highest revenue.

CO2 emissions impact: All CBAM options (scenarios MIX to 6) achieve a stronger reduction of emissions in the CBAM sectors in the EU, up to nearly 3.5 % in 2030, relative to the case of higher ambition and free allocation (MIX) with a decline of around 15% of CO2 emissions in the EU. The primary driver of this reduction is the decline of output in the CBAM sectors, largely a consequence of the elimination or partial phase-out of free allocation in 2030. The scenarios 1 to 6 (when free allocation is given up) the CO_2 emissions are reduced by around 12%.

Carbon leakage: Under the baseline and the MIX (+8% and +42%), carbon leakage is addressed by free allocation. However, agreed upon climate targets will decrease the number of free allowances available and should increase the price of carbon and could decrease the number of free allowances available. These effects should lead to an increased risk of carbon leakage resulting in more emissions globally.

Leakage is calculated as the change in emissions in non-EU regions in a specific sector divided by the change in emissions in that sector in the EU. This leakage calculation includes indirect emissions in iron and steel, and aluminium.

Figure 6.35: Impact on carbon leakage in the CBAM sectors on aggregate EU-27 in 2030



Source: European Commission (2021C), p. 48

Figure 6.35 shows that the MIX-full auctioning (baseline) is the scenario that achieves the best results in reducing carbon emissions in the EU (-17.1%), it is also the scenario where carbon leakage is the most significant, reaching 42 % for all CBAM sectors in 2030. In part, this is driven by the decline of output in CBAM sectors as a consequence of full auctioning in this scenario. Compared to the MIX-full auctioning, all options for the design of the CBAM are effective in mitigating the carbon leakage, some even outperforming the baseline which sees no step up of overall climate ambition. Options 1 and 2 would be less effective than the others. All options based on actual emissions appear to even surpass the MIX in the mitigation the carbon leakage – achieving negative leakage rates which would mean that emissions would be reduced not only in the EU but also in the rest of the world, assuming that actual emissions are indeed

attributed to the import flows. Option 4 (which most closely resembles the actual CBAM design) has the lowest negative leakage rates (-29%).

Implied CBAM tariff equivalent: Tariff equivalents were estimated on the basis of model results. The are based on the ratio of revenue generated from the carbon price applied to implied emissions of imports in the CBAM sectors over the corresponding import flow (CIF;. see Table 6.14 and 6.15).

Table 6.14: Implied tariff equivalent by different CBAM sectors – 2030 (in %)

	Iron and Steel	**Cement and Lime**	**Fertiliser**	**Aluminium**	**CBAM sectors**
Options 1 and 2	2.8	9.9	3.0	0.6	2.3
Option 3	5.1	13.5	8.3	1.1	4.4
Option 4	4.2	9.8	7.5	0.9	3.6
Option 5	5.1	13.5	8.3	1.1	4.4

Source: European Commission (2021D), p. 114

Table 6.15: Implied tariff equivalent by different downstream sectors – 2030 (in %)

	Other non-ferrous	**Chemical Products**	**Electric Goods**	**Transport Equipment**	**Other Equipment**	**Consumer Goods**
Option 5	0.03	0.08	0.02	0.03	0.14	0.02

Source: European Commission (2021D), p. 114

The CBAM tariff equivalents mentioned above are average. They, however, depend on the specific emission intensities of the non-EU countries exporting to the EU. Dröge (2021) and Stede et al. (2021) have calculated possible CBAM tariff equivalents for the major exporters of CBAM goods to the EU. Xiaobei et al. (2022, p. 16) calculate tariff equivalents of CBAM products for major world regions. Chemical products (Fertilizers) the rates range from 0.5% in South Korea to 5.2% in MENA countries and 13.5% in the rest of the world. The rates for non-metallic minerals (Cement range from 2.1% in Mozambique and Australia/New Zealand to 18.5% in India. The rates for Iron and Steel range from 0.9% in Japan to 17.3% in Kazakhstan. Non-ferrous metals (Aluminium) range from 0.2% in South Korea to 4.2% in Kazakhstan. Similar, but somewhat higher CBAM tariffs for the major EU trading partners of the six CBAM goods, are calculated by Chepeliev et al. (2023).

Implications for Austria, Finland, and Sweden

Höslinger et al. (2022) analyses the CBAM question for *Austria* in a qualitative way, based on the studies by the European Commission (2021C, 2021D). The study draws the following conclusions and makes suggestions for Austria: (a) The CBAM revenues should flow into the EU budget as planned. A simple transfer to the EU budget without a defined purpose could lead to potential trade policy attacks. (b) Promoting innovation for industrial sectors that are particularly challenged by the abolition of free allocations: Promoting the networking of science and these same industries for a knowledge transfer and rapid development towards cost-efficient, climate-friendly production technologies. (c) In principle, it should be considered to tax consumption and not production.

Wolfmayr et al. (2024) quantify the possible impact of CBAM for *Austria*, the EU and its major trading partners with the KITE (Kiel Institute Trade Policy Evaluation[218]) CGE model with three scenarios:

1) *Baseline scenario (Implementation):* This mimics the implementation of CBAM as designed by the CBAM Regulation (EU) 2023/956. It will target the six CBAM goods and considers the gradual phase-out of free allowances under ETS by assuming that EU producers and importers face the same carbon price. In the KITE model, targeted CBAM goods bear a CO_2 tax within the EU, while imports to the EU face a CO_2 charge with respect to their embodied carbon emissions. The scenarios assume a CO_2 price of 100 € per tonne (consider the actual price of CO_2 around 50 €/t mentioned before).
2) *Escalation scenario:* This assumes that the introduction of CBAM causes trade tensions and leads the affected trading partners to take retorsion measures. The scenario assumes that, as an immediate tit-for-tat action, the trading partners (the major suppliers of CBAM goods; see Table 6.10) impose a carbon tariff on imports of targeted CBAM goods from the EU that is equivalent to the carbon price of the EU.
3) *Success scenario:* If CBAM is successful it might an incentive for the trading partners to decarbonize their own industry and adopt similar CO_2 pricing schemes in their markets. The USA, the UK, Canada and Japan will co-ordinate their caron price policy according to the recent G7 conclusions. To set up an international "Climate Club"[219].

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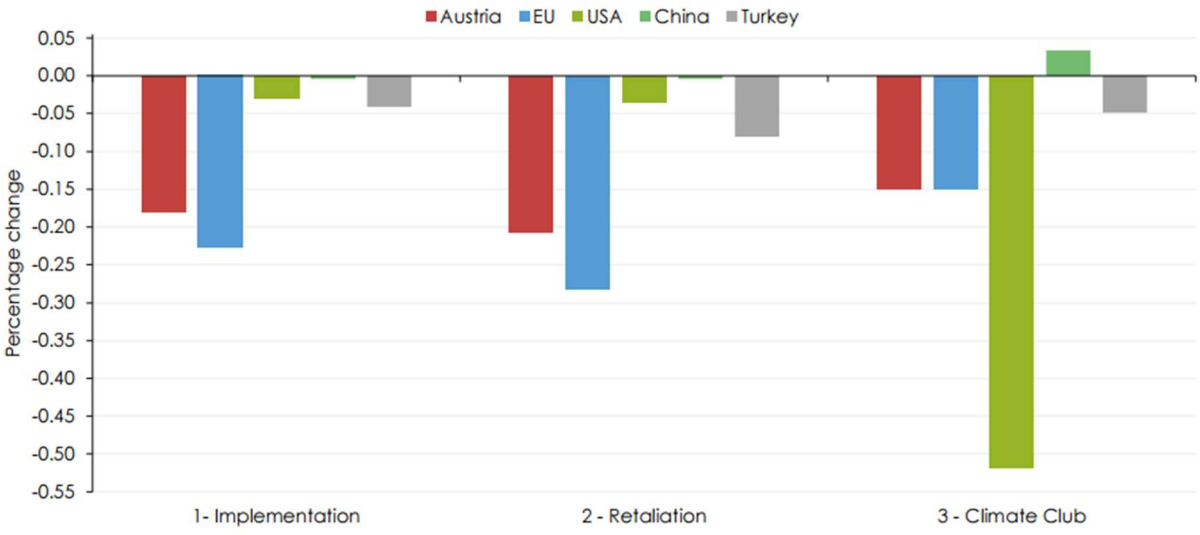
[218] See: https://www.ifw-kiel.de/institute/research-centers/trade-policy/kite-kiel-institute-trade-policy-evaluation/

[219] Mahlkow et al. (2021) simulated with the KITE model (assuming a CO_2 price of USD 50) also several variants of Climate Clubs and compared them with EU's CBAM scenario. A global introduction of a CO_2 tax would result in the highest reductions of CO_2 emissions. Second best would be a club of EU-USA-China, third comes an EU-USA club and the least emission results stem from EU's CBAM.

The KITE model simulation uses the GTAP data base of 2014. The targeted CBAM goods concern 13 GTAP sectors (mining, petroleum and coke, chemicals and chemical products, pharmaceuticals, rubber and plastic products, other non-metallic mineral products, iron and steel, non-ferrous metals, fabricated metal products, electrical equipment, machinery and equipment, other manufacturing, and electricity). The import shares (bilateral import share of goods affected by CBAM relative to the total import value of the sector for the year 2022) in the concerned GTAP sectors vary between 1.2% and 61.3% at EU level.

The CBAM implementation of CBAM will increase the price of imports, while EU exporters will lose competitiveness on third country markets by adopting CBAM with no rebate to exporters. Thus, while environmental effects, such as curbing carbon leakage and reducing CO_2 emissions are expected to be positive, macroeconomic effects, such as real income changes, can be negative, especially since external costs of climate change, known as social costs of carbon, are disregarded in this setting.

Figure 6.36: Welfare effects for Austria, the EU and selected countries



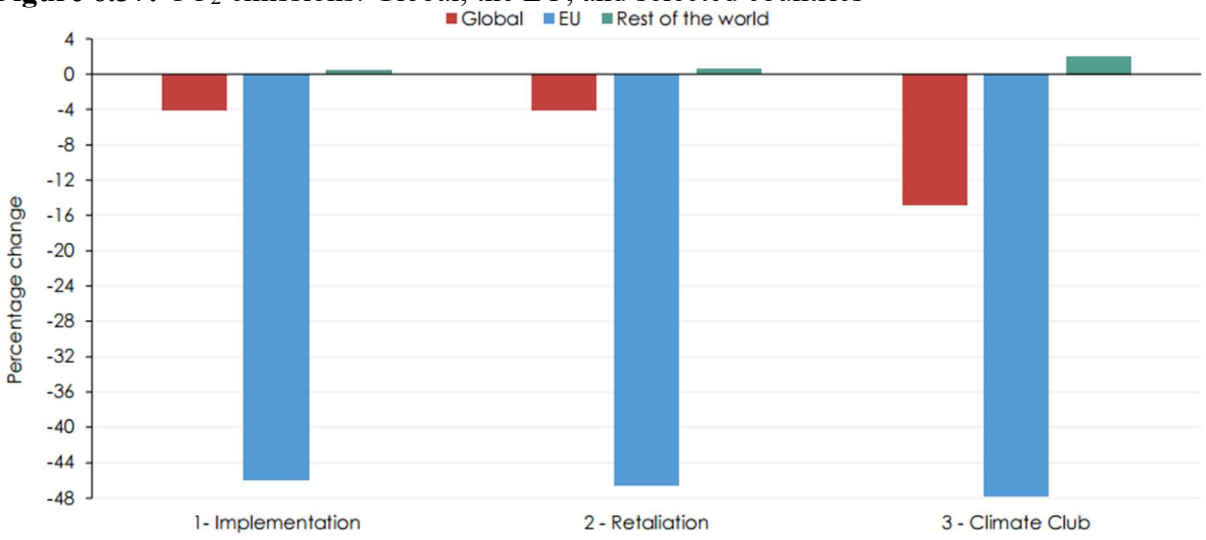
Source: Wolfmayr et al. (2024), p. 133

Welfare: The welfare effects are quite strong negatively (see Figure 6.36). In the baseline scenario 1 (Implementation), the welfare loss would be 0.23% in the EU, and 0.18% in Austria. In the Retaliation scenario 2, the welfare losses would be even higher in Europe. Only the Climate Club scenario 3, the welfare losses in the EU and Austria (both -0.15%) would be lower. However, the USA would lose more welfare (-0.52%) because it introduces a carbon tax on domestic production and a tariff on CBAM goods. China (+0.05%) and Turkey (-0.05%), not part of the Climate Club, would see negligible real income changes.

Trade effects: Trade effects are more severe for imports than for exports. Total EU imports would decline by 4.8%, EU's exports by 4.6%. Austria's trade declines by around 3%. The effects are quite similar for the first two scenarios, but more pronounced negative for the USA in the Climate Club scenario. The negative sectoral trade effects of CBAM are more pronounced for the most affected CBAM sectors. They range from -36% for energy imports to -5% for non-metallic mineral products (Wolfmayr et al., 2024, p. 140).

Environmental effects: The study by Wolfmayr et al. (2024) claim that CBAM would be an effective tool to reduce CO_2 emissions and avoid carbon leakage. A unique EU carbon pricing scheme (scenario 1 "Implementation") cuts emissions of the EU by 45.9%, which translates into a global emission reduction by 4.0%. Thus, this unilateral approach by the EU can only make a small contribution to global climate protection (see Figure 6.37). Similar effects are seen in scenario 2 (Retaliation). In scenario 3 (Climate Club) the effect of reducing CO_2 emissions is somewhat larger.

Figure 6.37: CO_2 emissions: Global, the EU, and selected countries



Source: Wolfmayr et al. (2024), p. 142

In the light of other CBAM studies mentioned before, the strong reduction of CO_2 emissions in the KITE simulations by Wolfmayr et al. (2024) make one wonder about the EU's CBAM overly optimistic outlook on climate change mitigation. But each model has its specific assumptions and therefore we see a variety of outcomes for the same event.

Kuusi et al. (2020) in an early Government's assessment of EU's CBAM project come to the following conclusions and suggestions for *Finland*. However, in 2020, the exact design of CBAM was not yet clear. While a CBAM is proposed as a solution to the EU's carbon leakage

problem, the authors acknowledge that there are several ways to implement CBAMs, with varying combinations of technical difficulties, administrative burden, legal risks, and risks of political backlash. The assessment constructs scenarios in which the CBAM is designed based on feasibility considerations and compare them with broader, but also more complex, alternatives.

Based on their analysis, the CBAM may face major implementation hurdles in its deployment going forward. Thus, the likeliest approach would be to test its use with a narrow set of imported products that are emission intensive which would limit administrative challenges. After considering a feasible alternative, they find that the economic and environmental impact of such a narrow tariff would most likely be small, and such a CBAM would serve more as a signal of the EU's determination to resolve the carbon leakage problem rather than as a true solution to it.

More ambitious CBAMs will inevitably face difficulties in terms of data collection and administration. Moreover, China will be strongly affected by such CBAMs. Countermeasures could nullify the economic benefits of CBAMs. To avoid the countermeasures, the EU should focus on designing the CBAM in a manner that aims at strengthening multilateral cooperation on climate change.

Kuusi et al. (2020) then undertook several gravity estimations on the impact of CBAM and also GTAP analysis with CGE models. The study already used some CBAM goods which were later used in the EU's CBAM design: Cement, Iron and steel, Aluminum. With assumed low tariffs of 0.5% for aluminium, 1.4% for iron and steel, and 4.5% for cement, the imports declined respectively. Then they also extended their analysis on other manufacture goods. CGE model analysis with GTAP data of 2014 shows the expected impact on the trade flows: EU imports of CBAM goods decrease. With the global macroeconomic model NIGEM the authors analysed a possible trade war because of retorsion measures by great EU trading partners, like the USA.

In a policy brief, Gallengos et al. (2022) the Stockholm Environment Institute presents the *Swedish* policy positions on CBAM. From the perspective of Swedish climate ambitions and industry competitiveness, four important elements of the proposal include (1) the timeline of the free allowance phase-out, (2) the exclusion of exports from its coverage, (3) the scope of emissions covered, and (4) crediting third countries' climate policies. Their experts raise the question whether the CBAM project might be really WTO compatible.

Asian concerns

Several studies, especially by developing countries, but also by China, analyse with concern the negative effects of EU's CBAM on the possible losses of their exports to the EU.

Xiaobei et al. (2022), analysing the CBAM with a dynamic CGE model, find that CBAM widens the gap between developed and developing countries in terms of GDP and welfare. It may worsen the unequal income and welfare distributions between rich and poor economies, and further erode the capacity of some low-income countries to decarbonize their economies. To overcome this dilemma the authors discuss the launching of an Equitable Decarbonization Fund, from the proceeds of the CBAM to support decarbonization project in low-income countries and the development of green technologies.

Zhu et al. (2024) study particularly the impact of CBAM on China's trade with the EU. The state that EU's CBAM, which is regarded as the EU's key policy tool to address carbon leakage, might have a non-negligible impact on China's exports, as China is an important trading partner for the EU's carbon-intensive products. The study uses the GTAP-E model to simulate the impact of the EU CBAM on China's exports to the EU from four aspects, export price, trade structure, trade value and terms of trade, by setting up multiple scenarios. The results show that the EU CBAM reduces the export prices of China's taxed sectors to the EU, and that the export prices of other sectors show the same change characteristics. The export volume of China's taxed sectors decreases differently with the export transfer effect and export inhibition effect. In terms of trade value, the EU carbon tariffs not only reduce China's export value but also lead to a reduction in EU exports. The implementation of the EU CBAM improves the terms of trade of the EU and worsens the terms of trade of China. An expansion of the scope of taxation and a change in the calculation method of carbon emissions would aggravate the change in the terms of trade. The results suggest that feasible measures should be taken to strengthen international cooperation, promote the construction of a unified national carbon market and export diversification, and establish a firm carbon emission accounting system in order to mitigate the negative impact of the EU CBAM.

The recent report by the Asian Development Bank (ADB, 2024) in its Asian Economic Integration Report 2024, analyses explicitly and carefully the implications of decarbonizing global value chains, and particularly the implications of EU's CBAM. A computable general equilibrium (CGE) model of global world production and trade (is used to estimate the economic effects of carbon border tax scenarios. It uses the CGE model by Bekkers et al. (2023) which models Eaton-Kortum based trade with GTAP.

Two scenarios with the 2017 database of GTAP 11 are simulated:

- *Scenario 1 (ETS only):* EU imposes tighter ETS carbon allocations (phasing-out of free allocation), with a resulting EUR 100/MT price. No CBAM is applied at the border.
- *Scenario 2 (ETS and CBAM):* EU impose tighter ETS carbon allocations, with a resulting EUR 100/MT price. CBAM taxes are imposed for ETS sectors (that are more sectors than just the six CBAM goods designed in EU's CBAM system).

The same two scenarios are also calculated with EUR 200/MT prices which result in a roughly doubling of the impact.

The scenarios are compared in the model simulations to a baseline of the current ETS and a carbon price of EU 18 per MT of CO_2. The two scenarios assume a CO_2 price of EUR 100/MT. So, the change is rather drastic. Furthermore, the model simulates not only the effects of the six CBAM goods but those of all ETS goods. This implies that the effects are much stronger than intended after the trial run of the EU's CBAM according to the CBAM Regulation 2023/956.

The *EU ETS* applies in all EU Member States, the European Free Trade Association countries (Iceland, Liechtenstein and Norway) as well as Northern Ireland for electricity generation (under the Protocol of Ireland and Northern Ireland). It covers greenhouse gas emissions from around 10,000 installations in the energy sector and manufacturing industry as well as aircraft operators flying within the EU and departing to Switzerland and the United Kingdom. From 2024, the EU ETS also covers emissions from maritime transport.

The EU ETS covers the following greenhouse gases from specific activities, focusing on emissions that can be measured, reported, and verified with a high level of accuracy[220]:

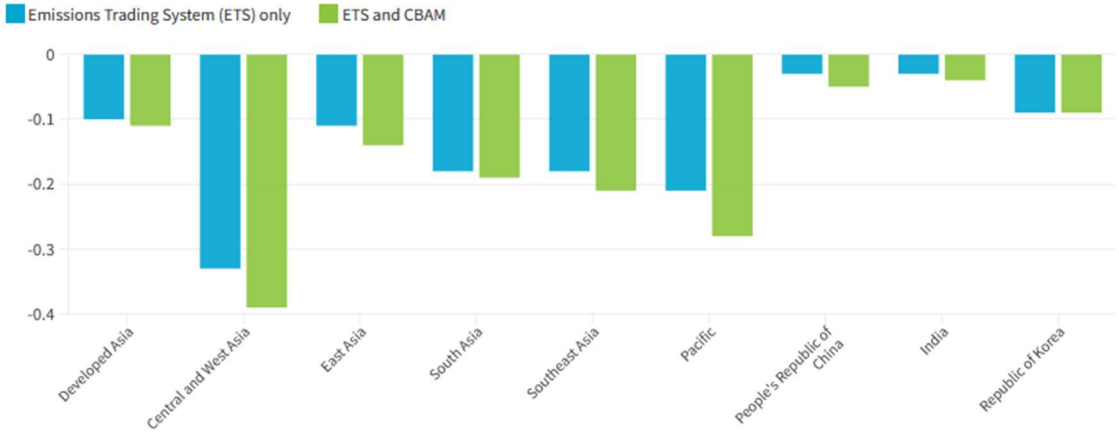
- *carbon dioxide (CO_2)* from
  - electricity and heat generation
  - energy-intensive industry sectors, including oil refineries, steel works, and production of iron, aluminium, metals, cement, lime, glass, ceramics, pulp, paper, cardboard, acids and bulk organic chemicals
  - aviation within the European Economic Area and departing flights to Switzerland and the United Kingdom
  - maritime transport, specifically 50% of emissions from voyages starting or ending outside of the EU and 100% of emissions from voyages between two EU ports and when ships are within EU ports.

[220] See: https://climate.ec.europa.eu/eu-action/eu-emissions-trading-system-eu-ets/scope-eu-emissions-trading-system_en

- *nitrous oxide (N_2O)* from production of nitric, adipic and glyoxylic acids and glyoxal
- *perfluorocarbons (PFCs)* from the production of aluminium.

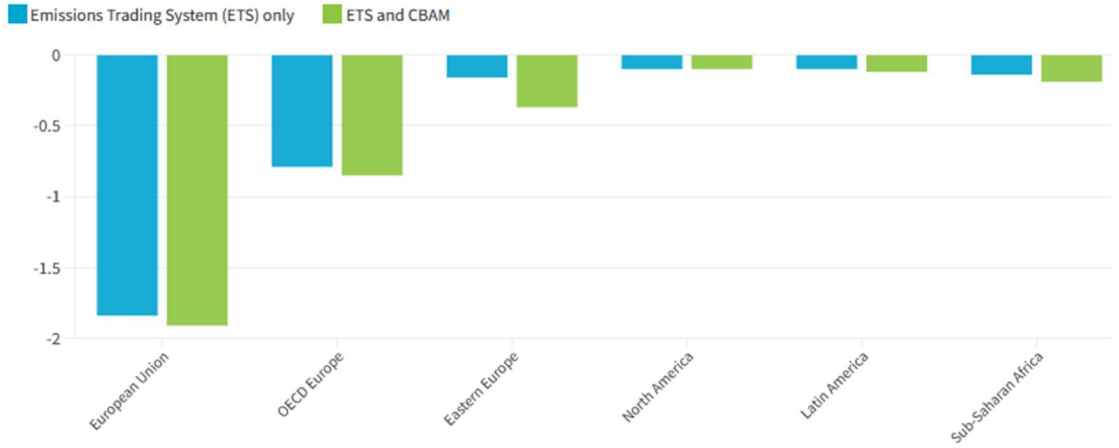
The CBAM study by the ADB (2024) draws the following conclusions. The EU's Carbon Border Adjustment Mechanism (CBAM), set to go into force in 2026, will impose import charges on products such as steel, cement, and electricity, based on the carbon dioxide emissions embedded in their production. The charges are aimed at curbing "carbon leakage," the result of polluters moving production from countries with stringent regulations or high carbon prices to those with less stringent regulations or lower prices.

Figure 6.38: EU's CBAM and its impact on real GDP: Asia and the Pacific
(Change from baseline in %)



Sources: ADB (2024), and https://www.adb.org/news/eu-carbon-tariff-likely-have-limited-impact-emissions-without-global-efforts

Figure 6.39: EU's CBAM and its impact on real GDP: Other regions
(Change from baseline in %)

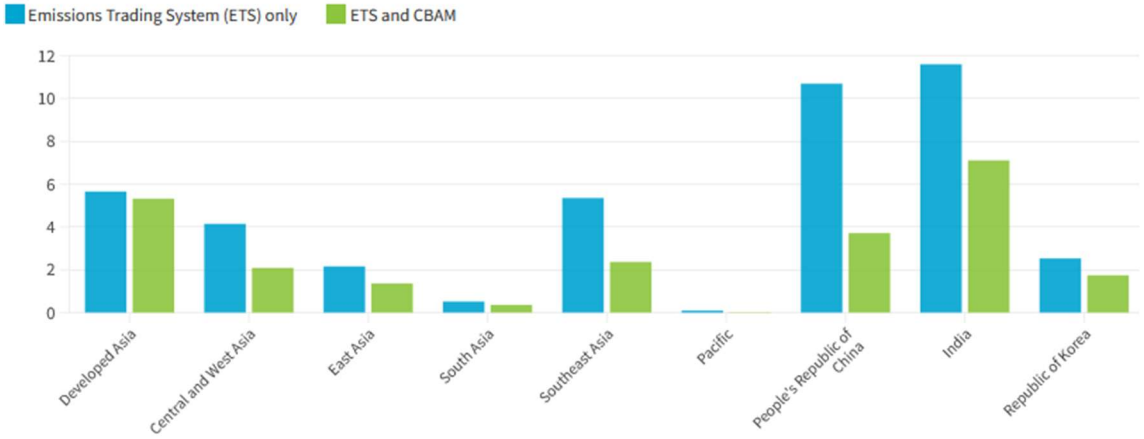


Sources: ADB (2024), and https://www.adb.org/news/eu-carbon-tariff-likely-have-limited-impact-emissions-without-global-efforts

However, CBAM is likely to reduce global carbon emissions by less than 0.2% relative to an emissions trading scheme with a carbon price of 100 euros ($108) per metric ton and no carbon tariff, statistical modelling shows. At the same time, the charges may reduce global exports to the EU by around 0.4% and Asia's exports to the EU by around 1.1%, while negatively affecting the output of some manufacturers within the EU.

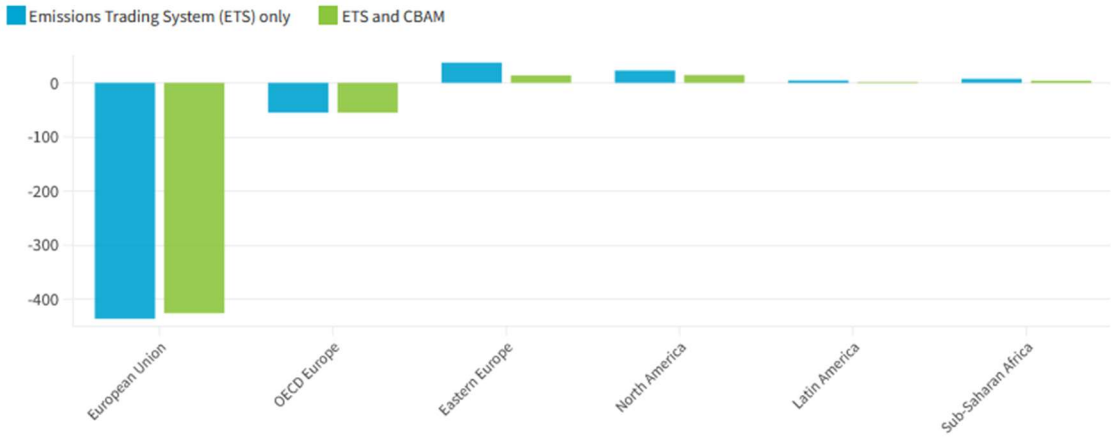
As is shown in the Figure 6.39, the introduction of CBAM hurts the EU the most with a reduction of real GDP by 1.7% (scenario 1: ETS only) and -1.8% (scenario 2: ETS and CBAM). Second comes Central and WestAsia (see Figure 6.38).

Figure 6.40: EU's CBAM and its impact on CO2 emissions: Asia and the Pacific (Change in million metric tons (MT) of CO2)



Sources: ADB (2024), and https://www.adb.org/news/eu-carbon-tariff-likely-have-limited-impact-emissions-without-global-efforts

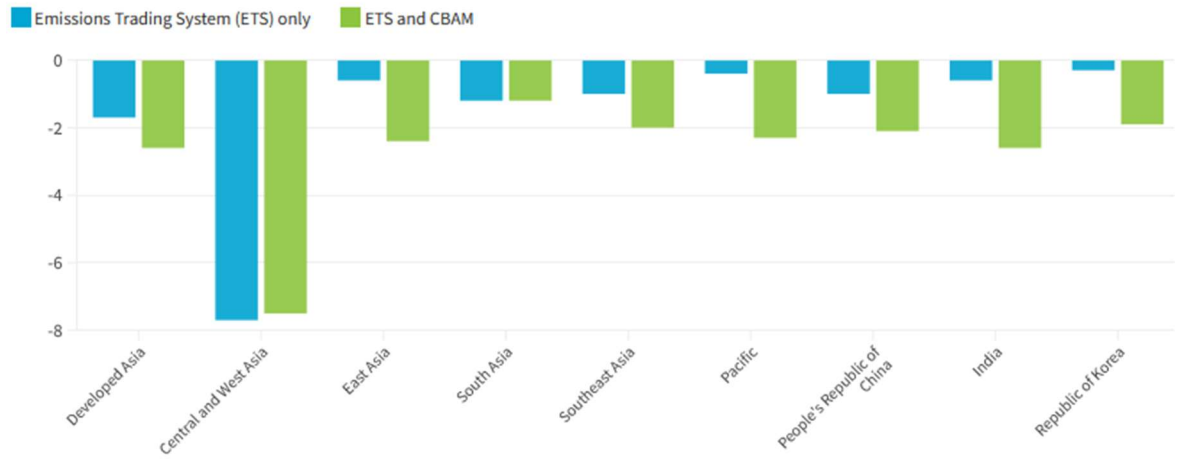
Figure 6.41: EU's CBAM and its impact on CO2 emissions: Other regions (Change in million metric tons (MT) of CO2)



Sources: ADB (2024), and https://www.adb.org/news/eu-carbon-tariff-likely-have-limited-impact-emissions-without-global-efforts

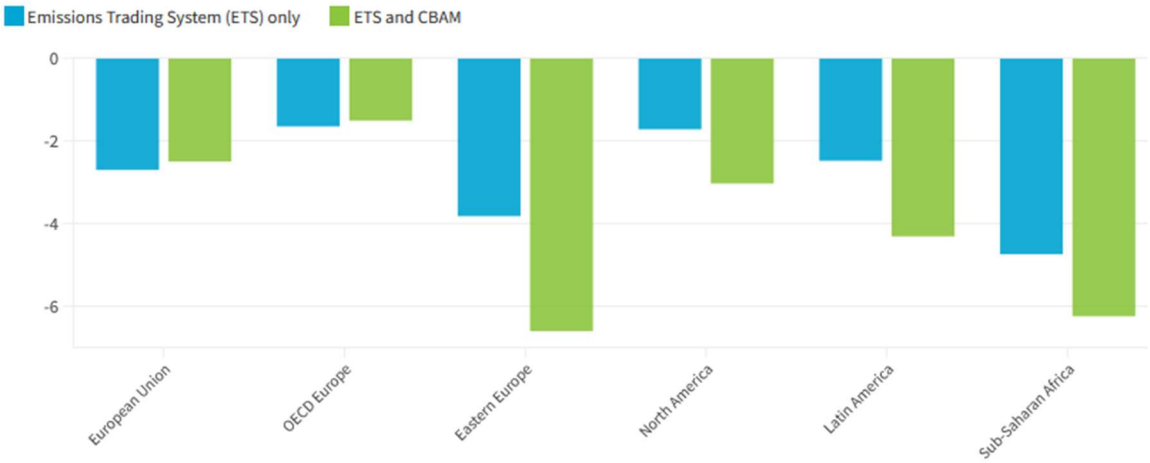
The difference between both scenarios is minimal. This is not only true for the impact on real GDP, but also for CO_2 emissions (see Figures 6.40 and 6.41) and trade (Figures 6.42 and 6.43). The only big jump is from the baseline with a CO_2 price of EUR 18/MT to the scenario price (assumed after 2026) of EUR 100/MT.

Figure 6.42: EU's CBAM and its impact on exports to EU: Asia and the Pacific
(Change from baseline in %)



Sources: ADB (2024), and https://www.adb.org/news/eu-carbon-tariff-likely-have-limited-impact-emissions-without-global-efforts

Figures 6.43: EU's CBAM and its impact on exports to EU: Other regions
(Change from baseline in %)



Sources: ADB (2024), and https://www.adb.org/news/eu-carbon-tariff-likely-have-limited-impact-emissions-without-global-efforts

So only the phasing-out of free ETS allocations with the introduction of the high CO_2 price of EUR 100/MT results in negative welfare (GDP), and trade effects, but with the expected reduction of CO_2 emissions. The income losses are highest in the EU (-1.7% in scenario 1) whereas the spillovers to other regions result in minor income losses.

The astonishing and undesirable result is that only in the EU the CO_2 emissions fall in both scenarios, while they rise in other regions of the world (see Figures 6.40 and 6.41). In the EU in scenario 1 emissions decline by 435.8 million MT of CO_2 (or -12.6%), in scenario 2 even less (-425.4 million MT of CO_2, or -12.3%).

The trade implications of CBAM are shown in Figures 6.42 and 6.43.

WTO compatibility?

Although the EU claims to have made CBAM WTO conform, the concrete application will show whether the major trading partners will not find cases where they feel discriminated and will sue the EU at WTO. In former meetings (April 2021, October 2022) of the WTO Committee on Market Access several countries (e.g., Russian Federation, China, Kazakhstan, Kingdom of Saudi Arabia, etc.) raised concerns against EU's CBAM[221]. In the meantime, the concerns raised appear to have been clarified. But it's not all evening yet.

Own estimations with a CGE model with data of GTAP 11B for the year 2017 show a similar picture as the CBAM study by ADB (2024). Although our approach is a little bit different. We use a model with 31 regions and 31 sectors. The model is simulated with the CGEBox, like in chapter 12.2.2. To be correctly, as discussed earlier, one should imply in the simulations for each third country specific CBAM tariffs related to their CO_2 emissions intensity of the six CBAM goods. Here we reduce complexity by assuming a 10% CBAM import tariff on the imports of all six CBAM goods, similar for all third countries (non-EEA countries). The GTAP database is not so detailed as being able to capture exactly the six CBAM goods. Therefore, one must make a compromise and input them into the GTAP data aggregation like the following: Iron and steel in the sector "Iron and steel", Cement in "Non-metallic minerals", Aluminium in "Non-ferrous metals", Fertilizers in "Chemical products", Electrictiy in "Electricity", and Hydrogen in "Chemical products".

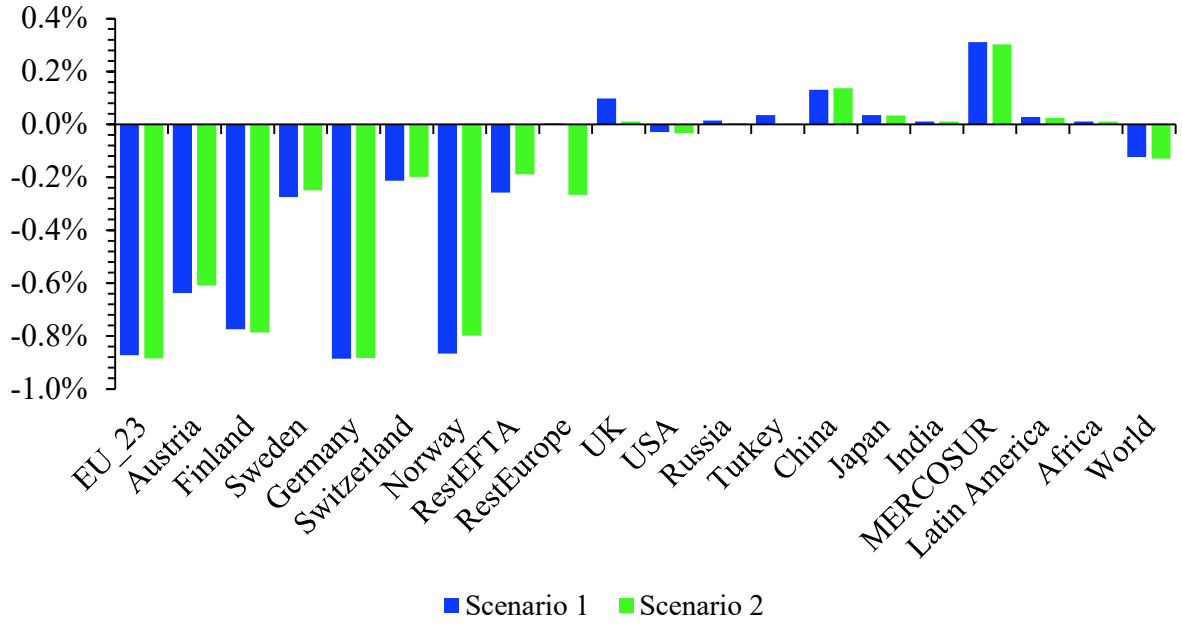
Similarly to the study by ADB (2024), two scenarios are simulated:

- *Scenario 1 (ETS only):* EU and EFTA impose tighter ETS carbon allocations (phasing-out of free allocation), with a resulting EUR 100/MT price. No CBAM is applied at the border.
- *Scenario 2 (ETS and CBAM):* EU impose tighter ETS carbon allocations, with a resulting EUR 100/MT price. CBAM taxes are imposed for the six ETS sectors. As we assume a

[221] See: https://tradeconcerns.wto.org/ES/stcs/details?imsId=49&domainId=CMA

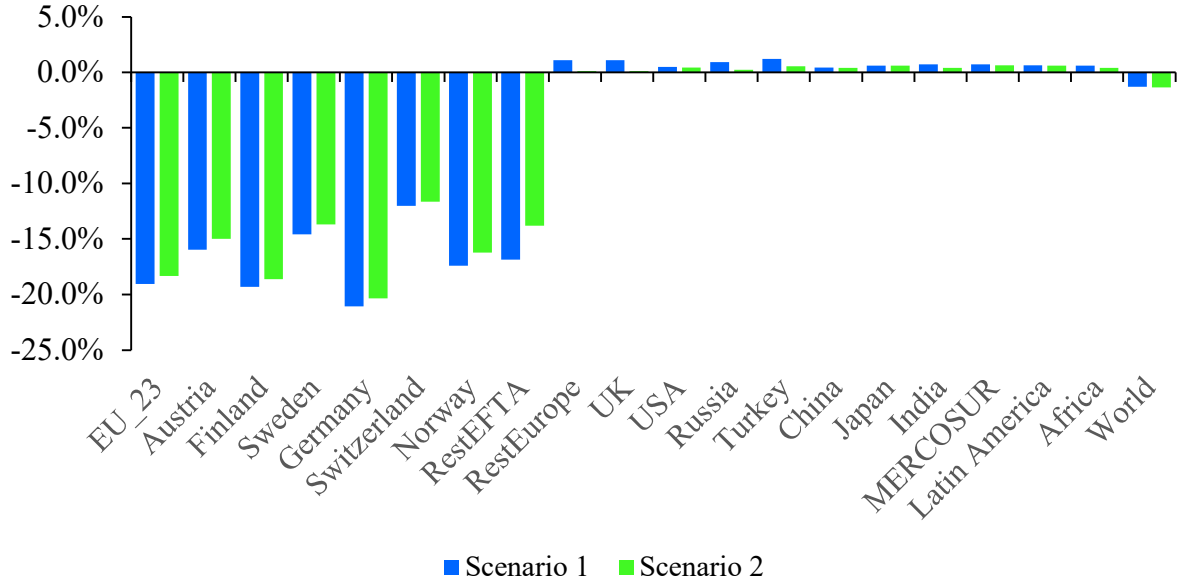
relatively high 10% import tariff for all CBAM goods and vis à vis all third countries, the results could be overestimated.

Figure 6.44: EU's CBAM and its impact on real GDP
(Change from baseline in %)



Source: Own simulations

Figure 6.45: EU's CBAM and its impact on CO_2 emissions
(Change from baseline in %)



Source: Own simulations

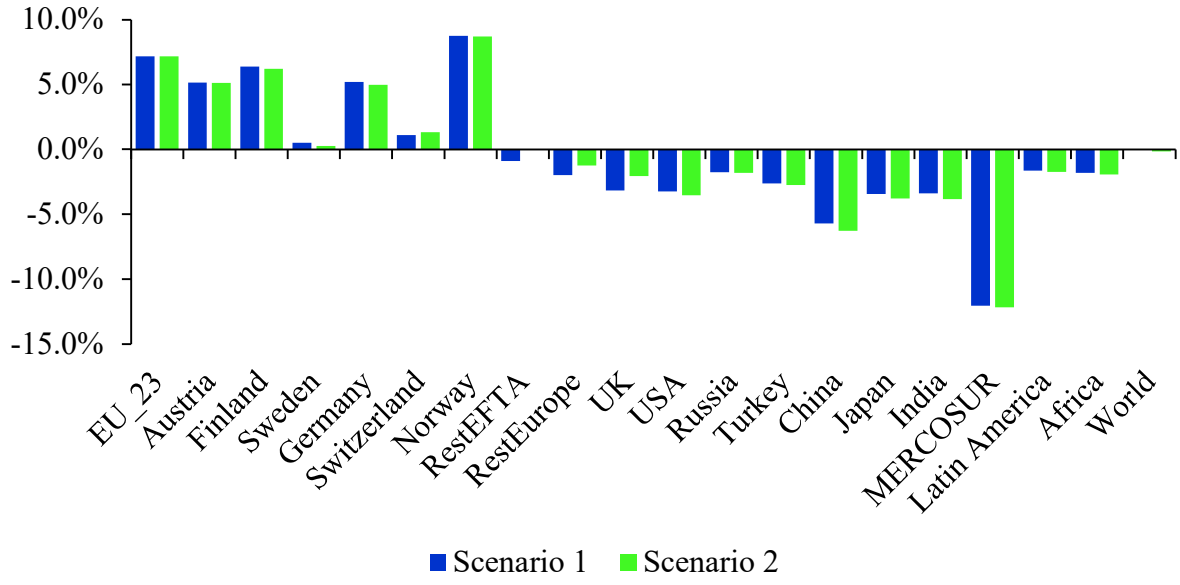
Figure 6.44 shows that the EU and its Member State are the big losers of the introduction of CBAM. Real GDP declines by around 0.9% in EU23 and in Germany, at little bit less in Austria

(-0.6%), and in Finland (-0.8%), in Sweden only by 0.3%. As we also assume that the same higher CO2 price (EUR 100/MT) also applies in EFTA countries, Norway would lose income like EU23. As in the study by ADB (2024) the big jump occurs by the introduction of a higher CO2 price in the ETS. The difference between both scenarios is minimal. That means that the EU could forget the bureaucratic awkward CBAM system which even would result in welfare gains in third countries (see Figure 6.44), given they do not react with a more aggressive climate policy as a response to that of the EU.

At least CO_2 emission would go down by tightening the ETS system and introducing a higher CO_2 price. As Figure 6.45 shows in the EU23 (-19%) and EFTA (Switzerland -12%, Norway -17.4%) and its Member States (Austria -16%; Finland -19.3%, Sweden -14.6%; Germany -12%) CO_2 emissions could be reduced by around 20%. However, given no additional initiatives the emissions would even increase in third countries.

Surprisingly, the decrease of CO_2 emissions in scenario 2 (ETS plus CBAM) is lower in the EU than in scenario 1 (ETS only; see Figure 6.45). This means that CBAM is counterproductive for the EU from a climate policy perspective. The study by ADB (2024) reaches the same results (see Figure 6.41).

Figure 6.46: EU's CBAM and its impact on exports to EU27
(Change from baseline in %)



Source: Own simulations

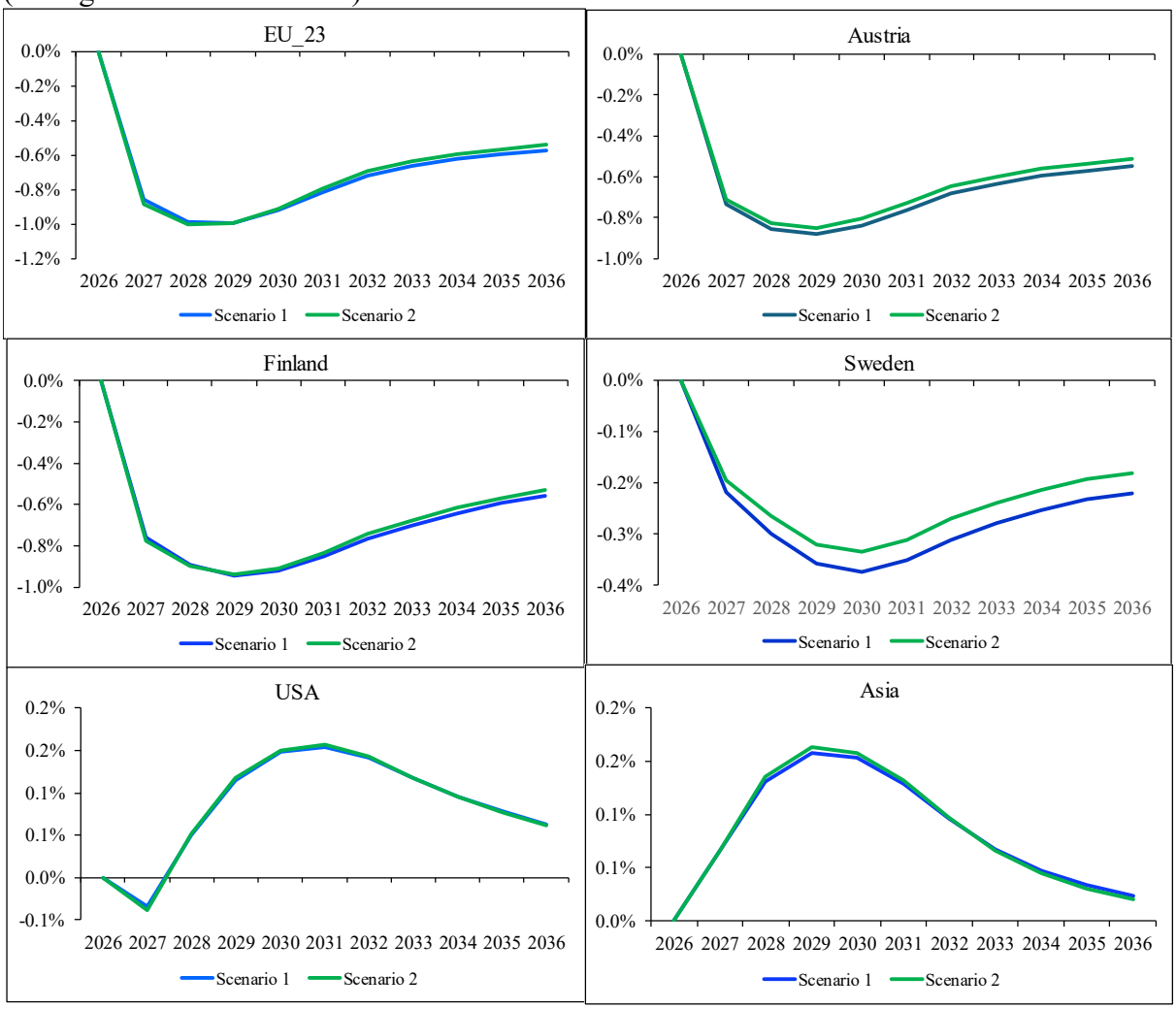
Our results are in the magnitude of the results of the study by ADB (2024) but do not confirm with those of the study by Wolfmayr et al. (2024). However, one could argue that the

assumption of a CO_2 price of EUR 100/MT in 2026 is too high, given its subdued level at the moment, fluctuating around EUR 50/MT.

EU's CBAM has the most important implications for international trade. Already scenario 1 (ETS only) would have negative effects on exports of third countries to the EU (see Figure 6.46), mainly because of the income losses in the EU. Scenario 2 (ETS and CBAM) aggravates the trade situation for third countries. The exports to the EU of the MERCOSUR countries would decline by around 12%. In contrast Intra-EU trade – but also EFTA trade with the EU - would be stimulated by EU's CBAM climate policy.

The following dynamic simulations with the CGEBox is executed with a model with 15 countries and 15 sectors, based on GTAP11B database. Such recursive dynamic simulations with the CGEBox shows the possible impact of EU's CBAM under the two scenarios on real GDP over a period of 10 years, starting in 2026 (see Figure 6.47).

Figure 6.47: The impact of EU's CBAM on real GDP over time
(Change from baseline in %)



Source: Own simulations

After four years in all countries/regions a turning point is reached. The EU and its Member States reach the biggest trough (around -1% decline of real GDP) – except for Sweden - with a decline of only 0.3% to 0.4%. In third countries - here only the USA and Asia are shown in Figure 6.47 - in the short term CBAM might have a slight negative impact, in the long run, real GDP increases.

Summary

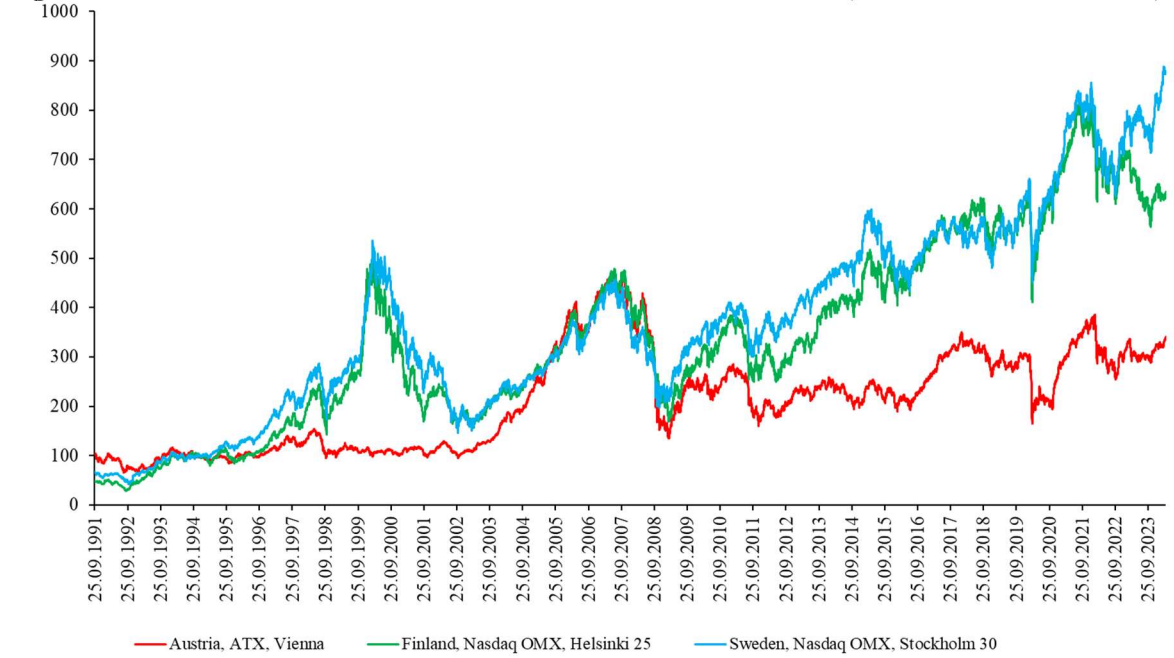
The conclusions about EU's CBAM are sobering. With the CBAM the EU shoots themselves in the knee. It is a bureaucratic monster for the EU companies already in the transition phase with the huge reporting requirement. Then the phasing out of the free ETS allowances and introduction of a high CO_2 price is welfare damaging for the EU. The additional introduction of CBAM tariffs on imports of selected goods drops the EU economy even further without resulting in additional reductions in GHG emissions in the EU; in third countries the effect could even be counterproductive. This negative picture is confirmed in all CBAM studies so far. With the CBAM the EU loses competitiveness, and it is not yet secured whether the system is WTO conform.

6.7 Stock market performance

The overall economic performance of a country can also be illustrated with the development at the stock exchange. Given that all three small open economies have a lively capital market, not at least fuelled, and stimulated by the Single Market's free capital movement.

A short look at the most prominent indices in Vienna, Helsinki, and Stockholm shows the following picture. In Figure 6.48 the three indices (ATX Vienna, OMX Helsinki 25, and OMX Stockholm 30) are rebased, so that 2 January 1995 is 100. Then one can see what happened since the EU accession. Finland and Sweden participated in the boom of the dot.com bubble (1998-2000) which burst in 2000/2021. Austria, in contrast was not involved in this hype. After the grand EU enlargement in 2004 all three countries experienced a boom at their stock exchanges. The Great Financial Crisis in 2008 and the following Great Recession in 2009 led to a crash at the stock markets. Interestingly, then is the different development in the three countries. Whereas Finland's and Sweden's stock markets nearly parallel surged up, only interrupted by the COVID-19 Pandemic in 2020, and most recently after the Russian invasion in the Ukraine on 24 February 2022. Austria shows a complete other picture. Since the Great Recession the Vienna stock market developed sideways, with the interruptions in 2020 and 2022.

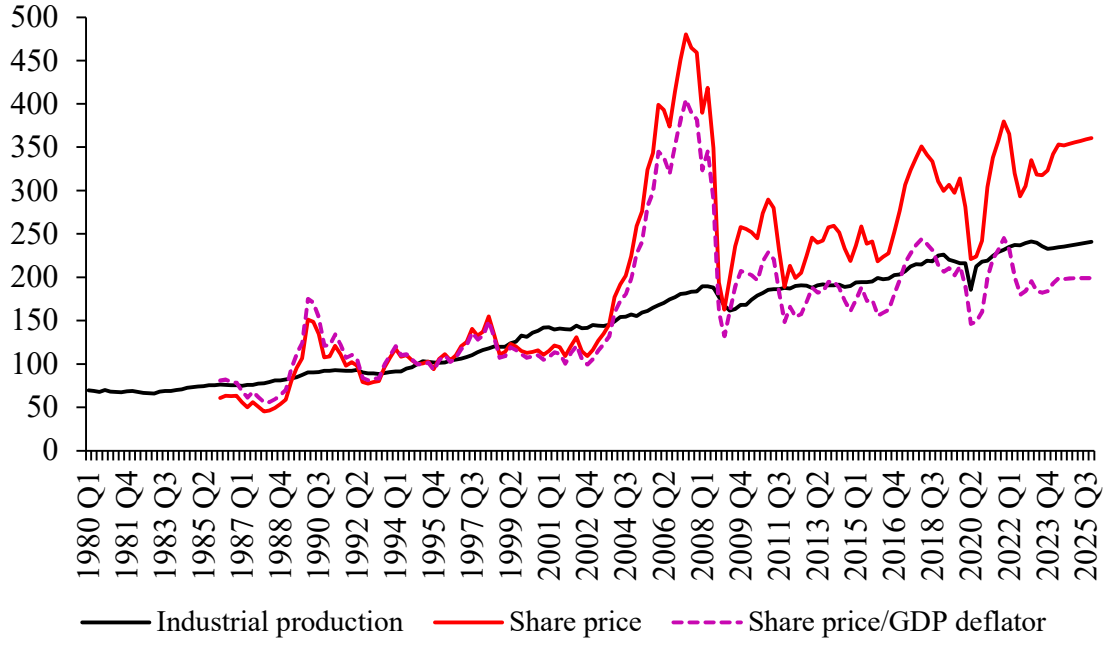
Figure 6.48: Stock market indices: Helsinki, Stockholm, Vienna (Index 2 Jan 1995 = 100)



Source: Macrobond

This development underlines quite well the different macroeconomic performance analysed in Table 4.1. Since their EU accession in 1995, Finland and Sweden generated higher growth rates of real GDP than Austria.

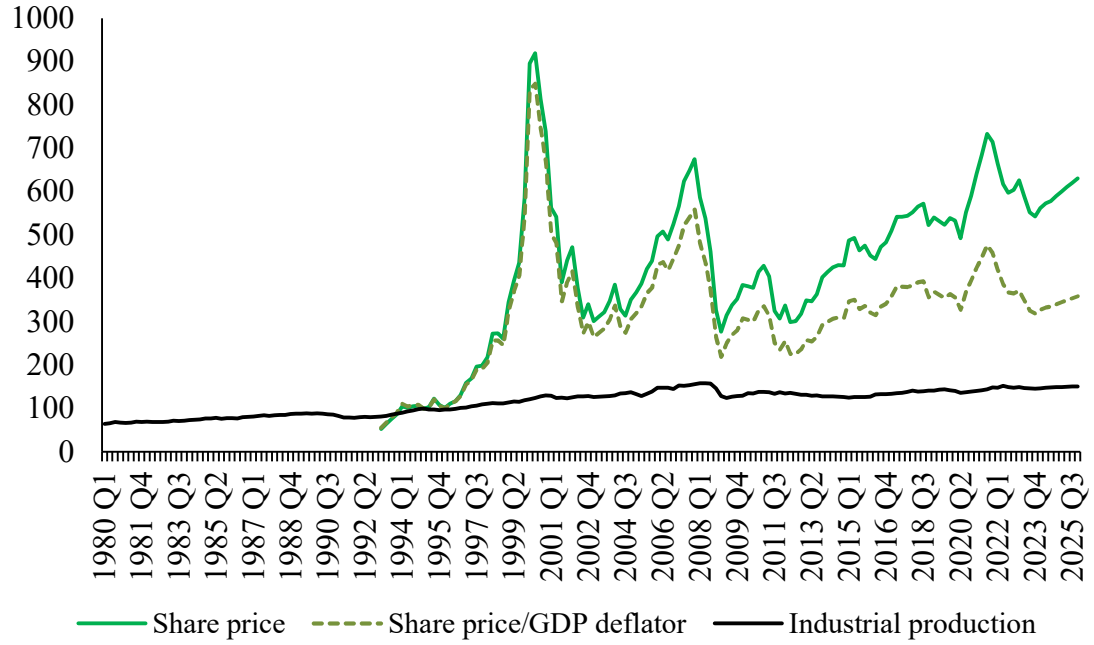
Figure 6.49: Stock market prices and industrial production in Austria: 1Q1995=100



Source: Oxford Economics

In the comparison of the stock market indices, one must also take into account that the density of the stock markets is different. Sweden sticks out. According to CEIC data[222], their market capitalization amounted to 913.163 bn USD bn in Jun 2023 (which is 157.8% of GDP), whereas Finland reaches only a value of 282.434 bn USD (or 93.2% of GDP). Austria capital/stock market is comparable small: Market capitalization in June 2023 was 128.377 bn USD or 24.5% of GDP. Data of the Austrian National Bank (OeNB[223]) show a similar picture. The value of stocks at the Vienna Stock exchange reached a value of 136.805 bn EUR in the 1Q2023. Similar data are given by the ECB[224]: the total value of stocks in Austria was 144.8 bn EUR in 1Q2023.

Figure 6.50: Stock market prices and industrial production in Finland: 1Q1995=100

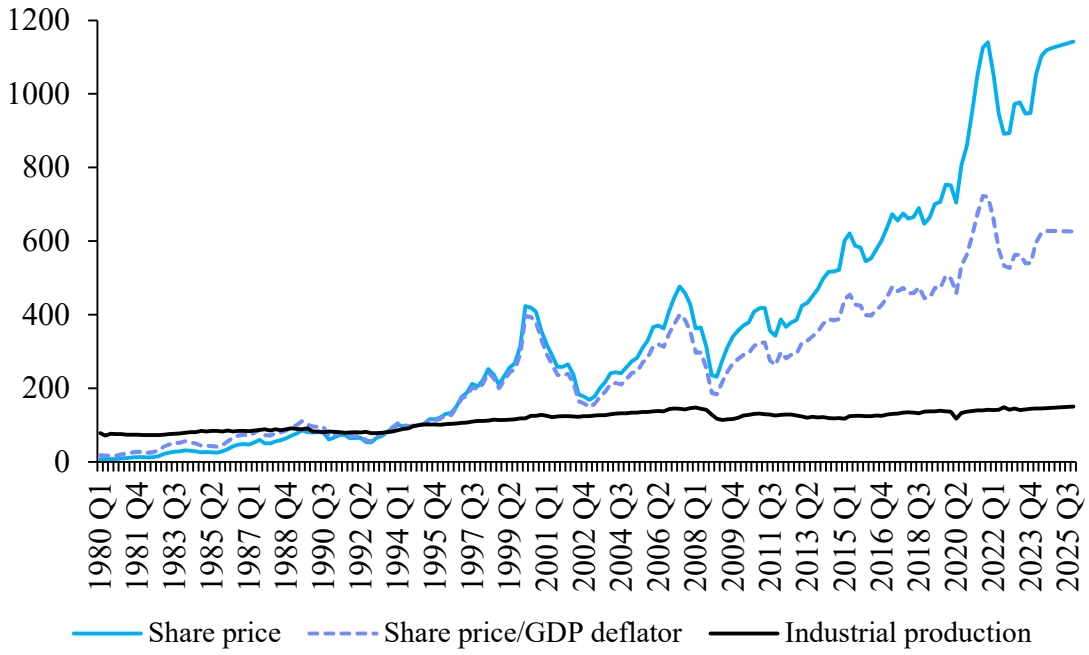


Source: Oxford Economics

A comparison of the development of the stock market prices and the industrial production since EU accession in 1995 shows that in *Austria* both indicators developed quite parallel except for the big jump in Austrian stock market price shortly after the grand EU enlargement in 2024 ("Enlargement euphoria"; see Figure 6.49).

[222] See: https://www.ceicdata.com/en/indicator/austria/market-capitalization
[223] See: https://www.oenb.at/isaweb/report.do?report=801.5.7
[224] See: https://sdw.ecb.europa.eu/intelligentsearch/?searchTerm=Austria

Figure 6.51: Stock market prices and industrial production in Sweden: 1Q1995=100



Source: Oxford Economics

In *Finland* (see Figure 6.50) and in *Sweden* (see Figure 6.51)– in contrast to Austria – stock market prices rose much faster than the industrial production.

6.8 Transformation towards a green economy

6.8.1 The European Green Deal

On 11 December 2019, the then elected new European Commission under President Ursula von der Leyen presented its ambitious goal of the "European Green Deal" to "make Europe the first climate-neutral continent by 2050, boosting the economy, improving people's health and quality of life, caring for nature, and leaving no one behind"[225] (for an overview, see Figure 6.52).

With the "European Green Deal", the EU is "striving to be the first climate-neutral continent"[226]. Climate change and environmental degradation are an existential threat to Europe and the world. To overcome these challenges, the European Green Deal will transform the EU into a modern, resource-efficient, and competitive economy, ensuring:

- no net emissions of greenhouse gases by 2050
- economic growth decoupled from resource use

[225] See: https://ec.europa.eu/commission/presscorner/detail/en/ip_19_6691

[226] See the detailed program of "The European Green Deal" by the European Commission: https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal_en

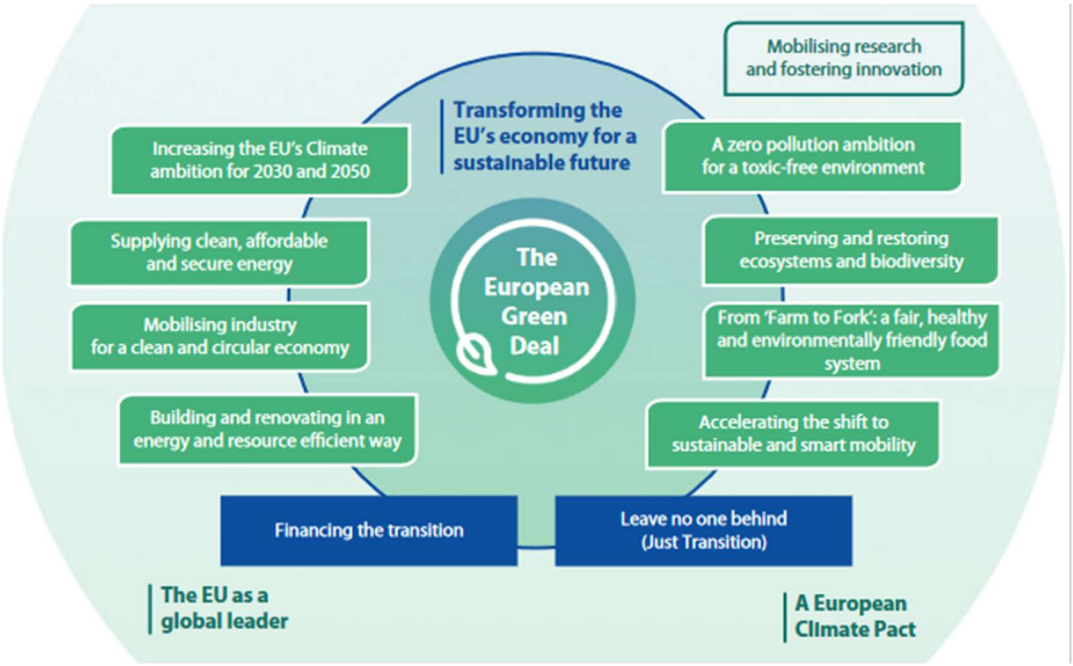
- no person and no place left behind.

The European Green Deal is also EU's lifeline out of the COVID-19 pandemic. One third of the €1.8 trillion investments from the NextGenerationEU Recovery Plan, and the EU's seven-year budget will finance the European Green Deal.

The European Commission has adopted a set of proposals to make the EU's climate, energy, transport, and taxation policies fit for reducing net greenhouse gas emissions by at least 55% by 2030 ("Fit for 55"[227]), compared to 1990 levels. More information on.

Details on the implementation of the many legal actions are presented on European Commission's website "Delivering the European Green Deal"[228].

Figure 6.52: The European Green Deal



Source: European Commission (2019C), p. 3

Under the European Climate Law, the EU committed to reduce its net greenhouse gas emissions by at least 55% by 2030. The "Fit for 55" package of legislation makes all sectors of the EU's economy fit to meet this target. It sets the EU on a path to reach its climate targets in

[227] The OECD (see Borgonovi et al., 2023) has analysed EU's "Fit for 55" package concerning its impact on the labour markets and demand for skill. In another study the OECD (2023C) assesses and anticipates skills for the Green Transition in the context of "Fit for 55".

[228] See: https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal/delivering-european-green-deal_en

a fair, cost-effective and competitive way. The "Fit for 55" includes the following Commission proposals[229] which were already adopted by October 2023:

- EU Emissions Trading System (ETS) reform
- New EU Emissions Trading System for building and road transport fuels
- Social Climate Fund
- Effort Sharing Regulation
- Regulation on Land Use, Forestry and Agriculture (LULUCF)
- *CO_2 emissions standards for cars and vans*
- Carbon Border Adjustment Mechanism (CBAM)
- Renewable Energy Directive
- Energy Efficiency Directive
- Alternative Fuels Infrastructure Regulation (AFIR)
- ReFuel EU Aviation Regulation
- FuelEU Maritime Regulation

Transformation of European Car Industry: Burden or Chance?

As a special challenge for Europe's car industry is the part in the "Fit for 55" package which defines *"CO_2 emissions standards for cars and vans"*. Europe wants to slash emissions from cars - but doing so could endanger the industry's survival.

According to the European Commission[230], transport is responsible for one quarter of all greenhouse gas emissions in the EU, and road transport makes up 70% of that amount. Stricter CO_2 emission performance standards for new cars and vans will bring down those emissions, helping Europe reach climate neutrality by 2050. It will also help tackle air pollution across the Union and keep the automotive industry innovative and competitive with the rest of the world. As an intermediary step towards zero emissions, the new CO_2 standards will also require average emissions of new cars to come down by 55% by 2030, and new vans by 50% by 2030.

On 28 March 2023, the EU Member States adopted the European Commission's proposal to make all new cars and vans registered in Europe zero-emission from 2035. In 2035, new cars and vans must have zero emissions. The Commission praises this milestone as a key part of the European Green Deal. According to EU's long-term growth strategy to make Europe climate-

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[229] See the Factsheet "The European Green Deal" of October 2023: https://www.consilium.europa.eu/en/policies/green-deal/fit-for-55/

[230] See: https://climate.ec.europa.eu/news-your-voice/news/fit-55-eu-reaches-new-milestone-make-all-new-cars-and-vans-zero-emission-2035-2023-03-28_en

neutral by 2050 this should be crucial to Europe becoming the world's first climate neutral continent by 2050 and making the European Green Deal a reality. The respective legislation is the Regulation (EU) 2023/851 of the European Parliament and of the Council of 19 April 2023[231].

The European car industry, which has been in a serious crisis since 2024, partly because of cheap competition from electric vehicles from China and partly because of dwindling competitiveness due to high costs, is not very enthusiastic about the new hurdles created by the Green Deal. It is forcing them to make a rapid transformation from internal combustion engine vehicles (ICE cars) to electric vehicles in order to achieve non-zero emission mobility in the EU by 2035.

Many car makers in the EU see the goals of the Green Deal much more critical than before. Green policies are exacting an economic toll — and that's leading to growing political resistance. The overwhelming narrative is still that all-electric vehicles are the future, but getting to zero emissions faces increasing hurdles.

The future of Europe's car industry is a big deal - it accounts for 7 percent of the Continent's GDP and 6 percent of all jobs, or about 13.8 million people. Europe dominated the internal combustion engine (ICE) for more than a century, but the Continent has no lock on battery technology.

Carmakers are struggling to adapt to the new battery-powered ecosystem. Carmakers from Volkswagen to Mercedes-Benz, Renault and Stellantis are struggling to adapt to the new battery-powered ecosystem. There is also a new and powerful rival - China.

The next steps will take place in 2025 and 2035. The next milestones comes up in 2025, when carmakers must reduce their emissions by 15 percent compared to a baseline established in 2021. Brands that fail to meet the benchmark by the end of 2025 will be fined €95 per gram of CO_2 per kilometre emitted above the target for each non-compliant vehicle sold in the bloc.

Is the ICE car dead? While the 2035 ban prohibits the sale of new combustion cars, it has no bearing on ICEs already on the road. The average vehicle in the EU is 12 years old, and that means millions of ICE cars will keep spewing CO_2 long after 2035. And the 2035 ban itself is also looking shaky. Members of European Parliament are already pushing for exceptions to the ban, most notably for synthetic fuels. The EU member states have different stances in this case.

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[231] See: Official Journal of the European Union, L 110/5, 25.4.2023 (EUR-Lex: https://eur-lex.europa.eu/eli/reg/2023/851). On 9 October 2023, the European Commission welcomed the completion of key 'Fit for 55' legislation, putting EU on track to exceed 2030 targets (see: https://ec.europa.eu/commission/presscorner/detail/en/ip_23_4754).

Car power Germany backs e-fuels while Italy wants a loophole for biofuels - theoretically green ways of substituting for fossil fuels. That would allow new ICE cars to keep being sold after 2035. Commission President Ursula von der Leyen signalled already in her election manifesto that she backs an e-fuels exception.

Interactions among fiscal policies, climate, and macroeconomy

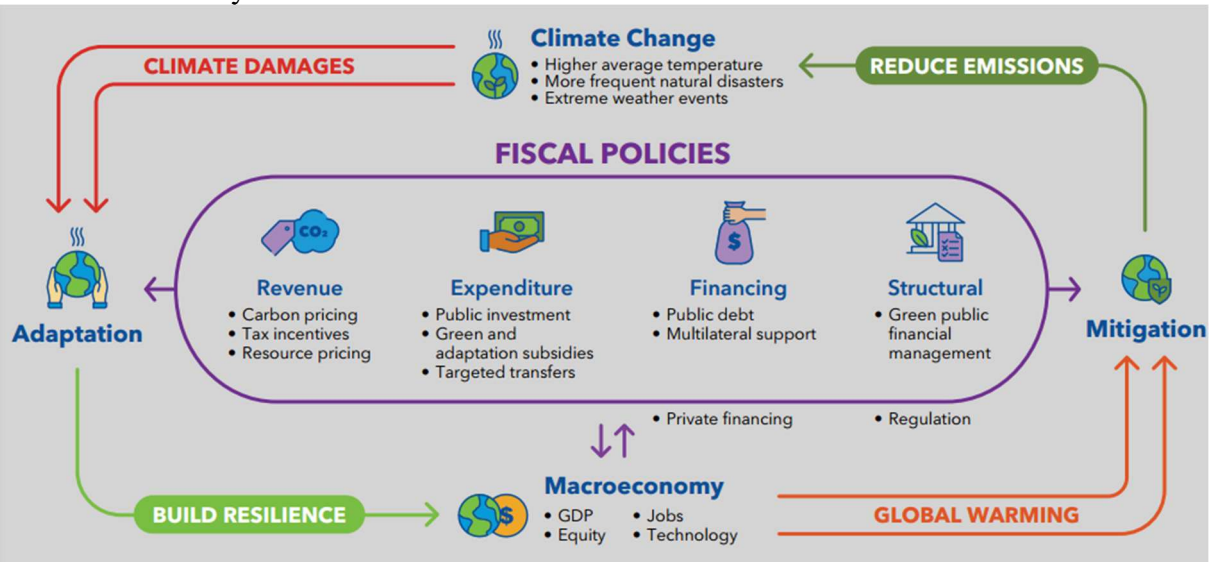
The IMF (2023B) made an interesting analysis on the fiscal policies in a warming world. Achieving temperature goals - e.g. the goal of the 2015 Paris Agreement to "hold the increase in the global average temperature to well below 2°C above preindustrial levels" and ideally to 1.5°C to avert catastrophic outcomes - will require a fundamental transformation of consumption, production, and investment by households, firms, and governments over the coming years. Investment and innovation in green sectors, processes, and products, along with behavioural changes, should decrease emissions but will come at the expense of existing brown activities, creating new opportunities and risks.

Fiscal policies will play a central role in such a transformation, including by creating a larger role for private sector financing. A key question is how governments can encourage firms and households to decarbonize, through spending, taxation, or regulation or a combination of the three (Figure 6.53). The impact on public finances hinges critically on the decarbonization actions by firms and households as well as their responses to policies. A push for energy security is prompting countries to pursue a faster, but likely more bumpy, green transition (that is, a transition to low carbon energy and building resilience against climate risks), raising concerns that firms may not be ready to face the resulting higher energy costs. At the same time, fiscal policies will play a key role in mitigating the cost of transition for households and firms and guiding private sector decisions. Many countries - notably low-income countries and small developing states - have multiple competing development needs alongside the imperative to adapt to climate change, suggesting scope for global cooperation. Fiscal interventions in all these areas will need to respect government budget constraints. Assessing the fiscal implications of policies to achieve climate objectives is particularly pertinent at this juncture, as many countries are facing elevated debt levels, high inflation, and weak growth prospects. Rising geopolitical fragmentation also poses risks to cross-border climate technology diffusion.

The impact of climate mitigation policies on the overall economy is important for policymakers (see IMF, 2023B, p. 20). Analysis on the effects of climate mitigation policies on GDP and other macroeconomic variables has a long history. Can such policies raise GDP while also reducing emissions (a so-called double dividend)? For instance, it has been argued that

while carbon pricing increases the cost of energy, which could dampen output in the near term, using carbon revenues to reduce other distortionary taxes on labour or capital could raise output. Such a positive effect could be more likely in countries with large informal sectors, high levels of local air pollution, or low energy efficiency. Studies have historically focused on model simulations, from which no consensus has emerged.

Figure 6.53: The Green Transition brings close interactions among fiscal policies, climate, and macroeconomy



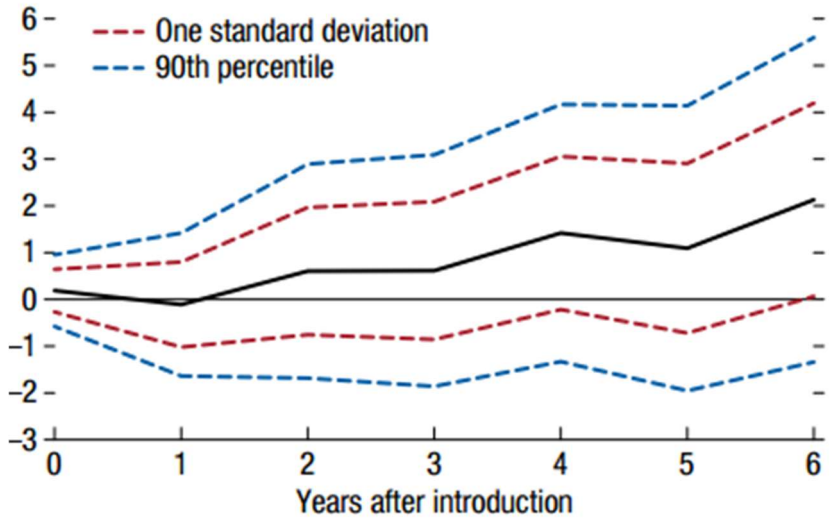
Source: IMF (2023B), p. 2

More recently, as an increasing number of countries have implemented climate mitigation policies, empirical evidence has been able to test the effect of carbon pricing on GDP. IMF (2023B, p. 20) shows the estimated impacts on GDP of climate mitigation policies based on a new meta-analysis of both ex-ante (simulation-based results prior to policy implementation) and ex post (empirical post-implementation) studies. Estimates vary across these studies owing to differences in revenue-recycling strategies, reform strength (such as tax rates and emission reductions achieved), country and sectoral coverage, and whether they consider broader endogenous behavioural responses on the part of households and firms. The simulation-based studies show large variation in effects on GDP, which are somewhat skewed toward negative (although small) impacts. By contrast, the small but growing number of empirical studies show a different pattern of mostly positive impacts.

Figure 6.54 provides further support for this idea, showing the estimated cumulative impact on GDP from a $40 carbon price covering 30 percent of national emissions in EU countries during 1990–2019. The estimates implicitly capture the impact from revenue recycling. While

the confidence intervals are wide, the point estimates suggest that the impact on GDP could be positive during the six years following the reform.

Figure 6.54: Impact of carbon prices at $40 a ton on real GDP for EU countries, 1990-2019 (Percentage points).



Source: IMF (2023B), p. 20 (Box 1.1: GDP impact of Climate Mitigation Policies

Decoupling economic growth from CO2 emissions

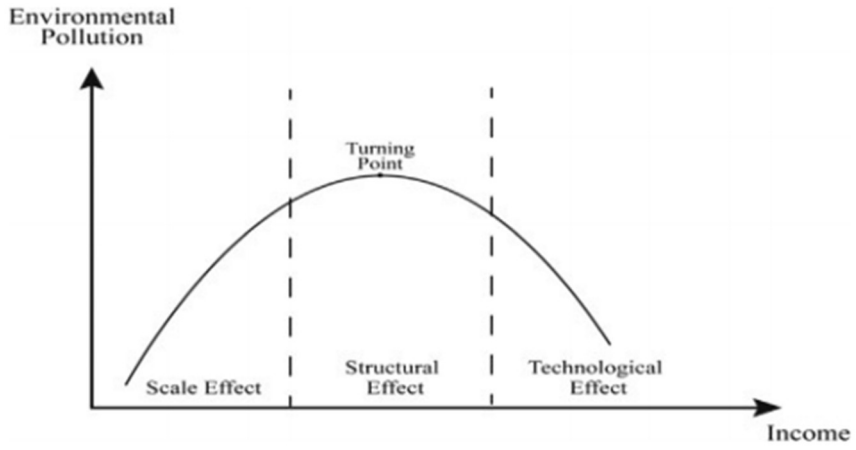
In the political debate, it is often argued that a "shrinkage" or "degrowth" of the economy, i.e. a reduction in economic activities, could be a possible (or even the only) way to reduce greenhouse gas emissions. However, such a strategy would not only have considerable social consequences; important elements of the social system would no longer be financially viable, and it is by no means certain that such a strategy would actually lead to a reduction in emissions. On the contrary, recent empirical literature shows that a decoupling of economic growth and emissions is not only possible, but that growth is a prerequisite for falling emissions. This thesis is supported by the so-called "Environmental Kuznets Curve" (EKC). The theory of the EKC postulates an inverse U-shaped relationship between emissions and GDP (per capita). This U-shaped EKC is estimated by relating environmental quality (CO_2 emissions) to GDP per capita and GDP per capita squared[232].

Since this relationship resembles the relationship between GDP per capita and income inequality produced by Kuznets (1955), Panayotou (1997) calls it Environmental Kuznets

[232] The U-shaped form of the EKC resembles the famous Laffer curve, a relationship between government revenues and the tax rate. Increasing the tax rates, first increase tax revenues but after a turning point, if tax rates are to high, tax revenues shrink (see: https://en.wikipedia.org/wiki/Laffer_curve).

Curve (EKC). Figure 6.55 shows three phases: (i) scale effect, (ii) structural effect, and (iii) technological effect (see Bilgili, et al., 2016, p. 839).

Figure 6.55: Environmental Kuznets Curve



Source: Bilgili et al. (2016), p. 839

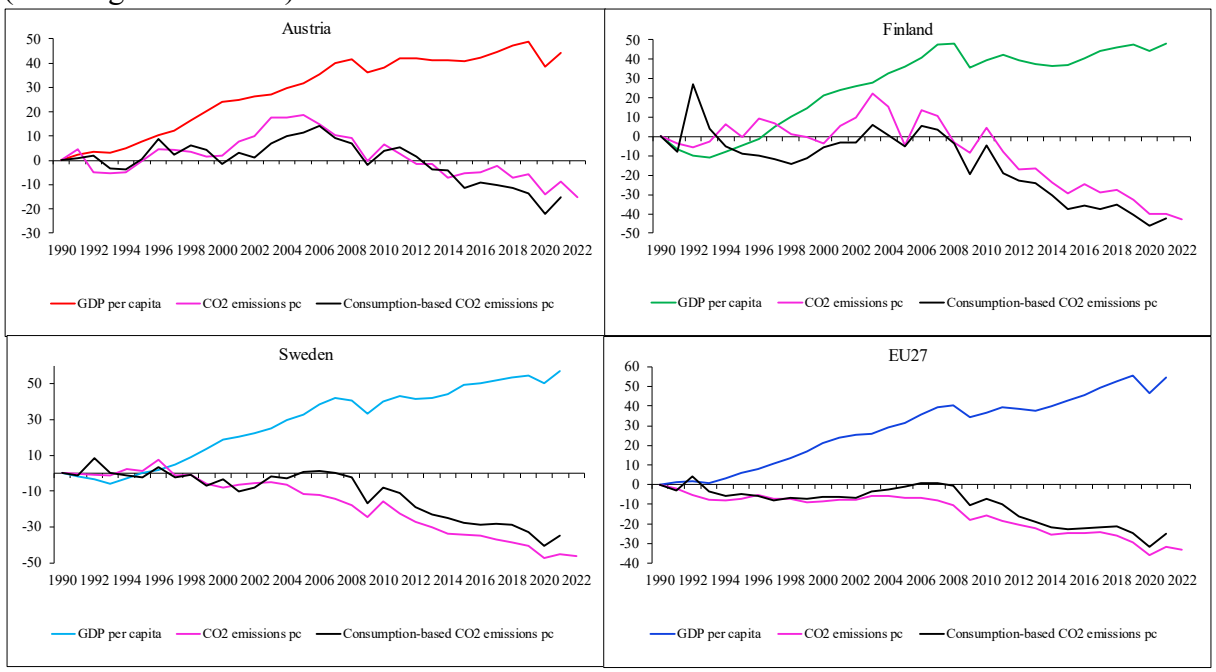
According to the scale effect, given the level of technology at low-income levels, more resources and inputs are employed to produce more commonalities at the beginning of economic development. Hence, more energy resources and production will induce more waste and pollutant emissions, and the level of environmental quality will get worse. If development increases, a structural transformation takes place (the structural effect), and economic growth will affect environment positively along with continuation of growth. In this phase a turning point is reached because of a transition from capital-intensive industrial sectors to service sectors. Using fewer natural resources in the structural phase, the environmental pollution will be less. In the last phase (technological effect), high-income countries can allocate more resources for research and development expenditures. These countries will replace old and dirty technologies with new and clean technologies, and energy efficiency increases. Consequently, environmental pollution initially increases and later decreases as a result of scale, structural and technological effect.

But the negative relationship between GDP per capita and CO_2 emission does not mean - as Köppl-Turyna and Steininger (2023) insinuate -, that more growth is needed to reduce CO_2 emissions. On the contrary, the reduction effect of CO_2 emissions results from the use of better technologies and greater energy efficiency.

Historically, CO_2 emissions have been strongly correlated with how much money we have. This is particularly true for low-to-middle incomes. The richer a country, the more CO_2 it emits. This is because one uses more energy – which often comes from burning fossil fuels.

But this relationship no longer holds true at higher incomes. Many countries have managed to achieve economic growth while *reducing* emissions. They have decoupled the two.

Figure 6.56: Decoupling economic growth from CO_2 emissions
(% change since 1990)



Consumption-based emissions include those from fossil fuels and industry. Land-use change emissions are not included.
Source: Our World in Data: https://ourworldindata.org/co2-gdp-decoupling

This is shown in the Figure 6.56, presenting the change in GDP per capita and annual CO_2 emissions per capita since 1990. One sees that the GDP per capita of the three countries and the EU27 has increased a lot over the last 30 years while their emissions have fallen. In Finland, Sweden and in the EU27, CO_2 has fallen more than in Austria.

Köppl-Turyna and Steininger (2023), however, show that the growth rates required for complete decarbonization would have to be very high. In order to achieve the target emissions by 41 percent by 2040, an annual real GDP growth rate of 4.3 percent would be necessary. To achieve climate neutrality in 2040, an annual real growth rate of 7.4 percent would be required. This implies that further measures are necessary to achieve the ambitious goals of decarbonization of the EU.

EU sharpens GHG emission targets

On 6 February 2024, the European Commission has published a detailed impact assessment on possible pathways to reach the agreed goal of making the European Union climate neutral by 2050[233]. Based on this impact assessment, the Commission recommends – as a tightening of the existing targets of the "Fit for 55" program which should reduce GHG emissions by at least 50% by 2030 - a 90% net greenhouse gas emissions reduction by 2040 **c**ompared to 1990 levels, launching a discussion with all stakeholders; a legislative proposal will be made by the next Commission, after the European elections**,** and agreed with the European Parliament and Member States as required under the EU Climate Law. This recommendation is in line with the advice of the European Scientific Advisory Board on Climate Change (ESABCC) and the EU's commitments under the Paris Agreement.

This communication also sets out a number of enabling policy conditions which are necessary to achieve the 90% target**.** They include the full implementation of the agreed 2030 framework, ensuring the competitiveness of the European industry, a greater focus on a just transition those leaves no one behind, a level playing field with international partners, and a strategic dialogue on the post-2030 framework, including with industry and the agricultural sector. The outcome of COP28 in Dubai (30.11. to 12.12.2023) shows that the rest of the world is moving in the same direction. The EU has been leading the way on international climate action, and should stay the course, creating opportunities for European industry to thrive in new global markets for clean technology.

Achieving a 90% emissions reduction by 2040 will require a number of enabling conditions to be met. The starting point is the full implementation of the existing legislation to reduce emissions by at least 55% by 2030**.** The ongoing update of the draft National Energy and Climate Plans (NECPs) is a key element in monitoring progress and the Commission is engaging with Member States, industry and social partners to facilitate the necessary action.

6.8.2 NECPs

The national energy and climate plans (NECPs[234]) were introduced by the Regulation on the governance of the energy union and climate action (EU)2018/1999, agreed as part of the Clean energy for all Europeans package which was adopted in 2019.

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[233] See: https://ec.europa.eu/commission/presscorner/detail/en/ip_24_588

[234] See: https://commission.europa.eu/energy-climate-change-environment/implementation-eu-countries/energy-and-climate-governance-and-reporting/national-energy-and-climate-plans_en

The national plans outline how the EU countries intend to address the 5 dimensions of the energy union:

- decarbonisation
- energy efficiency
- energy security
- internal energy market
- research, innovation and competitiveness.

This approach requires a coordination of purpose across all government departments and it provides a level of planning that will ease public and private investment.

Under the governance regulation Member States had to submit their draft NECPs for the period 2021-2030 to the Commission by 31 December 2018. These were analysed by the Commission with an overall assessment and country-specific recommendations published in June 2019. Taking these recommendations into account, Member States were then required to submit their final NECPs by 31 December 2019.

On 17 September 2020, the Commission published a detailed EU-wide assessment of the final NECPs. As a follow-up, and as part of the 2020 energy union report, the Commission published individual assessments of each of the national plans for further guidance.

Each country must submit a progress report every 2 years, according to the structure, format, technical details and process set out in the Implementing Regulation. The Commission will, as part of the state of the energy union report, monitor the EU's progress as a whole towards achieving these targets.

To better develop and implement the plans, the Member States were required to consult citizens, businesses and regional authorities in the drafting and finalisation process.

The governance regulation also required Member States to submit by the start of 2020 national long term strategies looking forward to 2050.

By 30 June 2023, Member States were due to submit their draft updated NECPs in line with article 14 of the Governance Regulation. The Commission has published guidance to Member States on the process and scope of this update.

The NECP of Austria, Finland and Sweden, first delivered in 2018 and 2019 and updated in 2023, can be found on the website of the European Commission under “National Energy and Climate plans 2021-2030”[235].

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[235] See: https://commission.europa.eu/energy-climate-change-environment/implementation-eu-countries/energy-and-climate-governance-and-reporting/national-energy-and-climate-plans_en#national-energy-and-climate-plans-2021-2030

Austria delivered its updated NECP in November 2023. On 14 August 2024, the Austrian federal government (coalition between the ÖVP and the Greens) agreed on a Draft updated NECP 2021-2030 and sent it to the European Commission[236]. The finally updated Austrian NECP 2021-2030 has been submitted on 20 December 2024[237].

6.8.3 Different energy mix

The International Energy Agency (IEA) in Paris publishes all data on energy supply and demand as well as on greenhouse gas emissions. In the following we report on the different energy supply mix in Austria, Finland, and Sweden[238].

Austria

Austria's energy mix consists primarily of oil, and natural gas. The share of coal is declining, those of hydro and natural gas is increasing (see Figure 6.57). Austria produces no nuclear energy. Between 1972 and 1977, the Zwentendorf nuclear power plant was built with a planned capacity of 730 MW. The 1976 energy plan envisaged the construction of a total of three nuclear power plants with a capacity of 3,300 MW in Austria. A referendum held on 5 November 1978 prevented the commissioning of the already completed Zwentendorf nuclear power plant with a wafer-thin majority of 50.47% against operation.

Since December 5, 1978, the Nuclear Non-Proliferation Act prohibited the use of nuclear energy in Austria. Subsequent efforts to commission Zwentendorf were discontinued after the Chernobyl reactor disaster (April 26, 1986); in 1999, the Nuclear Non-Commissioning Act was elevated to constitutional status. Since then, it has been known as the Federal Constitutional Act for a Nuclear-Free Austria.

Austria's government is committed to achieving climate neutrality no later than 2040. This will require Austria to substantially enhance de-carbonisation efforts across all energy sectors.

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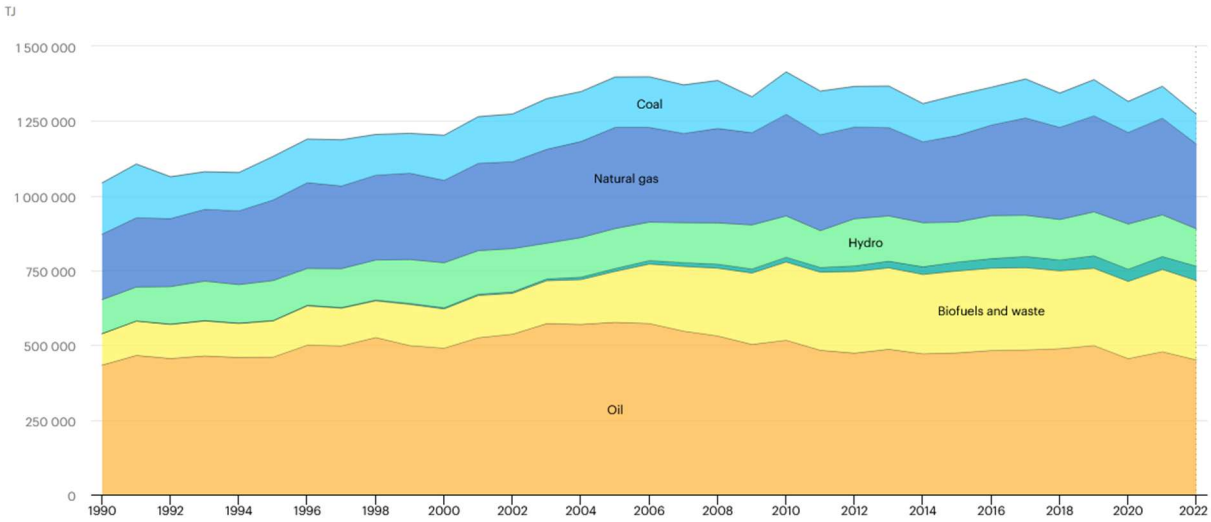
[236] See: https://commission.europa.eu/document/download/7702dbb6-8677-42ad-8578-56aa5dcdcc90_en?filename=NEKP_Aktualisierung_2023_2024_final_EN.pdf; the European Commissions' website on "National energy and climate plans 2021-2030" is: https://commission.europa.eu/energy-climate-change-environment/implementation-eu-countries/energy-and-climate-governance-and-reporting/national-energy-and-climate-plans_en

[237] See: https://commission.europa.eu/document/download/368783a6-2986-46e3-8a93-38beefc3872f_en?filename=AT%20%E2%80%93%20FINAL%20UPDATED%20NECP%202021-2030%20%28English%29.pdf

[238] A comprehensive overview of the energy situation in EU member states, gives the latest statistics of Eurostat on the energy in the EU 2023 edition: https://ec.europa.eu/eurostat/web/interactive-publications/energy-2023#renewable-energy

Figure 6.57: Austria: Total energy supply (TES) by source: 1990-2022

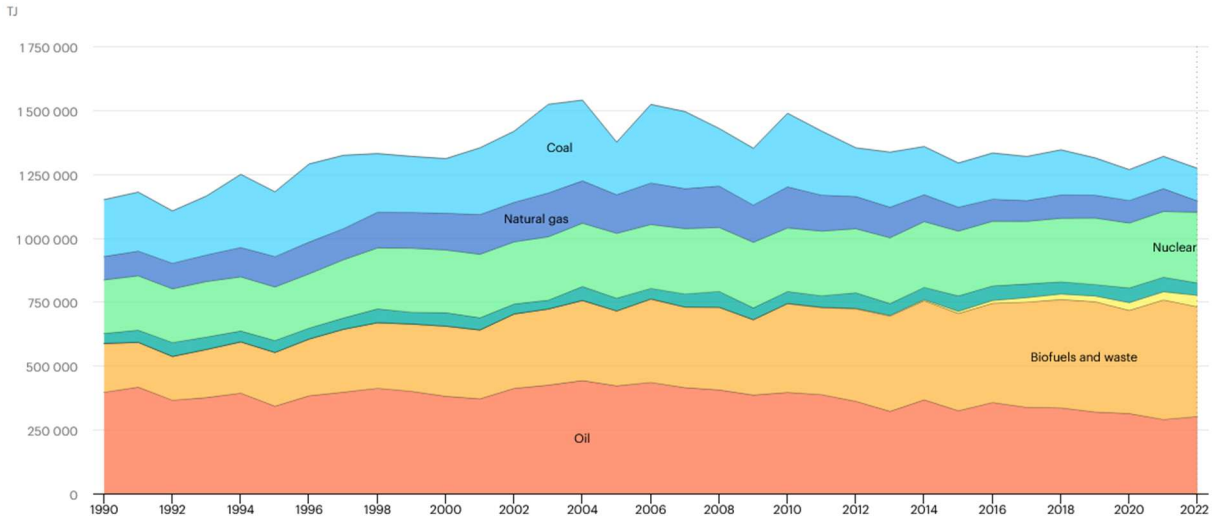


Source: IEA: https://www.iea.org/countries/austria

Finland

Finland is fast-tracking the decarbonisation of its economy with a 2035 net zero target. The country has made good progress, mostly in power generation thanks to large shares of nuclear, hydro and bioenergy. Fossil fuel use has decreased greatly in the past years. The cold climate, long distances and energy-intensive industries condition the country's carbon-neutral energy transition.

Figure 6.58: Finland: Total energy supply (TES) by source: 1990-2022



Source: IEA: https://www.iea.org/countries/finland

Transport and industry are the key sectors for Finland to make further progress on meeting its ambitious national climate targets. The 2035 climate neutrality target will require strong transformations and technological advancements in energy markets. Finland ranks among the

leading IEA countries in public and private spending on energy research, development and demonstration. And it is a global leader in second-generation biofuels produced from wood, notably biodiesel.

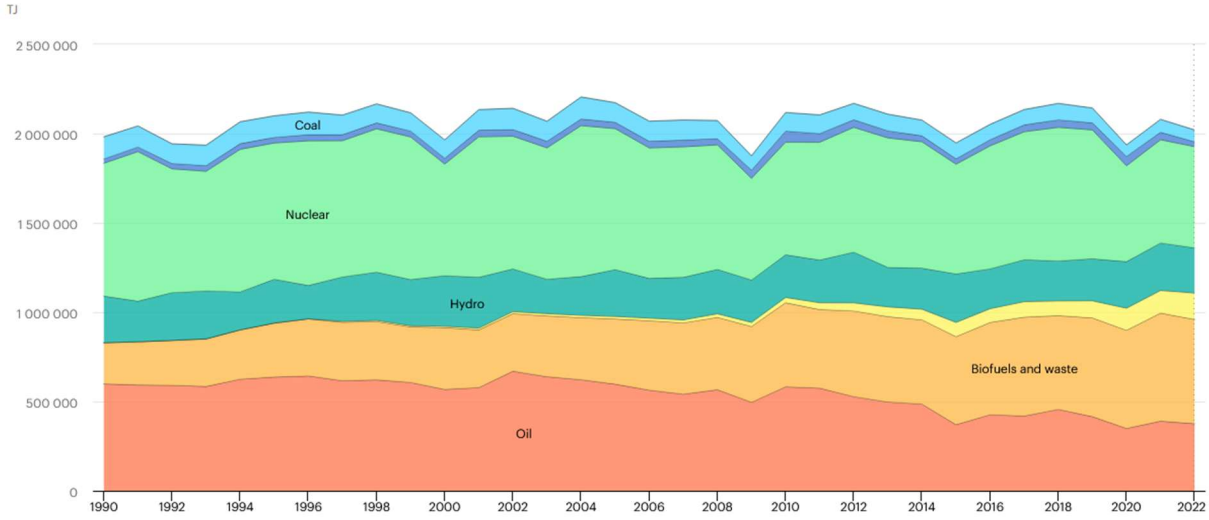
As an Arctic country, Finland faces rapid climate changes, with potential consequences for, among others, forest growth and the occurrence and strength of winter storms. A range of measures have been put in place to strengthen the resilience of the electricity distribution networks.

In the energy mix of Finland, the share of oil and coal is declining. Biofuels and waste increase, whereas nuclear remains at a high level (see Figure 6.58).

Sweden

Sweden strongly depends on nuclear power. Also in the future, Sweden will fully expand the nuclear power capacity to supply electricity (see: Neue Zürcher Zeitung, 14 August 2023, p. 4). Sweden who has decided to phase out nuclear power in the 1980s has changed its mind. The centre-right government has now decided to abandon this path and is planning new nuclear power plants in the future. Oil supply to produce energy is declining in Sweden (see Figure 6.59).

Figure 6.59: Sweden: Total energy supply (TES) by source: 1990-2022



Source: IEA: https://www.iea.org/countries/sweden

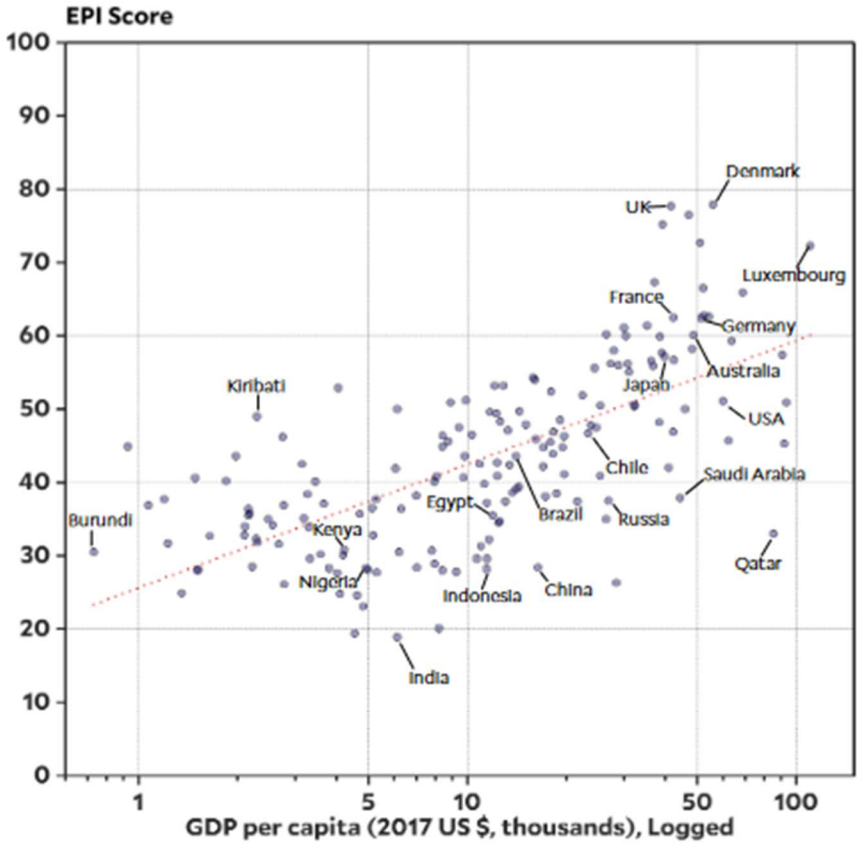
Sweden is a global leader in decarbonisation and has targets to cut greenhouse gas emissions 59% by 2030 compared with 2005, and to have a net-zero carbon economy by 2045. Sweden was the first country to introduce carbon pricing and has the highest carbon price in the world, which has proven effective at driving decarbonisation.

6.8.4 Climate change performance

The Yale Center of Environmental Law & Policy at the Yale University (Wolf et al., 2022) published the *2022 Environmental Performance Index* (EPI)with a ranking of countries according to their performance on sustainability[239]. The EPI is a data-driven summary of the state of sustainability around the world. Using 40 performance indicators across 11 issues categories, the EPI ranks 180 countries on their progress toward improving environmental health, protecting ecosystem vitality, and mitigating climate change.

There are leaders and laggards. High-scoring countries exhibit longstanding and continuing investments in policies that protect environmental health, preserve biodiversity and habitat, conserve natural resources, and decouple greenhouse gas emissions from economic growth. Denmark tops the 2022 rankings - an achievement rooted in strong performance across nearly all issues tracked by the EPI, with notable leadership in efforts to promote a clean energy future and sustainable agriculture.

Figure 6.60: Correlation of EPI with country wealth (GDP per capita

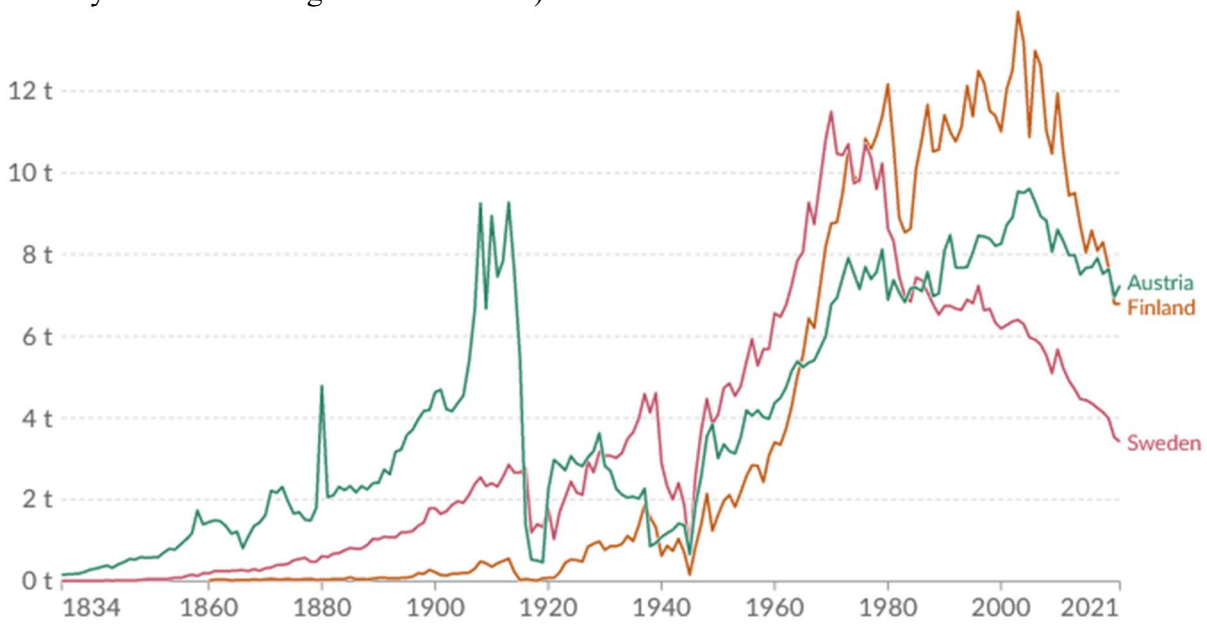


Source: Wolf et al (2022), p. X

[239] The overall results of the EPI_2022 rankings and the rankings according to the 40 sub-categories can be found on the EPI website: https://epi.yale.edu/epi-results/2022/component/epi

All three countries rank very high in EPI 2022. The United Kingdom and Finland place 2nd and 3rd, both earning high scores for slashing greenhouse gas emissions in recent years. Sweden place 5th, and Austria 8th rank.

Figure 6.61: Per capita CO_2 emissions (Carbon dioxide (CO_2) emissions from fossil fuels and industry. Land use change is not included)



Source: Our World in Data: https://ourworldindata.org/co2/country/sweden?country=~SWE

Lagging its peers, the United States places 20th out of 22 wealthy democracies in the Global West and 43rd overall. This relatively low ranking reflects the rollback of environmental protections during the Trump Administration. In particular, its withdrawal from the Paris Climate Agreement and weakened methane emissions rules meant the United States lost precious time to mitigate climate change while many of its peers in the developed world enacted policies to significantly reduce their greenhouse gas emissions.

Figure 6.60 shows that EPI scores are correlated with country wealth (measured with GDP per capita), although some countries outperform their economic peers while others lag. The three countries, Austria, Finland, and Sweden are located at the top right corner.

Another indicator that reflects the development of climate change is the Climate Change Performance Index (CCPI[240]), published by Germanwatch. It is an instrument to enable transparency in national and international climate politics. The CCPI uses a standardized framework to compare the climate performance of 59 countries and the EU, which together account for 92% of global greenhouse gas emissions. The climate protection performance is

[240] See: https://ccpi.org/

assessed in four categories: GHG Emissions, Renewable Energy, Energy Use and Climate Policy. In the CCPI 2023, Sweden ranks at place five, Finland at 15 and Austria only at 32.

In CCPI 2025 (published on November 2024), Sweden ranks at place eleven, Austria at place 23, and Finland at 37.

Whereas Austria and Finland continued to emit CO_2 until 2000, Sweden already began to reduce CO_2 since the eighties (see Figure 6.61). This is not least the consequence of its Energy production mix (high share of nuclear energy) and the early introduction of a CO_2 tax.

Austria

Austria is a laggard in the pricing of CO_2 emissions. Since October 1, 2022, Austria has had a CO_2 pricing system like the one in Germany, which is designed as a national certificate trading system for greenhouse gas emissions. It applies to the marketing of fossil fuels and heating materials such as motor gasoline, diesel fuel, natural gas or coal. To avoid a double burden, energy sources are exempt for which EU emission certificates must already be purchased due to their use.

As in Germany, fixed prices apply until 2025, but a sharp rise or fall in the fossil energy price index in one year leads to an automatic reduction or increase in the price increase for the following year by 50%. For example, for 2023, the price was increased by only €2.50 instead of €5 because the energy price index had increased by more than 12.5% in the first three quarters of 2022.

A market mechanism yet to be worked out is to come into effect from 2026. A transition to an expanded EU emission allowance trading system by then is also being considered.

The additional financial burden for natural persons will be compensated as a lump sum in the form of an annual "climate bonus". This consists of a fixed base amount and a regional compensation, which is staggered on the basis of criteria such as the connection to public transport.

According to the provisional assessment of CCPI 2024[241], Austria's rank is unchanged, at 32nd in the current CCPI. The country remains among the medium performers. Austria receives a medium in the GHG Emissions, Renewable Energy, and Climate Policy categories, but its performance in energy use rates as very low.

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[241] See: https://ccpi.org/country/aut/

The country announced 2040 as its net-zero target year. The CCPI country experts welcome this target, but they note a binding climate law and action plan for implementing that goal are missing.

Finland

Finland introduced a carbon tax in 1990. According to the OECD[242], in 2021, explicit carbon prices in Finland consist of emissions trading system (ETS) permit prices and carbon taxes, which cover 76.8% of greenhouse gas (GHG) emissions in CO_2. In total, 81.6% of GHG emissions in Finland are subject to a positive Net Effective Carbon Rate (ECR) in 2021, down from 82.5% in 2018. Fuel excise taxes, an implicit form of carbon pricing, cover 43.3% of emissions in 2021, essentially unchanged from 43.1% in 2018. Explicit carbon prices have increased to an average of EUR 50.4 per tonne of CO2, up by EUR 19.15 (61.3%) since 2018. In 2021, fuel excise taxes amounted to EUR 35.95 on average, down by EUR 1.61 (4.3%) relative to 2018.

According to the provisional assessment of CCPI 2024[243], Finland is ranked 26th in this year's CCPI and among the overall medium-performing countries (down from rank 26 in the CCPI 2023).

The country receives mixed ratings, with a medium in GHG Emissions and Climate Policy, high in renewable energy, and very low in energy use. In Finland's Climate Act, the country targets net zero in 2035. While the country has a high share of renewable energy, it also has relatively high energy use.

Sweden

In 1991, a CO_2 tax was introduced in Sweden[244]. With the introduction of this tax, the energy taxes that had been levied for some times were halved. The tax revenue flows into the general state budget. The tax rate increased from an initial 25 euros per ton of $CO_2$to 118 euros in 2022. Sweden has by far the highest implicit tax rate on CO_2 of all OECD countries.

Different sectors of the economy are burdened very differently by CO_2 and energy taxes. Private consumption, wholesale and retail trade, the public sector and services are particularly heavily taxed. Various industries that compete internationally initially paid significantly lower

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[242] See: https://www.oecd.org/tax/tax-policy/carbon-pricing-finland.pdf
[243] See: https://ccpi.org/country/fin/
[244] See: https://de.wikipedia.org/wiki/CO2-Steuer#Andere; OECD (2022); https://taxfoundation.org/data/all/eu/carbon-taxes-in-europe-2023/

tax rates, about 21% of the full CO_2 tax rate in 2010. In 2018, however, they then had to pay the full tax rate. Industries participating in EU emissions trading are exempt from the tax. In addition, a distance-based air traffic tax (ticket tax) was introduced in 2018 on all flights departing from Swedish airports.

Between 1990 and 2008, greenhouse gas emissions fell by just under 12%. The extent to which this can be attributed to the CO_2 tax or other instruments, such as emissions trading and energy taxes, is difficult to determine. Estimates from 2011 range from 0.2% to 3.5%. During the same period, gross national product doubled. In the transport sector, the tax was probably particularly effective: emissions fell by about 11% over the 1990-2005 period, and most of this decline may have been due to the CO_2 tax. Sweden is seen as an example of how greenhouse gas emission reductions and economic growth can be reconciled.

According to the provisional assessment of CCPI 2024[245], Sweden falls five ranks and is now ranked 10th in the CCPI. The country is among the high performers.

Sweden rates high in GHG Emissions and Renewable Energy but it falls precipitously in Climate Policy, down 24 ranks to 37th, with a low rating. And in energy use, it rates very low.

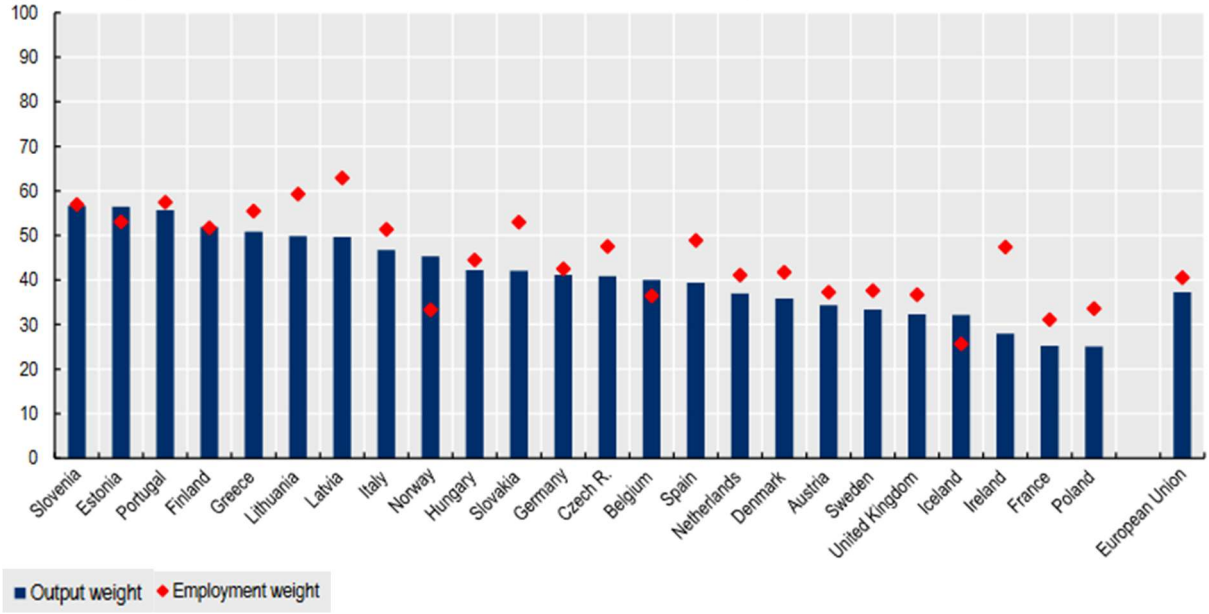
Sweden has ambitious national climate targets; the 2030 target is to cut emissions by 63% vs. 1990 levels. The country plans to have net-zero emissions in 2045.

An OECD study (Marchese and Medus, 2023), assesses the GHG emissions of Small and Medium-sized Enterprises (SME). Figure 6.62 shows the SME share of GHG emissions in the business sector across OECD European countries and is affected by the size and structural composition of the domestic small business segment. Small economies with few large companies and/or economies where SMEs play a relatively large role in emission-intensive industries will tend to show higher proportions of SMEs' GHG emissions (see Finland).

However, there are a few exceptions, which are generally driven by sector specificities. The most relevant case is water transport in Norway, which accounts for almost 30% of total business driven GHG emissions in the country and in which SMEs account for 42% of employment and 72.5% of value added, thus contributing to Norway's higher estimates of SMEs' carbon emissions in the business sector with employment weights compared to output weights.

[245] See: https://ccpi.org/country/swe/

Figure 6.62: SME share of GHG emissions in the business sector, 2018
(Percentage of total GHG emissions in the business sector)



Source: Marchese and Medus (2023), p. 17.

Looking at the range of values for this indicator, based on the output weight, the SME share of GHG emissions in the business sector varies between 57% in Slovenia and 25% in Poland, with the aggregate EU level standing at 37%. Based on the employment weight, the range is between 63% (Latvia) and 26% (Iceland), with the EU aggregate level standing at 40.5%, 3.5 percentage points higher than in the first case. Austria and Sweden range with around 35% slightly below the EU aggregate level.

6.8.5 Macroeconomic impact of climate change

Oxford Economics[246], a leader in model-based global economic forecasting and econometric analysis, has quantified the macroeconomic impacts of six climate scenarios against a stated policies baseline. Oxford Economic uses its Global Economic Model to generate the scenarios. It is a hybrid structural model which connects the economy, the energy system, and the environment.

[246] See: https://www.oxfordeconomics.com/

Table 6.16: Assumptions of six climate change scenarios

Scenarios	Assumptions										
	Transition begins in	*Nature of transition*	*Carbon price shock (World mean real shadow price, 2050)*	*Recycling (% of available revenue)*	*Cumulative Green Energy Investment (tn)*	*Debt-funded government investment*	*Innovation*	*Mean global warming 2050*	*Mean global warming 2100*	*Carbon capture*	*Physical risk*
Baseline	Already Underway	Smooth	$54	-	$86	-	Low	1.9°C	3.1°C	None	Medium
Net Zero Transformation	2023 Q4	Smooth	$380	100%	$129	Yes	High	1.5°C	1.5°C	Medium	Low
Net Zero	2023 Q4	Smooth	$726	50%	$129	No	Medium	1.5°C	1.5°C	Medium	Low
Delayed Transition	2030 Q1	Disruptive	$541	50%	$129	No	Medium	1.7°C	1.7°C	Low	Low
Sustainable Development	2023 Q4	Uncoordinated	$649	50%	$118	No	Medium	1.7°C	1.8°C	Low	Low
Climate Catastrophe (subdued variation)	2023 Q4	Incomplete	$54	-	$65	-	Low	2.1°C	3.5°C	None	Very High
Climate Catastrophe	2023 Q4	Incomplete	$54	-	$43	-	Low	2.2°C	5.0°C	None	Extreme

Source: Oxford Economics

The six scenarios are (see Table 6.16):

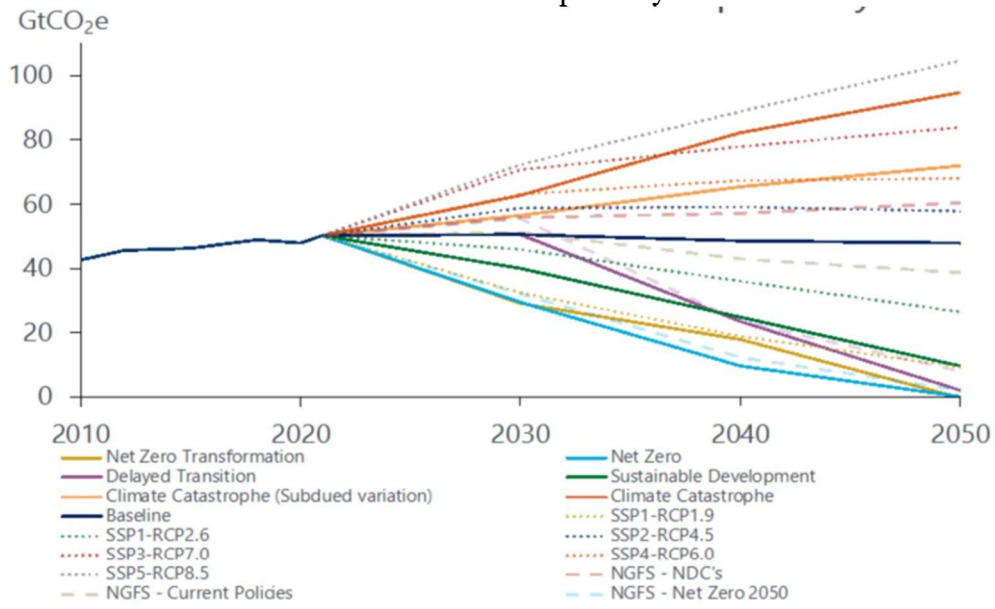
- *Baseline*: Stated policies baseline reflects commitments that are backed up by policy measures and believed to be sufficiently detailed.
- *Net Zero:* Net zero carbon emissions are achieved in 2050 through early policy action, technological advances, and global coordination. Global warming is limited to around 1.5^0C. The impact on the economy is modest, with higher investment helping to offset carbon taxes.
- *Net Zero Transformation:* The transition to net zero eliminates prevailing market failures and inefficiencies. As a result, the global economy moves up to a new equilibrium growth rate with a shock that reverses much of the stagnation one has seen over recent years.
- *Delayed Transition:* Climate policies to limit global warming are pursued relatively late. Efforts to reach ambitious climate goals therefore require stronger policy action. Difficulties in shifting towards renewables and aggressive carbon taxes create substantial inflationary pressure and require greater energy efficiency.
- *Sustainable Development:* The collective goal of a "well below 2^0C" pathway is achieved, with global warming limited to around 1.7^0C by 2050. The policy and climate finance burdens fall mostly on advanced economies, countries with credible net zero pledges, and those historically responsible for the largest share of global emissions (i.e., China and Russia).
- *Climate Catastrophe.* Governments fail to meet their policy pledges and the concentration of greenhouse gases in the atmosphere intensifies. Global temperatures warm by 2.2^0C by

2050, resulting in severe physical damages that accelerate over time. By 2100, global warming could approach 5^0C, leading to economic annihilation.

- *Climate Catastrophe (Subdued Variation):* This subdued variation of the Climate Catastrophe scenario features similar core assumptions, but the fossil fuel intensity is halved, and similarly the share of renewables is reduced by less than in Climate Catastrophe. Global temperatures warm by 2.1^0C by 2050, resulting in severe physical damages that accelerate over time. However, this is less severe than if fuel intensities were allowed to increase and renewables plateaued.

Oxford Economics compare the net CO_2 emission pathways of its own six scenarios with the SSP (Shared Socioeconomic Pathways Scenarios[247]) and those of NGFS (Network for Greening the Financial System[248] (see Figure 6.63). The six Oxford Economics scenarios coincide with those of SSP and NGFS. The significance funnel goes from the extreme scenarios net zero to climate catastrophe.

Figure 6.63: Economic scenarios and net emission pathways

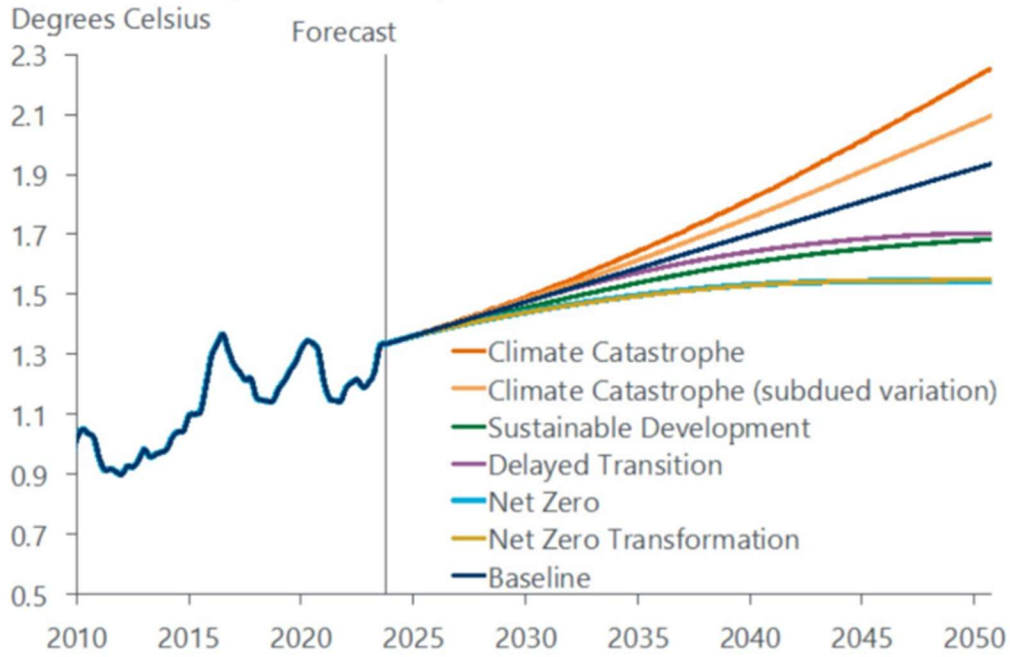


NGFS = Network for Greening the Financial System
SSP = Shared Socioeconomic Pathways Scenarios
Source: Oxford Economics/Haver Analytics/IEA

[247] The Shared Socioeconomic Pathways (SSPs) are climate change scenarios of projected socioeconomic global changes up to 2100 as defined in the IPCC (Intergovernmental Panel on Climate Change) Sixth Assessment Report on climate change in 2023 (see: https://www.ipcc.ch/; and https://en.wikipedia.org/wiki/Shared_Socioeconomic_Pathways).

[248] The Network for Greening the Financial System (NGFS) is a group of central banks and supervisors committed to sharing best practices, contributing to the development of climate– and environment–related risk management in the financial sector and mobilising mainstream finance to support the transition toward a sustainable economy (https://www.ngfs.net/ngfs-scenarios-portal/about/)

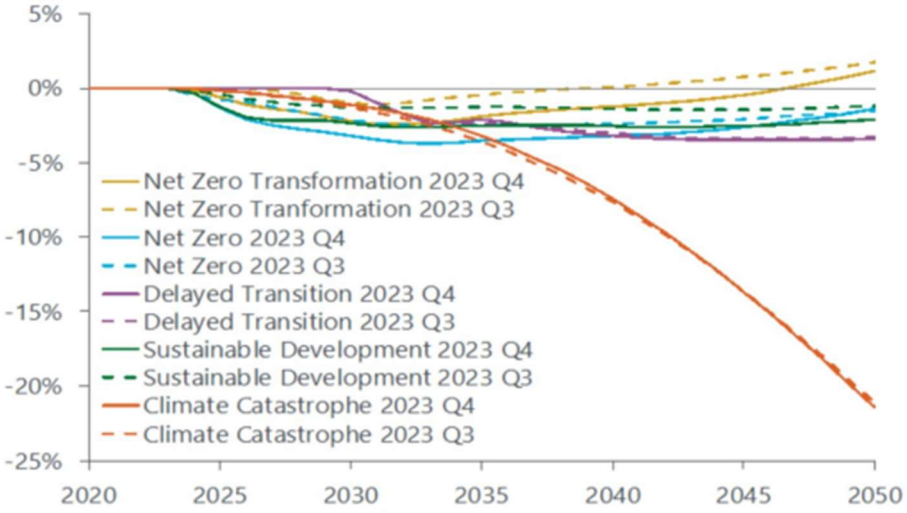
Figure 6.64: World Temperature anomaly



Source: Oxford Economics/Haver Analytics

Only in the net zero scenario, the goal of the Paris Climate Accord as of 2015 to keep the rise in mean global temperature to "well below 2.0^0C" above pre-industrial levels, preferably limit the increase to 1.5^0C. In the climate catastrophe scenario, global temperatures warm by 2.2^0C by 2050 (see Figure 6.64).

Figure 6.65: World: GDP, real (% differences from baseline)

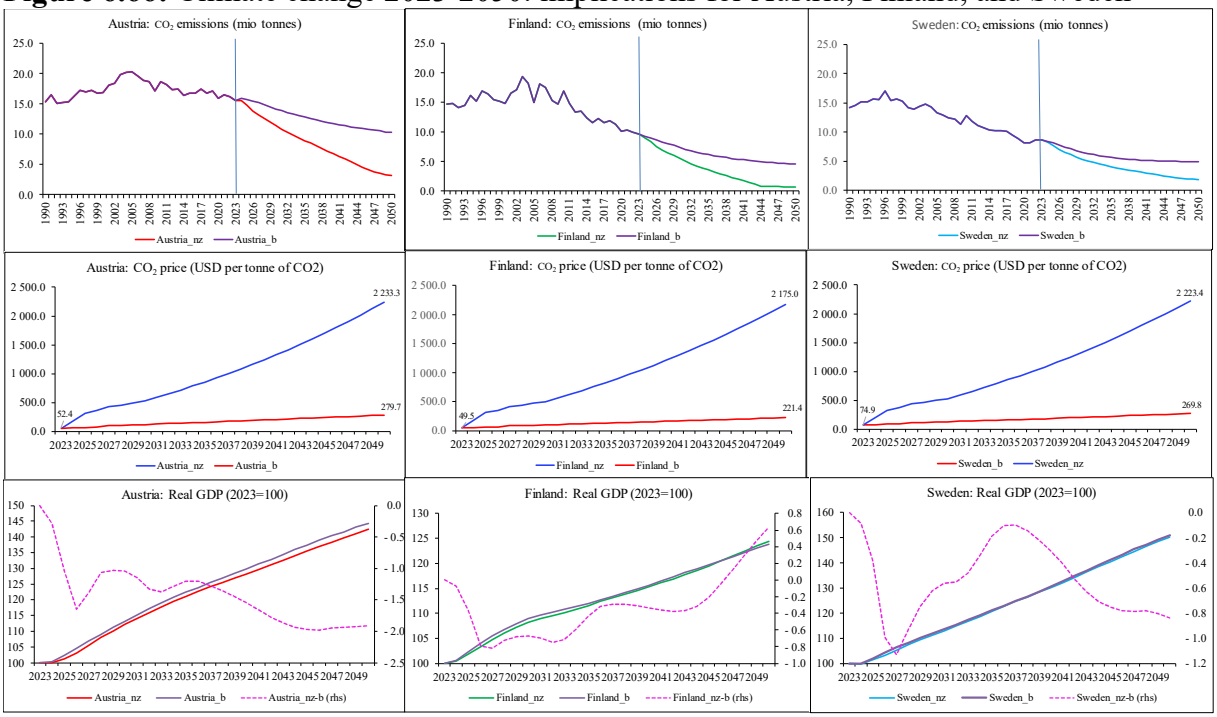


Source: Oxford Economics/Haver Analytics

With the Climate Change Module Oxford Economics simulate the six scenarios with the Global Model. The macroeconomic outcome (the development of real GDP) can be seen from

Figure 6.65. In the net zero scenario real GDP initially falls away from baseline levels as inflation eats into real incomes. In the latter half of the net zero scenario – once a significant portion of the required transition has occurred and the price channel starts to fade – one sees the productivity benefits of higher investment and lower temperatures materialize. The other scenarios – most spectacular the climate catastrophe scenario – all lead to a long-run decline in real GDP. In the climate catastrophe scenario, real GDP would be below baseline in 2050 by 23%, and by 2100 by over 60%.

Figure 6.66: Climate change 2023-2050: implications for Austria, Finland, and Sweden



Scenarios: nz = Net Zero (no CO2 emissions in 2050); b = baseline; nz-b = difference of real GDP indices between nz and b in ppts; rhs = right-hand side
Source: Oxford Economics

The Global Model of Oxford Economics with the Climate Change Modules allows not only simulations for the world, but also for 156 countries. Therefore, we analyse the global consequences of the six scenarios of Oxford Economics for the three countries, *Austria, Finland*, and *Sweden*. In this case we limit the analysis only to the net zero scenario compared to the baseline scenario (see Figure 6.66). To reach the net zero goal by 2050 the CO_2 price must increase dramatically, to 2233 USD per tonne of CO_2, in Finland to 2175, and in Sweden to 2234. As Austria starts with a higher level of CO_2 emissions in 2023, the impact on real GDP is more drastic than in the case of Finland and Sweden. By 2050, real GDP in Austria would be lower by around 2 ppts compared to baseline. In Finland, after an initial decline by around 0.8 ppts, at the end in 2050 real GDP in the net zero scenario would lead to an increase of 0.6 ppts

compared to baseline. The development in Sweden lies somewhere in between the other two countries. By 2050 real GDP would be down by 0.8 ppts below baseline; in the meantime, one sees fluctuations.

6.9 Aspects of regional cohesion

The three countries are differently located – Finland and Sweden in the Nordic borders of the EU, Austria in the middle of the EU. Their topology is also quite specific and therefore the population density varies.

Austria

Austria, formally the Republic of Austria**,** is a landlocked country in Central Europe, lying in the Eastern Alps[249]. It is a federation of nine federal states, one of which is the capital, Vienna, the most populous city and federal state. Austria is bordered by Germany to the northwest, the Czech Republic to the north, Slovakia to the northeast, Hungary to the east, Slovenia and Italy to the south, and Switzerland and Liechtenstein to the west. The country occupies an area of 83,879 km^2 (32,386 square miles) and has a population of around 9,105 million. The population density is 107.6/km^2 (278.7/square miles). The official language is German, the national language is Austrian German.

Austria is a largely mountainous country because of its location in the Alps. The Central Eastern Alps, Northern Limestone Alps, and Southern Limestone Alps are all partly in Austria. Of the total area of Austria (83,871 km^2 or 32,383 square miles), only about a quarter can be considered low lying, and only 32% of the country is below 500 metres (1,640 ft). The Alps of western Austria give way somewhat into lowlands and plains in the eastern part of the country. Austria lies between latitudes 46° and 49° N, and longitudes 9° and 18° E.

The greater part of Austria lies in the cool/temperate climate zone, where humid westerly winds predominate. With nearly three-quarters of the country dominated by the Alps, the alpine climate is predominant. In the east - in the Pannonian Plain and along the Danube valley - the climate shows continental features with less rain than the alpine areas. Although Austria is cold in the winter (-10 to 0º C), summer temperatures can be relatively high, with average temperatures in the mid-20s and a highest temperature of 40.5º C (105º F) in August 2013.

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[249] See: https://en.wikipedia.org/wiki/Austria

Finland

Finland, officially the Republic of Finland, is a Nordic country in Northern Europe. It borders Sweden to the northwest, Norway to the north, and Russia to the east, with the Gulf of Bothnia to the west and the Gulf of Finland to the south, opposite Estonia[250]. Finland covers an area of 338,145 square kilometres (130,559 square miles) and has a population of 5.6 million. The population density is very low: 16.4/km^2 (42.5/square miles). Helsinki is the capital and largest city. The vast majority of the population are ethnic Finns. Finnish and Swedish are the official languages, with Swedish being the native language of 5.2% of the population. Finland's climate varies from humid continental in the south to boreal in the north. The land cover is predominantly boreal forest biome, with more than 180,000 recorded lakes.

Lying approximately between latitudes 60° and 70° N, and longitudes 20° and 32° E, Finland is one of the world's northernmost countries. Of world capitals, only Reykjavík lies more to the north than Helsinki. The distance from the southernmost point - Hanko in Uusimaa - to the northernmost - Nuorgam in Lapland - is 1,160 kilometres (720 mile).

Finland has about 168,000 lakes (of area larger than 500m^2 or 0.12 acres) and 179,000 islands. Its largest lake, Saimaa, is the fourth largest in Europe. The Finnish Lakeland is the area with the most lakes in the country; many of the major cities in the area, most notably Tampere, Jyväskylä and Kuopio, are located near the large lakes. The greatest concentration of islands is found in the southwest, in the Archipelago Sea between continental Finland and the main island of Åland.

Sweden

Sweden, formally the Kingdom of Sweden, is a Nordic country located on the Scandinavian Peninsula in Northern Europe[251]. It borders Norway to the west and north, Finland to the east, and is connected to Denmark in the southwest by a bridge-tunnel across the Öresund.

At 450,295 square kilometres (173,860 square miles), Sweden is the largest Nordic country and the fifth-largest country in Europe. The capital and largest city is Stockholm. Sweden has a population of 10.5 million and a low population density of 25.5 inhabitants per square kilometre (66/square miles), with around 87% of Swedes residing in urban areas, which cover 1.5% of the entire land area, in the central and southern half of the country. Nature in Sweden is dominated by forests and many lakes, including some of the largest in Europe. Many long

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[250] See: https://en.wikipedia.org/wiki/Finland
[251] See: https://en.wikipedia.org/wiki/Sweden

rivers run from the Scandes range, primarily emptying into the northern tributaries of the Baltic Sea. It has an extensive coastline and most of the population lives near a major body of water. With the country ranging from 55°N to 69°N, the climate of Sweden is diverse due to the length of the country. The official language is Swedish.

Situated in Northern Europe, Sweden lies west of the Baltic Sea and Gulf of Bothnia, providing a long coastline, and forms the eastern part of the Scandinavian Peninsula. To the west is the Scandinavian mountain chain (Skanderna), a range that separates Sweden from Norway. Finland is located to its north-east. It has maritime borders with Denmark, Germany, Poland, Russia, Lithuania, Latvia and Estonia, and it is also linked to Denmark (south-west) by the Öresund Bridge. Its border with Norway (1,619 km long) is the longest uninterrupted border within Europe.

Sweden lies between latitudes 55° and 70° N, and mostly between longitudes 11° and 25° E (part of Stora Drammen island is just west of 11°).

Most of Sweden has a temperate climate, despite its northern latitude, with largely four distinct seasons and mild temperatures throughout the year. The winter in the far south is usually weak and is manifested only through some shorter periods with snow and sub-zero temperatures; autumn may well turn into spring there, without a distinct period of winter. The northern parts of the country have a subarctic climate while the central parts have a humid continental climate. The coastal south can be defined as having either a humid continental climate using the 0 C isotherm, or an oceanic climate using the -3 C isotherm.

Due to the increased maritime moderation in the peninsular south, summer differences between the coastlines of the southernmost and northernmost regions are about 2 C (4 F) in summer and 10 C (18 F) in winter. This grows further when comparing areas in the northern interior where the winter difference in the far north is about 15 C (27 °F) throughout the country. The warmest summers usually happen in the Mälaren Valley around Stockholm due to the vast landmass shielding the middle east coast from Atlantic low-pressure systems in July. Daytime highs in Sweden's municipal seats vary from 19 C (66 F) to 24 C (75 F) in July and −9 C (16 F) to 3 C (37 F) in January. The colder temperatures are influenced by the higher elevation in the northern interior. At sea level, the coldest average highs range from 21 C (70 F) to -6 C (21 F). As a result of the mild summers, the arctic region of Norrbotten has some of the northernmost agriculture in the world.

Brief history of EU's regional policy

Since the founding of the EEC, EU regional policy has been reformed several times and adapted to the current state of EU enlargement[252].

Already in the preamble of the EEC Treaty of Rome of 1957, the six founding Member States wanted, that: *"The Community shall aim at reducing the disparities between the levels of development of the various regions"*. However, this statement was only a general goal without a separate regulation in the Rome Treaty. Only in 1965 an expert group underlined the need for a coordinated Community solution to regional imbalances. In 1968 the Directorate General for Regional policy was created. After a Council Resolution 1971, and the Thompson Report in 1973, in 1975 the European Regional Development Fund (ERDF) were set up for a 3-year test period. The aim was to correct regional imbalances due to (i) predominance of agriculture, (ii) industrial change, and (iii) structural unemployment.

Regional Policy in the 1980s were challenged by EU enlargements of poor countries: Greece in 1981, Spain and Portugal in 1986. The new countries brought increased regional disparities. In 1988 the European Council allocated ECU 64 billion to Structural Funds over 5 years. Four key principles were introduced: (1) Concentration: focusing on poorest regions, (2) Partnership: involvement of regional and local partners, (3) Programming: multi-annual programming, (4) Additionality: EU expenditure must not substitute national.

In the *period 1989-1993* the structural fund budget was increased from ECU 6.4 billion p.a. in 1988 to ECU 20.5 billion p.a. in 1993 (relative share jumping from 16% to nearly 31% of EU budget).

The first revision of the EU Treaty (the Rome Treaty of 1957) took place with the Treaty on European Union (TEU), the *Maastricht Treaty*. It was signed in Maastricht (The Netherlands) on 7 February 1992 and entered into force on 1 November 1993. Not only upon entry into force of the Treaty on European Union, the EEC becomes the European Community (EC). It established legally the Economic and Monetary Union (EMU) including a single and stable currency (Euro). For the first time "Economic and Social Cohesion" was established legally in TEU, TITLE XIV, Article 130a to 130e. Article 130d rules the setting up of a Cohesion Fund. In Article 130e the other funds – ERDF, European Agricultural Guidance and Guarantee Fund (EAGG), EFS are – mentioned. The newly created *Cohesion Fund (CF)* were eligible for countries preparing for becoming members of the EMU (introduction of the Euro). It provided

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[252] See "History and Evolution of EU Regional and Cohesion Policy": https://ec.europa.eu/regional_policy/sources/slides/2010/2010_regional_history_en.ppt

a financial contribution to projects in the fields of environment and trans-European networks in the area of transport infrastructure. The CF provides support to EU Member States with a gross national income per capita below 90% (EU-27 average) to strengthen the economic, social, and territorial cohesion of the EU[253].

In 1994 a further reform took place by doubling the effort: ECU 168 billion over 5 years for Structural and Cohesion Funds. Several new frameworks and programs were added. In the period 1994-1999 the structural fund budget was increase to ECU 32 billion p.a. (ca. 30% of EU budget).

In 1995 Austria, Finland, and Sweden joined the EU. Well, the three countries, were highly developed small economies and had no need to catch-up to higher developed EU countries. Nevertheless, some regions were underdeveloped and had to be supported. In the 1994 Act of Accession of *Austria, Finland* and *Sweden* (also Norway was mentioned), Protocol 6[254] defined a new Objective 6 for Finland and Sweden encompassing geographical regions north of the arctic Circle[255]. Over the 5-years period 1995-1999 the announced amounts for commitment appropriations (Objective 6) for Finland were MECU 511 at 1995 prices 511, for Sweden 230 (for Norway 368).

In the *programme period 1994-1999*, a new instrument was created: Financial Instrument for Fisheries Guidance (FIFG) and objective 6 (low demographic density regions) was added. The six objectives had the following definitions[256]:

- Objective 1: Develop slower less developed regions with the following Funds: ERDF, ESF (European Social Fund), FEOGA-Guidance (European Guidance and Guarantee Fund)
- Objective 2: Reconvert regions affected by declining industry: ERDF, ESF
- Objective 3: Insertion of unemployed in the labour market: ESF
- Objective 4: Adaptation to industrial mutations: ESF
- Objective 5a: Foster the adjustment of the agricultural and fishing sectors: FIFG, FEOGA-Guidance
- Objective 5b: Adapt agricultural structures and promote the development of rural areas: FEOGA-Guidance, ERDF, ESF
- Objective 6: Low demographic density regions: ERDF, ESF

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[253] See: https://commission.europa.eu/funding-tenders/find-funding/eu-funding-programmes/cohesion-fund-cf_en

[254] See: https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=OJ:C:1994:241:FULL&from=EN

[255] See "EU regional policy in the Arctic": https://www.europarl.europa.eu/RegData/etudes/BRIE/2022/729464/EPRS_BRI(2022)729464_EN.pdf

[256] See: http://www6.gipuzkoa.net/ogasuna/fondoseur_ant/pp4/blo1d1.htm

Austria was wholly eligible for Structural Funds for Objective 1 (Burgenland), Objective 2, and Objective 5b. Finland, and Sweden were wholly eligible for Objective 2, Objective 5b, and the new Objective 6.

In view of the coming grand *EU enlargement in 2004* by 10 new Member States – all of them poor, underdeveloped economies in (mainly) Eastern Europe – several preparatory steps were necessary. "Agenda 2000" paved the way for biggest ever enlargement of the EU – 10 new Member States joining in May 2004. The historic enlargement brought 20% increase in the EU population, but only 5% increase in GDP. In the period 200-2006 EUR 195 billion were spent over 7 years for the 3 Structural Funds. EUR 18 billion over 7 years were needed for the Cohesion Fund. Other pre-accession instruments were introduced: (i) Phare: EUR 10.9 billion for capacity building; (ii) SAPARD: EUR 3.6 billion for rural development, (iii) ISPA: EUR 7.3 billion for environment and transport.

In the *programme period 2000-2006* the EU started with the phasing-out of some objective regions: 1, 2 and 5b, the concentration of three common objectives, the introduction of pre-accession instruments for candidates (ISPA). The structural fund budget was increased to EUR 38 billion p.a. (ca. 33% of EU budget).

Revision of MFF 2021-2027

Since the adoption of EU's *Multiannual Financial Framework (MFF 2021-2027*; already described in chapter 5), the EU has faced unprecedented and unforeseen crises: from Russia's war of aggression against Ukraine and its consequences, to the acceleration of inflation and interest rates, to migration and external challenges such as the Middle East Conflict. To ensure that the EU budget can continue to deliver on its key objectives, the European Commission proposed in June 2023 to strengthen the EU's long-term budget.

On 1 February 2024, EU leaders endorsed all the priorities of the Commission's proposal and agreed on the first-ever revision of MFF 2021-2027 which was also approved by the European Parliament on 27 February 2024. The key elements include[257]:

- *Critical support for Ukraine:* A new Ukraine Facility (grants, loans, and guarantees) of EUR 50 billion over the period 2024-2027.
- *Strengthening sovereignty and competitiveness:* the Strategic Technologies for Europe Platform (STEP) will boost the EU's long-term competitiveness in critical technologies,

[257] See "Revision of the EU budget 2021-2027: https://commission.europa.eu/strategy-and-policy/eu-budget/long-term-eu-budget/2021-2027/whats-new_en?prefLang=de#revision-of-the-eu-budget-2021-2027

digital and deep tech, clean tech, and biotech, with new flexibilities and incentives for cohesion funding and the Recovery and Resilience Facility, and a EUR 1.5 billion top-up to the European Defence Fund.

- *Further action on Migration and external challenges*: An increase of EUR 9.6 billion will support the internal and external dimensions of migration and help partners in the Western Balkans, southern neighbourhood and beyond.
- *Stronger response to unforeseen crisis*: To enable the EU budget to continue to respond to unforeseen circumstances – such as the energy crisis, food crises and the aftermath of Russia's war amid rising inflation and interest costs. The Flexibility instrument will be reinforced by EUR 2 billion while the ceiling of the Emergency Aid Reserve will be increased by EUR 1.5 billion and split into two separate instruments: the European Solidarity Reserve and the Emergency Aid Reserve.
- *More crisis resilience*: A three-step emergency mechanism and a new instrument will provide clarity on the budgetary mechanisms for financing the costs associated with NextGenerationEU (NGEU).

The revision will be financed through a combination of new resources and redeployment within the EU budget. This will allow the EU to continue to address the most pressing priorities while minimizing the impact on national budgets, to the benefit of European citizens and beyond. The revision entered into force on 1 March 2024 and applies retroactively to the EU budget since 1 January 2024.

In 2021-2027 EU cohesion policy has set a shorter, modern menu of *5 policy objectives* supporting growth for the period 2021-2027[258]. EU regional policy works to make a difference in 5 key areas[259]:

- investing in people by supporting access to employment, education and social inclusion opportunities
- supporting the development of small and medium size businesses
- strengthening research & innovation through investment and research-related jobs
- improving the environment through major investment projects

[258] See: Directorate-General Regio: Regional and Urban Policy: https://commission.europa.eu/about-european-commission/departments-and-executive-agencies/regional-and-urban-policy_en
[259] See: https://european-union.europa.eu/priorities-and-actions/actions-topic/regional-policy_en

- modernising transport and energy production to fight against climate change, with a focus on renewable energy and innovative transport infrastructure.

In the 9th Cohesion Report, the European Commission (2024) states: *"Thirty years after the parallel launch of the European Single Market and of a reinforced Cohesion Policy, and twenty years after the 2004 enlargement, the long-term trend is clear: many parts of Europe have experienced a remarkable upward economic and social convergence. However, socio-economic disparities persist and a growing number of regions risk struggling with new challenges. In this context, it is necessary to take stock: not just of the achievements of Cohesion Policy, but also how it can adapt. The Treaty objective of economic, social and territorial cohesion remains as relevant as ever, but the methods should evolve."*

The OECD (2023B) in its Regional Outlook 2023 (The longstanding geography of inequalities) focuses on the regional inequality of its member states. The analyse finds that *"over the last two decades, while income gaps between OECD countries have narrowed, gaps between regions remain significant and within many countries have grown".*

In contrast to EU's regional policy classification, OECD countries have two regional levels: large (TL2) regions and small (TL3) regions (see OECD, 2023D, p. 48). Most OECD countries have a higher inequality (Gini coefficient) at TL3 level than at TL2 level (OECD, 2023D, p. 51).

In chapter 4 (OECD, 2023B), the OECD regional outlook 2023 discussed the futures of OECD regions with three Scenarios for 2045: (i) *"The foregone region"* scenario imagines the emergence of fully centralised power and top-down decisions making in OECD countries, combined with less citizen engagement and growing distrust; (ii) The *"hyper-connected region"* scenario sees regional and national authorities collaborating actively together and with citizens to elaborate effective solutions to pressing challenges; (iii) *"The region-state"* scenario explores a power shift whereby regions from into separate, almost independent entities, each operating within their own ecosystem act competing for wealth and resources.

A comparison of the expenditure structure of the three countries which they get from the spending out of the EU budget 2022 (see Table 6.17) shows that in the Headings 1 to 7, except in Heading 2 (Cohesion, Resilience and Values) the percentage shares are quite similar in the three countries. Only in Heading 2 Austria and Sweden spend around 21%, whereas Finland only spends 16% of the total expenditures. The difference rests mainly on the expenditures in

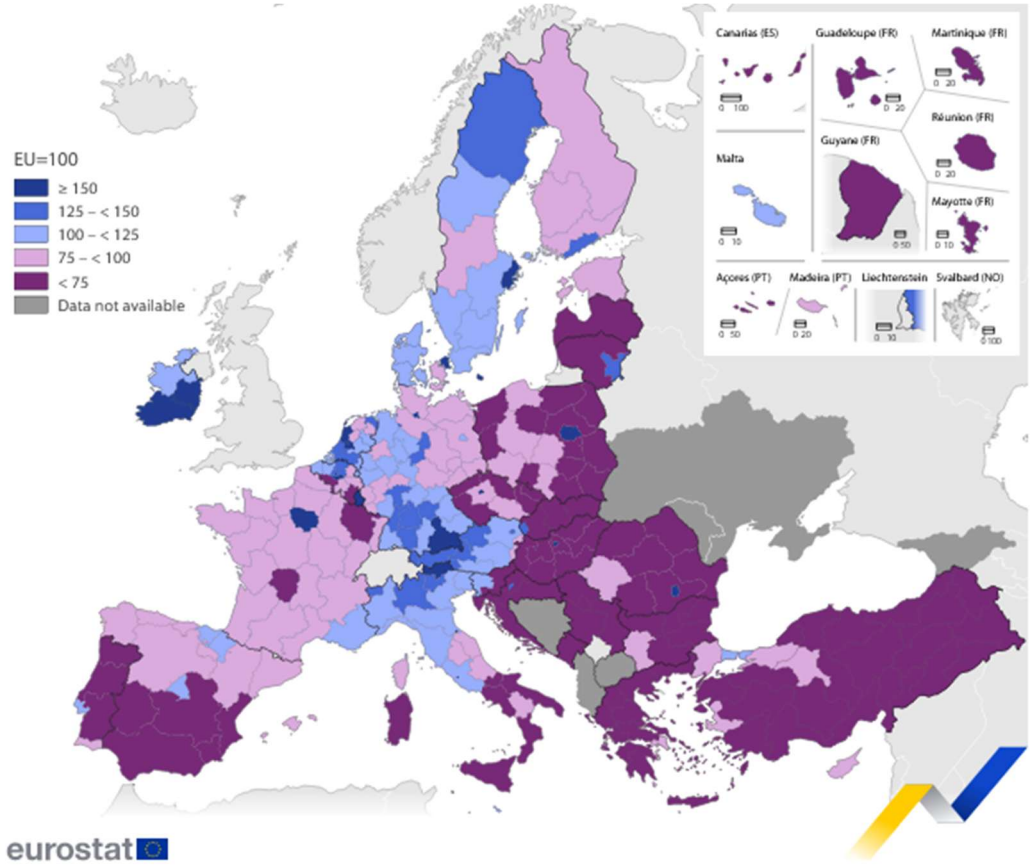
the Subheading 2.2.1 (Regional Development and Cohesion with the primary structural fund ERDF). In this category Austria spends also more than the other two countries.

Table 6.17: EU budget 2022: Structure of expenditure – in particular Cohesion: Austria, Finland, Sweden (Percent share of total expenditure per country)

Headings/Subheadings	Austria	Finland	Sweden
1. Single Market, Innovation and Digital	**22.47**	**24.44**	**22.59**
2. Cohesion, Resilience and Values	**21.36**	**15.75**	**21.21**
2.1 Economic, Social and territorial cohesion	16.26	11.56	15.27
2.1.1 Regional Development and Cohesion (ERDF, CF)	*12.92*	*7.45*	*9.09*
2.1.2 Investing in People, Social Cohesion and Values (ESF)	*3.34*	*4.11*	*6.18*
2.2 Resilience and Values	5.11	4.19	5.94
2.2.2 Recovery and Resilience	*0.24*	*0.26*	*2.20*
2.2.3 Investing in People, Social Cohesion and Values (Erasmus)	*4.87*	*3.93*	*3.73*
3. Natural Resources and Environment	**31.44**	**29.01**	**33.16**
4. Migration and Border Management	**2.28**	**2.37**	**2.83**
5. Security and Defence	**0.48**	**1.28**	**1.91**
6. Neighbourhood and the World	**0.64**	**0.73**	**0.39**
7. European Public Administration	**1.82**	**3.20**	**2.19**
Total Expenditure	**100.00**	**100.00**	**100.00**
(EUR Million)	*2 265.85*	*1773.10*	*2124.39*

Source: EU spending and revenue 2021-2027 (https://commission.europa.eu/strategy-and-policy/eu-budget/long-term-eu-budget/2021-2027/spending-and-revenue_en)

Figure 6.67: GDP per capita by NUTS 2 regions, 2022



Source: Eurostat: https://ec.europa.eu/eurostat/web/products-eurostat-news/w/ddn-20240220-2

Table 6.18: Regional gross domestic product (PPS per inhabitant) by NUTS 2 regions, 2022 (EU27 = 100)

Regions	Austria	Regions	Finland	Regions	Sweden
Burgenland	87.42	Länsi-Suomi	97.85	Stockholm	159.89
Niederösterreich	105.18	Helsinki-Uusimaa	139.58	Östra Mellansverige	102.92
Wien	142.12	Etelä-Suomi	96.72	Småland med öarna	102.64
Kärnten	109.69	Pohjois- ja Itä-Suomi	94.47	Sydsverige	101.23
Steiermark	111.95	Åland	113.08	Västsverige	115.33
Oberösterreich	127.18			Norra Mellansverige	98.70
Salzburg	148.04			Mellersta Norrland	108.56
Tirol	128.59			Övre Norrland	128.30
Vorarlberg	146.63				
Austria	124.38	Finland	109.10	Sweden	119.55
PPS pc	*44109*	*PPS pc*	*38689*	*PPS pc*	*42394*

Source: Eurostat (https://ec.europa.eu/eurostat/databrowser/view/tgs00005/default/table?lang=en&category=t_reg.t_reg_eco)

As Eurostat reveals, the regions in the three countries belong mainly to the highest income spots in the EU (See the blue coloured zones in the middle of Europe and in Scandinavia in Figure 6.67 and Table 6.18). The capital cities have the highest GDP per capita with Stockholm (Index 159 relative zu EU27=100) as the richest city; Vienna comes second (142), and Helsinki (140) third. In the ranking of the countries, Austria (124) leads before Sweden (120) and Finland (109).

With only a few exceptions, relative regional GDP per capita (GDP pc in a regions divided by those of EU27) declined between 2011 and 2022. In each of the three countries the relative GDP per capita declined in this eleven-year period by around 10 ppts. In contrast, the development in the regions of the three countries was quite different. The biggest income losses occurred in the capitals (Vienna -23 ppts, Helsinki -18 ppts, Stockholm -21 ppts). In Austria only in two regions (Burgenland and Vorarlberg) could increase their relative income. In Sweden only Övre Norrland registered a tiny increase.

The impact of EU's regional policy

As already mentioned in chapter 5, the European Commission regularly makes impact analysis with model simulations. In the Eight report on economic, social and territorial cohesion of the European Commissions (2022A, p. 296) in which The Commission takes a look at *"Cohesion in Europe towards 2050"* model simulations are presented which suggest that cohesion policy in 2014-2020 had a positive effect on EU GDP, reaching a peak in 2021 when GDP is estimated to be 0.4% higher than it would be without it. The impact varies within the EU regions. The poorest regions and countries profit more than average, the rich ones also get spillover effects.

Accordingly, in 2023 and 2043 the regions in the peripheric countries (the poor countries and regions in Portugal and Spain and in the new member states in Eastern Europe) benefit the most of up to 1.5% to 2% more real GDP above baseline. Via spillovers also the rich countries draw benefits from the EU cohesion policy. In the northern regions of Sweden GDP would rise by 0.1% to 0.5% above baseline, whereas Finland and Austria gain only of around 0.1% more GDP.

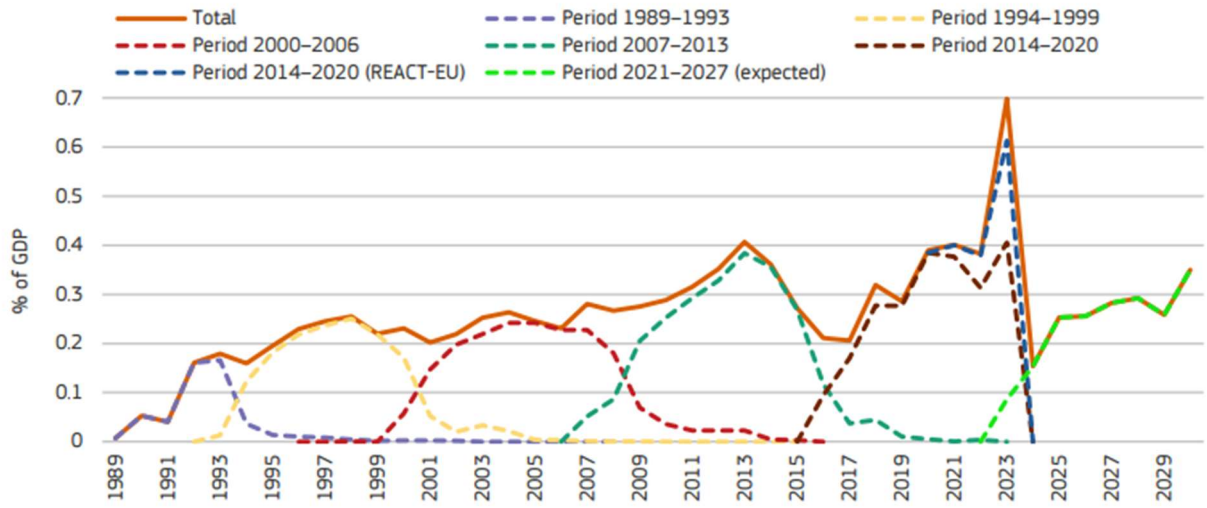
In its Ninth report on economic, social and territorial cohesion, the European Commission (2024A) the chapter 9 deals with the *impact of Cohesion Policy*.

Under the EU budget's 2014–2020 MFF, Cohesion Policy was the EU's main means of funding investment in economic and social development across the EU. As of December 2023, EUR 405 billion of support had been committed under the 2014–2020 programmes (see European Commission, 2024A, p. 268), which, with national (public and private) co-financing, is estimated to have resulted in EUR 551 billion of investment. The support came from three funds: the European Regional Development Fund (ERDF), the Cohesion Fund (CF) and the European Social Fund (ESF), supplemented by the Youth Employment Initiative (YEI). Financing from these was aimed at 11 Thematic Objectives, 10 of which for the 2021–2027 period was transformed into five Policy Objectives (Smarter Europe, Greener Europe, More connected Europe, Social Europe). To enable comparisons to be made between the two periods, these 10 Thematic Objectives, and the expenditure under them, have been mapped for the analysis here to the five Policy Objectives.

Over the past few decades Cohesion Policy has been the second most important line in the EU budget, accounting for around a third of the MFF. Between 1990 and 2024, the funding allocated increased over 10-fold in relation to EU GDP, from 0.03 %, on average, for the 1989–1994 programming period to 0.3 % for the 2014–2020 period, and 0.4 % if REACT-EU is included. This increase reflects the need to accompany the deepening and widening of EU integration, the strengthening of the Single Market and successive rounds of enlargement, which have meant addressing the needs of a growing number of less developed regions.

As Figure 6.68 shows, spending tends to be concentrated at the end of implementation periods but is not discontinued between programming periods. The overlapping of funding between programming periods means that there is no interruption to the support provided. Accordingly, in the analysis below programming periods are not considered in isolation but as continuous sources of support.

Figure 6.68: Cohesion Policy funding 1989 to 2023



Note: Figures relate to EU payments except for 2021–2027, where they are planned amounts. The timing of payments for 2021–2027 is estimated from that for 2014–2020, net of REACT-EU funding.

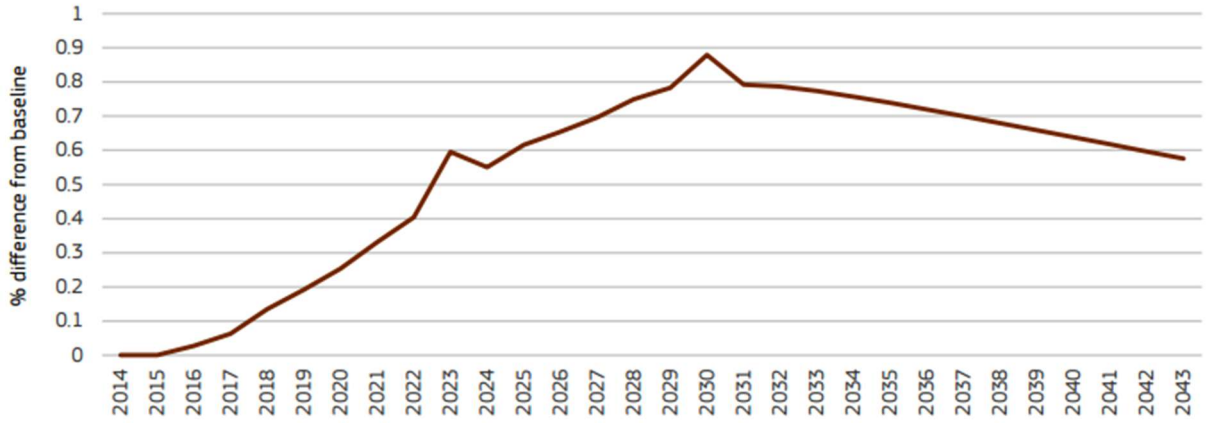
Source: European Commission (2024A), p. 284.

For assessing the impact of the cohesion policy, the European Commission uses its spatial computable general equilibrium model, RHOMOLO (for a description, see European Commission, 2024, p. 285). In six field the model is shocked: (1) Transport infrastructure (TRNSP); (2) Other public infrastructure (INFR); (3); Research and technological development (RTD); (4) Human capital (HC); (5) Aid to private sector (AIS); (6) Technical assistance (TA). A fixed interest rate of 4% is assumed.

According to the RHOMOLO simulations the cohesion policy interventions had at EU level a positive and significant impact on EU's economy (see Figure 6.69). The impact of Cohesion Policy builds up over time, especially when the two programming periods overlap between 2021 and 2023. The impact is the greatest in 2030, when GDP in the EU is estimated to be 0.9% higher as a result of the combination of the 2014-2020 and 2021-2027 interventions. The cumulative impact of these programmes is particularly significant in less developed Member States and especially in Croatia (an increase of 8 % in GDP), Poland and Slovakia (an increase of 6 %) and Lithuania (a 5 % increase).

The policy yields a positive return at EU level. The RHOMOLO model implies, that the cumulative multiplier, i.e. the ratio of cumulative changes in GDP to the amount of expenditure, is estimated at 1.29 in 2030 and 2.97 in 2043. This means that 30 years after the start of the programmes, for each 1 EUR invested under Cohesion Policy, EU GDP is increased by almost EUR 3, which is equivalent to an annual rate of return of around 4%.

Figure 6.69: Impact of Cohesion Policy programmes 2014-2020 and 2021-2027 on EU GDP; 2014-2043



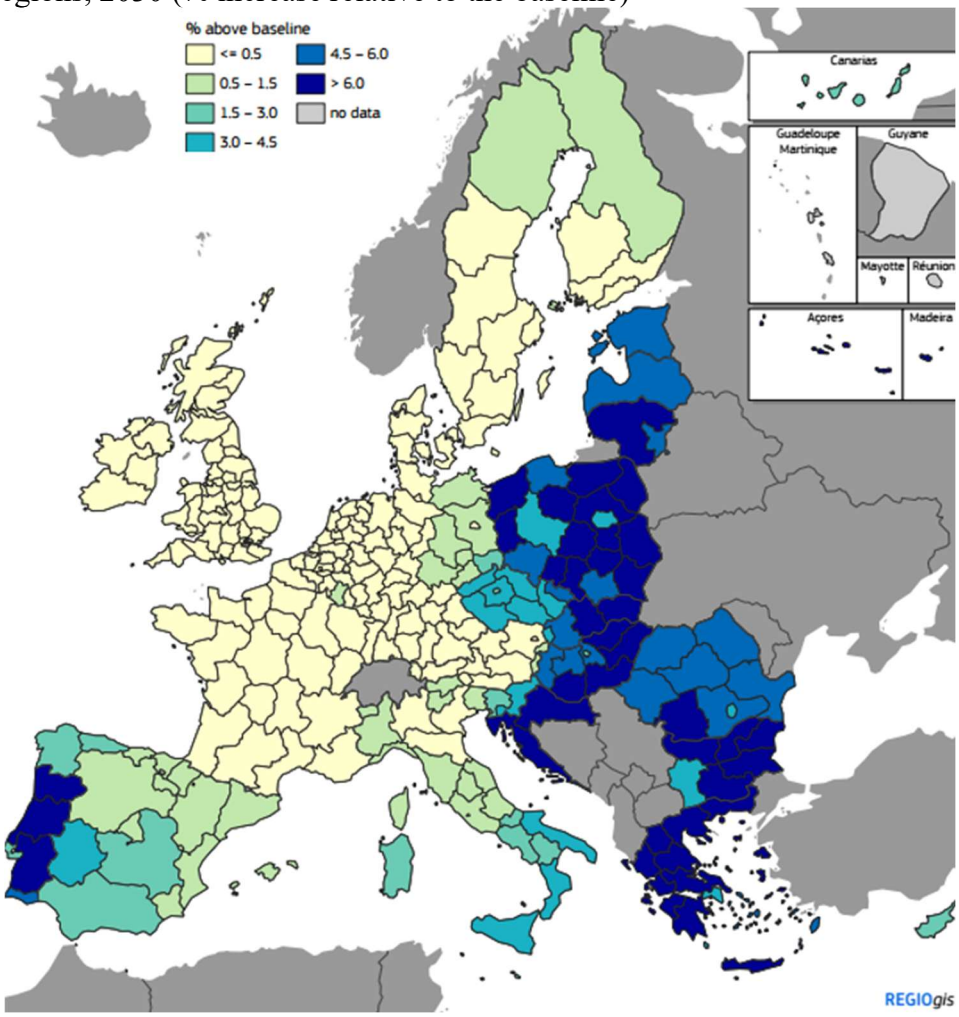
Source: European Commission (2024A), p. 287.

At regional level, of course, the RHOMOLO simulations suggest that the impact differs according to their characteristics, notably their level of development and their economic and social circumstances. Consequently, the impact on GDP is heterogeneous across regions.

Figure 6.70 shows the effect of Cohesion Policy on GDP in EU regions in 2030. The impact increases over time in all regions up to 2030. In both 2023 and 2030, the largest increases occur in less developed regions, such as those in Bulgaria, Greece, Hungary, Portugal, Poland and Slovakia. The increase is particularly large in Voreio Aigaio in Greece (12.7% in 2030), the Portuguese Açores (12.0%), and Swietokrzyskie (117%) and Warminsko-Mazurskie (103%) in Poland. There are also significant differences between regions in the same country. For example, in Poland the increase in GDP ranges from 3.8% to 11.7%, and in Hungary from 2.2%. In the highly developed countries and regions of Austria, Finland and Sweden, GDP increases not more than 0.5% in 2030.

Cohesion Policy aims at reducing regional disparities. According to RHOMOLO simulations this happened significantly (European Commission, 2024, p. 292). The coefficient of variation, which measures the extent of regional disparities in GDP per head, is estimated to decline by around 3 % 10 years after the beginning of the 2021–2027 programming period. It increases after that as the supply-side effects of the interventions diminish. The same pattern is observed in other measures of dispersion. It declines until 2030 the most in Hungary (-2.5%), Poland and Portugal (-2%). In Austria, Finland, and Sweden the decline is around 0.1% because disparity was already low at the beginning.

Figure 6.70: Impact of Cohesion Policy programmes 2014-2020 and 2021-2027 on GDP in NUTS 2 regions, 2030 (% increase relative to the baseline)



Source: European Commission (2024A), p. 291.

7. Implementing EU law

7.1 Legislative procedure of the EU

The EU knows different kinds of legal acts. According to Article 288 of the Treaty on the Functioning of the European Union (TFEU), the main types of EU legal acts are regulations, directives, decisions, recommendations, and opinions[260].

- *Regulations* are binding in their entirety and directly applicable in all EU Member States.
- *Directives* set binding objectives to be achieved by the Member States to which they are addressed by their national parliaments. The Member States are free to choose the manner they see fit to achieve those objectives.

[260] See EUR-Lex, "Legal acts": https://eur-lex.europa.eu/collection/eu-law/legislation/recent.html?locale=en#; a full list of the main legal acts can be found on: https://eur-lex.europa.eu/collection/eu-law/legislation/recent.html?locale=en#

- *Decisions* are also binding in their entirety. Decisions that specify those to whom they are addressed are binding only on them.
- *Recommendations* and *opinions* are non-binding acts.

In the *ordinary legislative procedure* of the EU, three main players are involved: the *European Commission* has the right of legislative initiative; the legislators are then the *Council* of the EU and the *European Parliament*[261].

7.2 Transposition of EU law

In the 2022 Annual Report on Monitoring the application of European Union law[262], the European Commission demonstrated impressively that EU integration has grown far beyond the originally envisaged goal of a free trade community. After intra-EU free trade has been created, the Single Market with the Euro (not in all member states) more or less works, the following further goals of European integration are at stake:

- *The European Green Deal:* the transformation of the current economy to a green economy by securing clean air and water, protecting biodiversity, promoting a circular economy, single market for energy, sustainable agriculture, and safer transport.
- *A Europe fit for the Digital Age:* from technology that works for people to protection for consumers and companies and digital transport systems.
- *An economy that works for people:* from working conditions, health and safety at work, to labour mobility, financial services to taxation.
- *Promoting the European way of life and democracy:* from rule of law to protection EU citizenship and migration and asylum.

The European Commission monitors annually the implementation of EU law (transposing directives)[263]. The European Commission in his Single Market Scoreboard[264] regularly makes evaluations about the state of the transposition of EU law (directives and decisions). A

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[261] For a detailed description of the EU legislative procedure, see: https://www.consilium.europa.eu/en/council-eu/decision-making/ordinary-legislative-procedure/

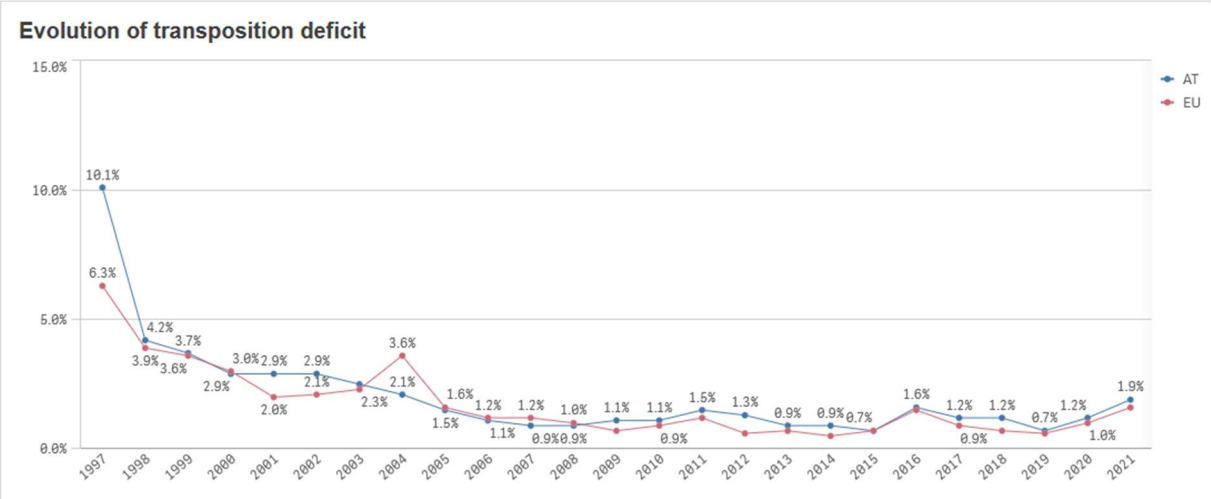
[262] See: https://commission.europa.eu/system/files/2023-07/COM_2023_453_1_EN.pdf

[263] See: https://commission.europa.eu/law/application-eu-law/implementing-eu-law_en; and see the annual reports on monitoring the application of EU law: https://commission.europa.eu/publications/annual-reports-monitoring-application-eu-law_en; see also the 2022 Annual Report on monitoring the application of EU law: https://commission.europa.eu/law/application-eu-law/implementing-eu-law/infringement-procedure/2022-annual-report-monitoring-application-eu-law_en

[264] See: https://single-market-scoreboard.ec.europa.eu/countries/austria_en

comparison of the deficits of transposition of EU law into national law gives an impression about the level of law abiding.

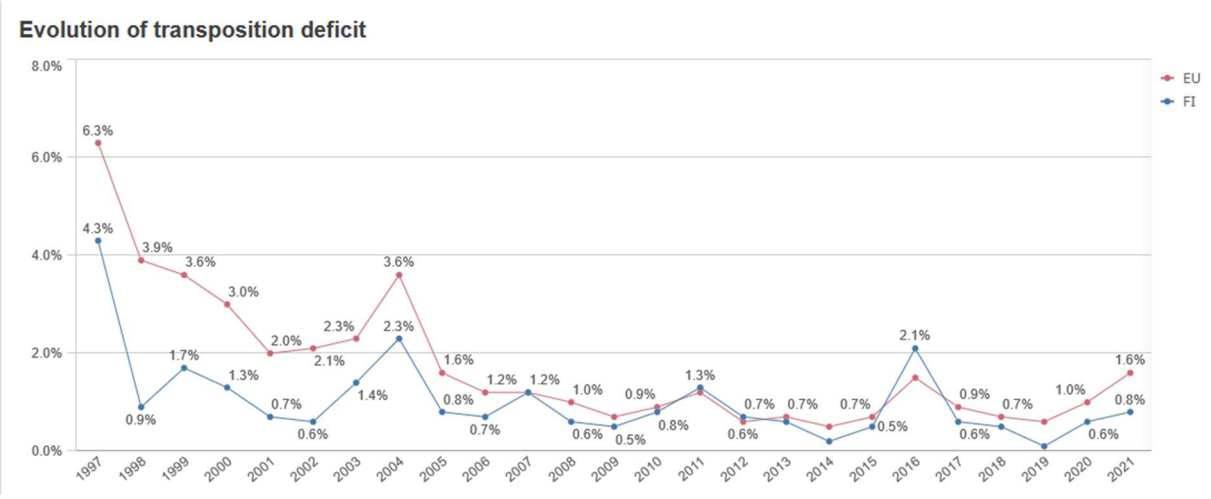
Figure 7.1: Austria: the evolution of transposition deficit



Source: European Commission: Single Market Scoreboard

Figure 7.1 shows that *Austria* as well as the EU on average has reduced their transposition deficit since Austria entered the EU in 1995. Beginning in 1997 with a deficit of 6.3% in Austria (10.1% in the EU) it declined to – sometimes – below 1%. Most recently Austria's deficit with 1.9% was slightly ahead of those of the EU.

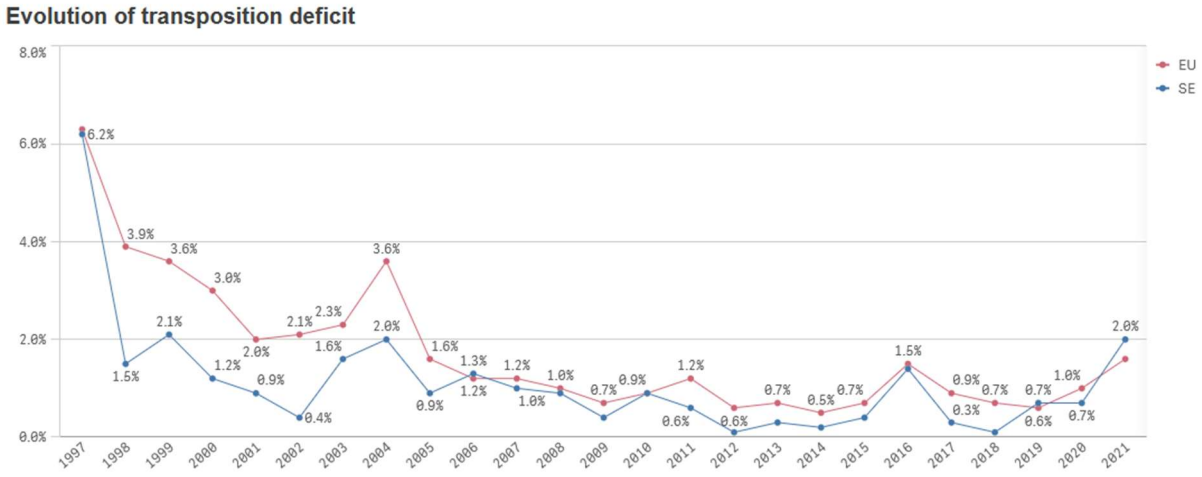
Figure 7.2: Finland: the evolution of transposition deficit



Source: European Commission: Single Market Scoreboard

In *Finland* the development of transposition underwent more fluctuations than in Austria (see Figure 7.2). It started with a deficit of 4.3% in 1997 (already below EU average of 6.3%) and came down to 0.8% in 2021 (EU 1.6%).

Figure 7.3: Sweden: the evolution of transposition deficit



Source: European Commission: Single Market Scoreboard

Sweden started in 1997 with 6.2% with nearly the same deficit in transposition as the EU (6.3%, see Figure 7.3). Recently, in 2021, however, Sweden's deficit increase to 2.0%, ahead of the EU with 1.6%.

7.3 EU Integration Indices

Data on the transposition of EU law are often used as part of the evaluation the degree of EU integration. European integration is a multilayer process consisting of a whole variety of integration features, not only trade integration. To capture the richness of EU integration, several authors are constructing composite indicators to measure the extent of economic and political integration. In the following we report only two most recent project of EU integration indicators.

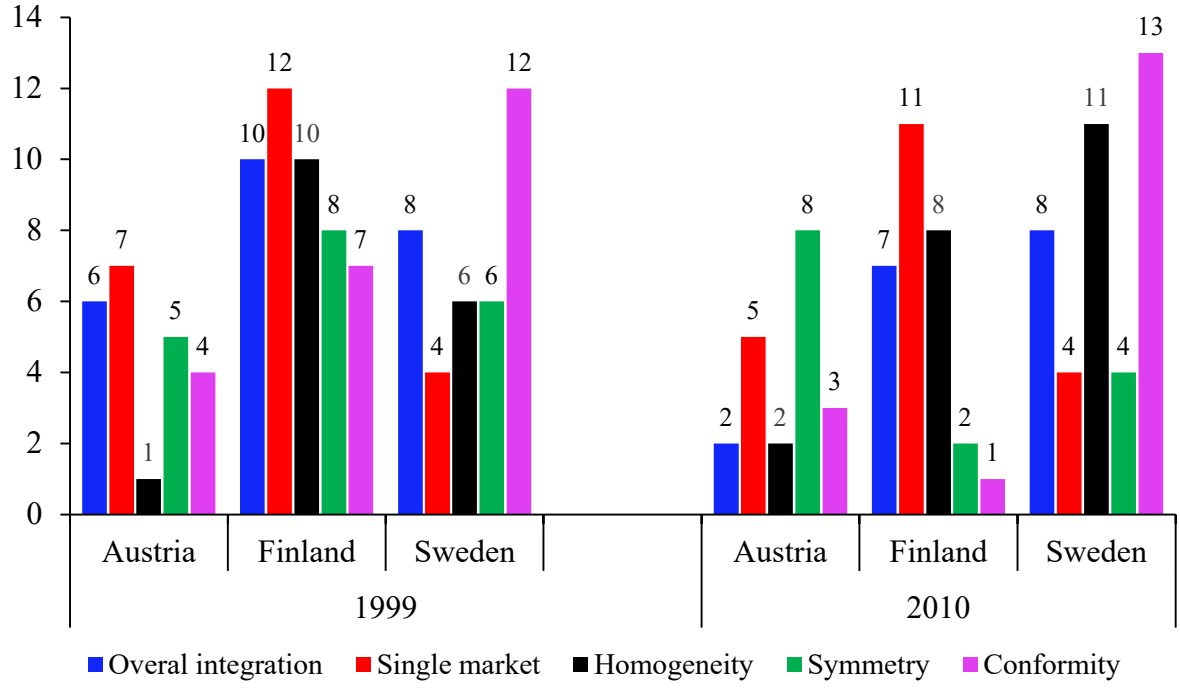
König and Ohr (2013) constructed a EU-Integration index for the years 1999 and 2010. This index consists of four sub-indices:

1) *Single Market* (openness concerning the four freedoms: intra-EU trade, intra-EU services trade, labour mobility, capital mobility (FDIs);
2) *EU Homogeneity* (degree of convergence: real GDP per capita, PPPs, unit labour costs, public debt ratios, tax rates, interest rates);

3) *EU Symmetry* (degree of synchronization of business cycles, co-movements of growth rates of real GDP, inflation, unemployment, net-lending of governments);

4) *EU Conformity* (full participation of EU integration steps: Single Market, Euro, Schengen, or integration a la carte; compliance of EU law, transformation of EU law in national legislation).

Figure 7.4: EU Integration Index: Austria, Finland, and Sweden



Ranks: the lower the number, the better the ranking.
Source: König and Ohr (2013), p. 1083

The EU Integration index is constructed with the principal component analysis (PCA) to calculate the weights. With the help of PCA König and Ohr (2013, p. 1080) analyse simultaneously multiple indicators to uncover the patterns of their inter-item correlations and explain them in terms of common components. The results for 14 EU Member States (Luxembourg is omitted due to lack of data) both years (1999 and 2010) are presented in König and Ohr (2013, p 1083) concerning the Overall integration and the four sub-indices. Here we report only the rankings for Austria, Finland, and Sweden (see Figure 7.4).

In 1999 Austria (Finland, Sweden) ranked number 6 (10, 8) according to the Overall integration index, 7 (12, 4) in the Single Market index, 1 (10, 6) in the Homogeneity index, 5 (8, 6) in the Symmetry index and 4 (7, 12) in the Conformity index.

In 2010 Austria (Finland, Sweden) ranked number 2 (7, 8) in the Overall integration index, 5 (11,4) in the Single Market index, 2 (8,11), in the Homogeneity index, 8 (2,4) in the Symmetry index and 3 (1,13) in the Conformity index.

In the ten years period 1999 to 2010, all three countries have improved its position in the Overall integration index or remained unchanged (Sweden). The same pattern is true for the sub-index Single Market. Homogeneity deteriorated in Austria and Finland but improved in Sweden. Finland and Sweden improved concerning "Symmetry", Austria deteriorated. "Conformity" has improved in Austria and Finland but deteriorated in Sweden (mostly because of the absence of the Euro project.

A second project which uses EU law abiding indicators and others to create a EU Single Market Integration indicator was launched by London Economics (2017). This study estimates the economic impact of EU's Single Market on the Member States.

The Single Market integration indicator consists of 14 sub-indicators, the majority of which are economic indicators (referring to the four freedoms: intra-EU trade, intra-EU FDI, unit labour costs, business cycle harmonisation) but also such on the implementation of EU law (see Figure 7.5).

Figure 7.5: Single Market integration indicator

Single Market integration indicators used in the summary indicator of Single Market integration	Weight of the 17 indicators in the summary indicator of Single Market integration
Percentage of exports of goods to the EU to GDP	8%
Percentage of imports of goods from the EU to GDP	7%
Percentage of exports of services to the EU to GDP	8%
Percentage of imports of services from the EU to GDP	8%
Percentage of GDP of FDI inflow from the EU	8%
Percentage of GDP of inward FDI stock from the EU	9%
Percentage of GDP of outward FDI flow to the EU	8%
Percentage of GDP of outward FDI stock to the EU	7%
Percentage of EU Directives not implemented or implemented only partially or incorrectly into national law (i.e. the transposition deficit)	7%
Difference between unit nominal labour costs of Member State and the core EU average*	7%
Difference between per capita GDP of Member State and the core EU average	6%
Difference between interest rates of long-term bonds of Member State and the core EU average	6%
Difference between VAT rates of Member State and the core EU average	8%
Difference between purchasing power in Member State and the core EU average	3%

Source: LE Europe, based on Eurostat data.
Note: The EU core comprises the 15 Member States at the time of completion of the SMP.

Source: London Economics (2017), p. 26

Figure 7.6: Ranking of Austrias', Finland's', and Sweden's' integration into the Single Market by individual indicators of integration and overall indicators of integration 2015

Country	Rank for free movement of goods	Rank for free movement of services	Rank for free movement of capital	Rank based on weighted average* of individual ranks across the indicators of free movement of goods, services and capital	Rank for closeness to core EU Member States**	Rank for transposition conformity	Rank based on weighted average* of individual ranks across the 17 indicators	Rank for summary indicator
Austria	12	8	18	14	19	11	18	19
Finland	22	17	9	13	21	2	20	21
Sweden	21	13	11	12	23	6	21	23

Source: London Economics (2017), p. 30

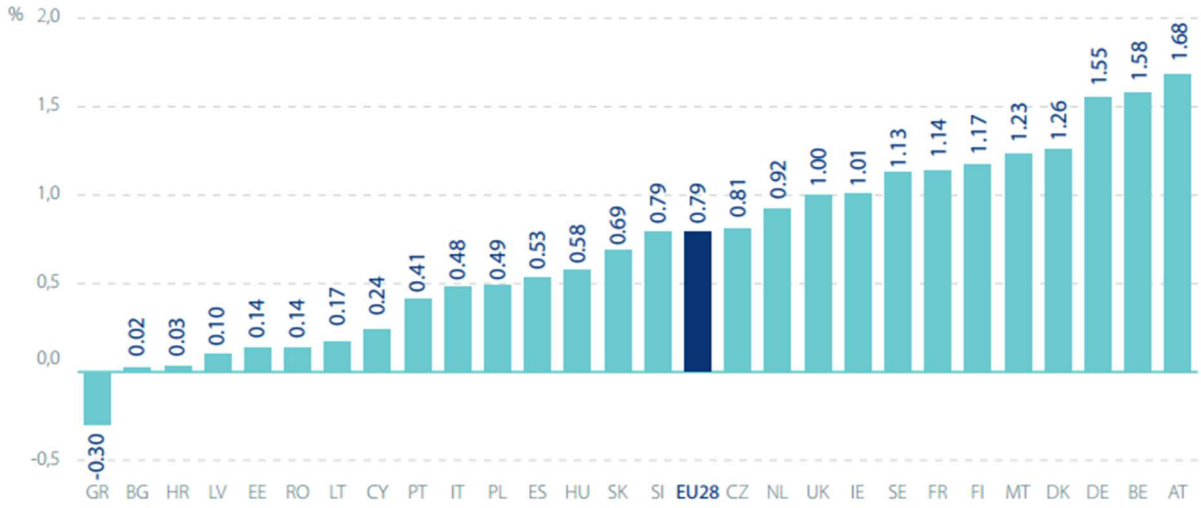
The rankings of the three Member States concerning their integration into the Single Market are shown in Figure 7.6. Austria ranks best concerning the free movement of trade in goods and trade; Finland and Sweden are better integrated concerning the capital free movement. Overall, the three countries have roughly the same ranks in the weighted average of the four freedoms (12 to 14). Austria is closer to the core EU Member States (mainly because of the big neighbour Germany). In the transposition of EU law, Finland ranks best, followed b Sweden, and Austria. The ranks in the summary indicator out of the then (in 20159 28 EU member States are not very good for the three countries. The best is Austria with rank 19, followed by Finland 21, and Sweden 23.

London Economics (2017, p. 34) use the summary indicator of Single Market integration to estimate econometrically its impact on five macro-economic variables:

- GDP (measured by GDP per capita)
- Household consumption (measured by household consumption per capita)
- Employment (measured by employment rate)
- Productivity (measured by growth of total factor productivity)
- Investment (measured by gross fixed capital formation)

The estimation results for GDP per capita can be seen in Figure 7.7. Since EU accession in 1995 Austria generated a cumulative increase of real GDP per capita until 2015 by 1.68%; Finland 1.17%, Sweden 1.13%.

Figure 7.7: Impact of Single Market integration on GDP per capital in 2015 since the completion of the SMP or since the accession of new Member States



Source: London Economics (2017), p. 35

In a cluster analysis Gräbner et al. (2020) divide EU Member States into six categories:

1) Cluster of primary goods: here belong Lithuania and Estonia
2) Cluster Finance hub: Luxembourg belongs to this group
3) Cluster Flexible labour market: UK falls into this group.
4) Cluster: Industrial workbench: Slovenia, Poland, Slovak Republic, Hungary and Czech Republic belong to this category.
5) Cluster Periphery: Greece, Portugal, Spain, Italy, France are members of this group.
6) Cluster High tech: here belong *Sweden*, Denmark, Netherlands, Belgium, *Finland*, Germany, *Austria*, and Ireland.

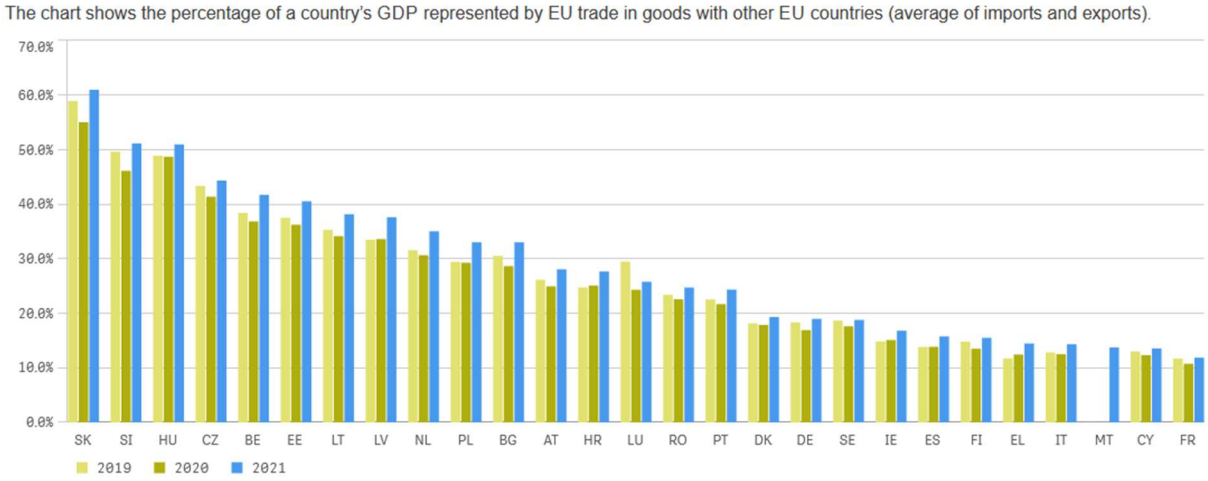
7.4 Integration in EU's Single Market

The Single Market Scoreboard, annually published by the European Commission, evaluated the status of EU integration of its Member States. The lates Single Market Scoreboard[265] revealed the following status for Austria, Finland, and Sweden.

Concerning the EU trade integration in goods (see Figure 7.8), Austria with 28% is stronger integrated in goods trade then Sweden (18%) and Finland (15%). A similar picture shows the EU trade integration in services (see Figure 7.9).

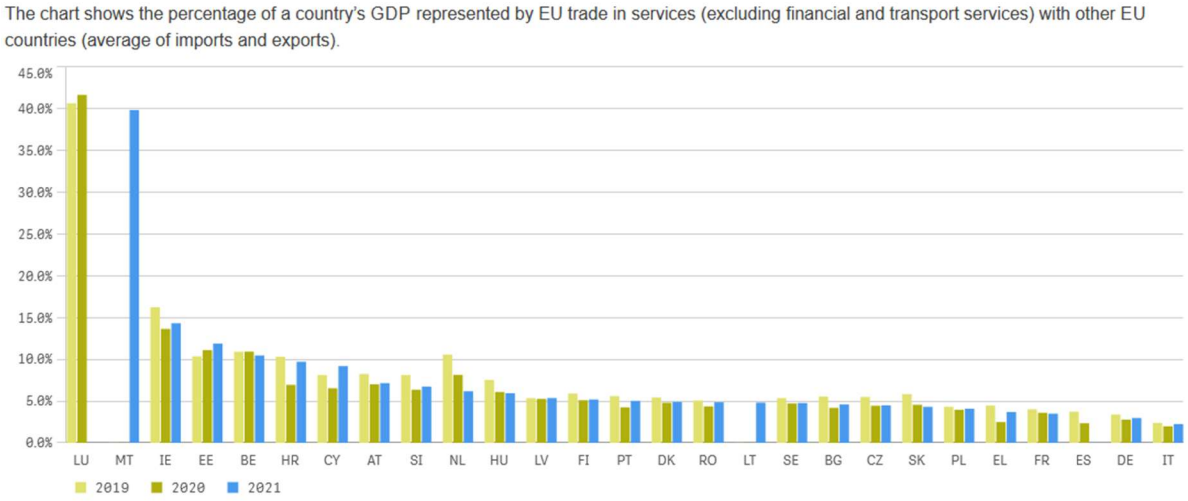
[265] See: https://single-market-scoreboard.ec.europa.eu/competitiveness/integration_en

Figure 7.8: EU trade integration in goods



Source: Single Market Scoreboard

Figure 7.9: EU trade integration in services



Source: Single Market Scoreboard

A summary of the Integration in EU's goods and services market is given in Figure 7.10. Austria is in one category in the "green" area (above EU average) concerning EU integration in goods (indicator 1). In five categories Austria is in the range of the EU average, only in two categories (indicator 3: services integration and 7: openness of imports in services), Austria is below EU average. Finland and Sweden are in no of the eight invocators above EU average.

Figure 7.10: Performance Indicators – Integration in EU's goods and services market

Perf. Ind.	AT	BE	BG	CY	CZ	DE	DK	EE	EL	ES	FI	FR	HR	HU	IE	IT	LT	LU	LV	MT	NL	PL	PT	RO	SE	SI	SK
indicator 1	27	42	32	16	45	20	20	38	12	15	16	13	26	51	22	14	37	28	36	15	35	33	24	24	21	51	63
indicator 2	26	41	31	8	52	22	20	35	10	16	16	12	16	53	38	14	35	27	31	15	43	35	21	21	20	52	70
indicator 3	12	17	8	23	8	5	12	16	7	4	8	6	12	12	25	4	13	96	10	60	14	7	9	8	8	12	9
indicator 4	13	16	11	30	8	5	13	18	12	7	7	6	20	13	34	4	17	116	12	71	15	8	12	10	7	14	9
indicator 5	38	58	52	35	58	31	29	51	30	26	26	24	43	66	30	22	58	34	51	37	53	43	35	36	30	63	84
indicator 6	28	42	32	23	39	18	20	42	15	14	16	14	35	49	17	13	39	30	40	20	28	30	27	27	21	50	56
indicator 7	15	23	9	38	10	10	22	18	10	0	14	10	9	14	83	6	14	118	10	82	20	7	8	8	14	12	10
indicator 8	12	18	6	20	7	6	12	14	6	0	9	6	5	11	61	4	9	77	7	49	12	6	6	7	9	9	9

	Above average	Average	Below average
[1] EU trade integration in **goods** (*levels*)	> 28.4%	28.4% – 14.2%	< 14.2%
[2] EU trade integration in **goods** (*change*)	> -1.4%	-1.4 % – -2.8%	< -2.8%
[3] EU trade integration in **services** (*levels*)	> 10.6%	10.6% – 5.3%	< 5.3%
[4] EU trade integration in **services** (*change*)	> 5.3%	5.3% – 2.7%	< 2.7%
[5] Openness to imports of **goods** (*levels*)	> 43.6%	43.6% – 21.8%	< 21.8%
[6] Openness to imports of **goods** (*change*)	> -1.1%	-1.1% – -2.2%	< -2.2%
[7] Openness to imports of **services** (*levels*)	> 16.7%	16.7% – 8.4%	< 8.4%
[8] Openness to imports of **services** (*change*)	> 9.3%	9.3% – 4.7%	< 4.7%

Source: Single Market Scoreboard[266]
https://single-market-scoreboard.ec.europa.eu/integration_market_openness/trade-goods-and-services

7.5 Personal in the European Commission

The engagement in the work of the EU institutions says something about the interest in EU affairs. A statistic about the European Commission's organisational structure[267] reveals that Austria employs 473 persons or 1.5% of EU total in the European Commission, Finland 498 (or 1.5%), and Sweden 497 (1.5%).

8. Public opinion about EU membership

As a rule, countries which are longing to become EU member are very euphoric about the possible goodies as member of the Union which were awarded the Nobel Peace Prize 2012. The Union is a huge peace project and an economic superpower. It misses however, the Global Political Capability, as former European Commission President Jean-Claude Juncker[268] (2018) complained at the 54th Munich Security Conference: *"The fact is that the European Union and the European Economic Community that preceded it were not designed for playing a role in*

[266] See: https://single-market-scoreboard.ec.europa.eu/integration_market_openness/trade-goods-and-services
[267] See: https://commission.europa.eu/about-european-commission/organisational-structure/commission-staff_en
[268] See: https://ec.europa.eu/commission/presscorner/detail/en/SPEECH_18_841

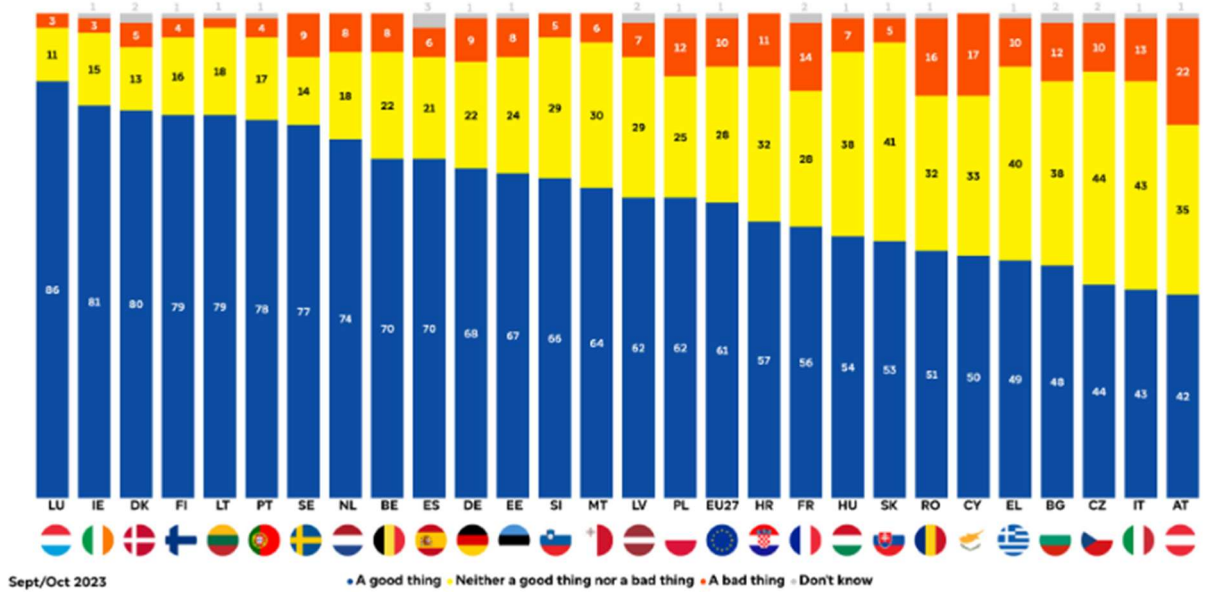
world politics". The Russian invasion in the Ukraine on 24 February 2022 woke up the EU. Now, the EU stands united with Ukraine and supports it with financial and military aids[269].

8.1 Eurobarometer

Eurobarometer[270] regularly makes surveys about the public opinion in the European Union about varying topics. The latest Standard Eurobarometer 100.1 stems from Autumn 2023. The key findings are: a wide support for the energy transition; strong backing for the EU's response to Russia's invasion of Ukraine; in favour of a strengthened Europe of defence; a stronger Europe in the world; an improved economic environment; inflation still a major concern; the general perception of the EU remains stable.

The latest Eurobarometer "Six months before the 2024 European Elections" ask many questions concerning the elections to the European Parliament and about the EP. For our purpose we pick out only two questions:

Figure 8.1: Do you think that membership of the EU is a good or bad thing?



Source: European Parliament: Eurobarometer Parlemeter 2023, EB100.1, Autumn 2023, p. 69

1) Generally speaking, do you think that (OUR COUNTRY)'s membership of the EU is a good or bad thing? (see Figure 8.1); and

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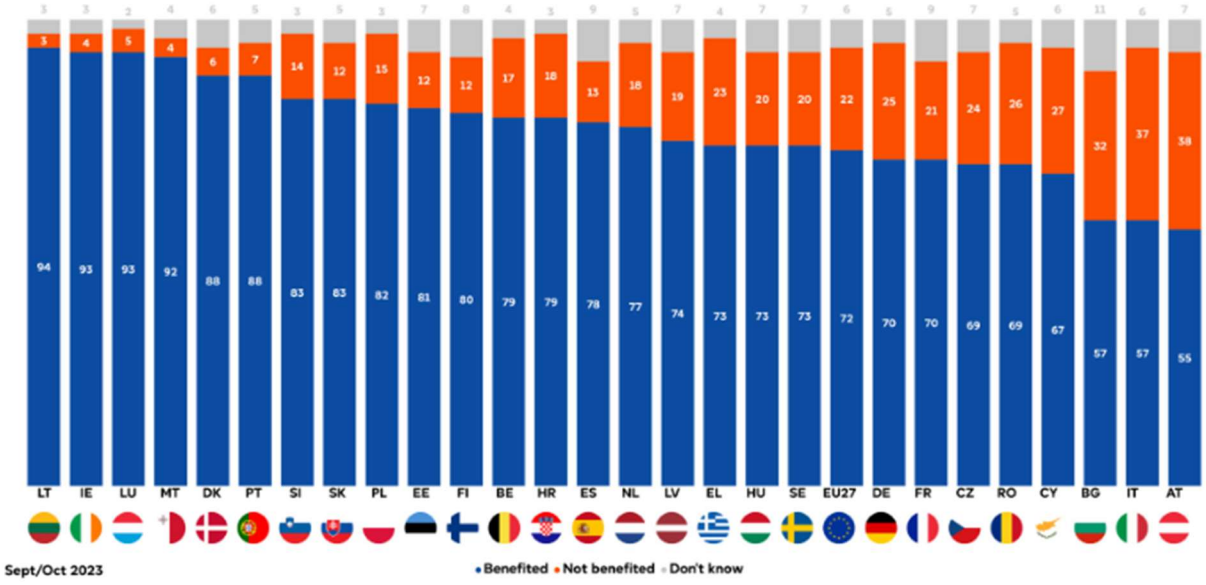
[269] See the website of the European Commission: *"EU Solidarity with Ukraine"*: https://eu-solidarity-ukraine.ec.europa.eu/index_en

[270] See: https://europa.eu/eurobarometer/screen/home

2) Taking everything into account, would you say that (OUR COUNTRY) has on balance benefited or not from being a member of the EU? (see Figure 8.2).

Figure 8.2: Would you say that our country has on balance benefited or not from being a member of the EU?



Source: European Parliament: Eurobarometer Parlemeter 2023, EB100.1, Autumn 2023, p. 78

What stands out is the negative mood of the Austrian population vis à vis the EU. Only 42% think that EU membership is a good thing. In contrast, Finland (79%) and Sweden (77%) belong to the countries which see the EU very positive (see Figure 8.1).

A similar pattern reveals the second question about the benefits of EU membership. Again, Austria comes last. Only 55% of Austrians think that EU membership has been beneficial. The Finns (80%) and the Swedes (73%) see this more positive (see Figure 8.2).

A Standard Eurobarometer 45 as of Spring 1996[271], shortly after the accession the three countries already gave a similar picture (see Figure 8.3). Whereas on EU15 average 65% approve the question *"Support for European Integration",* Austria (56%) is at the bottom with the UK (55%). Finland and Sweden - each at 60% - support European integration one year after EU accession. At the top was Italy with 80% approval of this question.

In the same Eurobarometer 45 a comparable question *"Support for European Union Membership"* (Figure 8.4) Austria ranks at the last place with an approval rate of this question of only 27%; Finland 37%, Sweden 29%. EU15 average was 48%. At the top was Italy with 70% approval.

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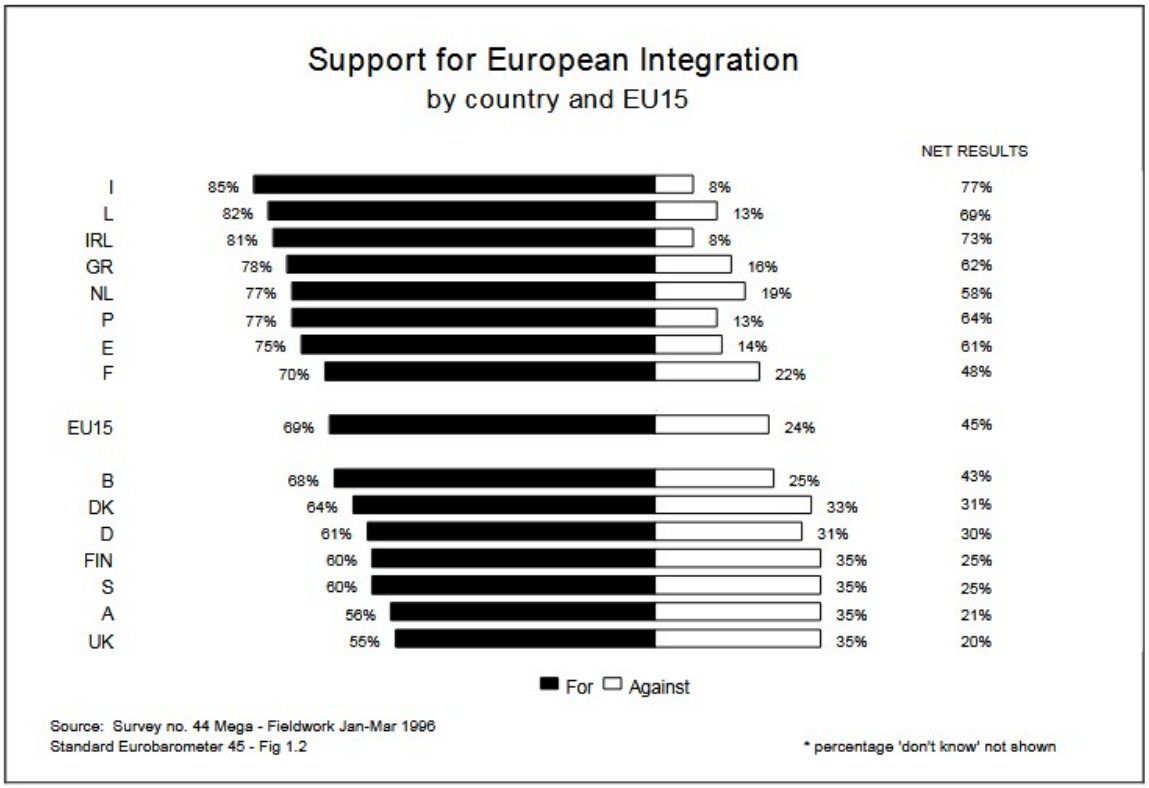
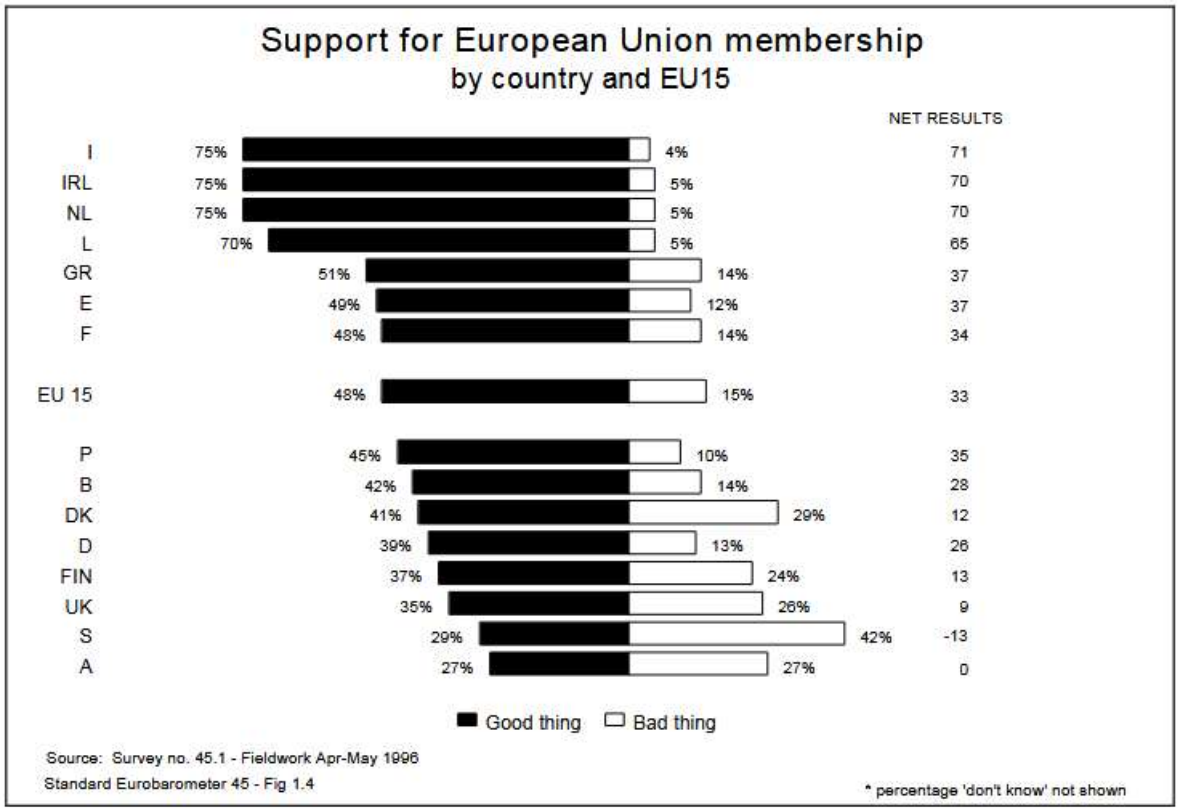
[271] See: https://europa.eu/eurobarometer/surveys/detail/1415

Figure 8.3. Support for European Integration: EB 1996



Source: Standard Eurobarometer 45, Spring 1996, p. 2

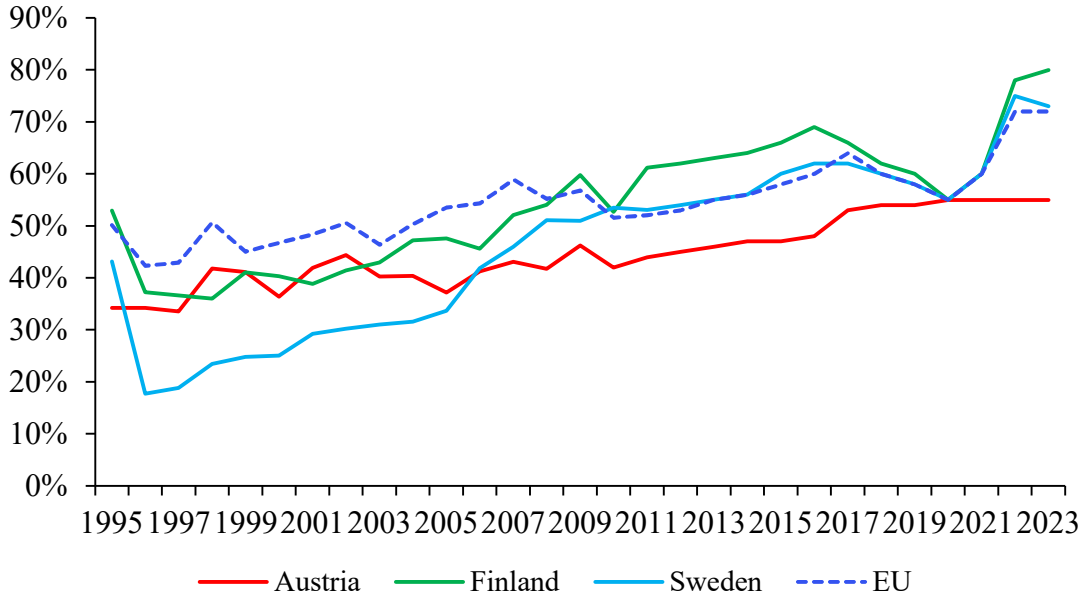
Figure 8.4: Support for European Union Membership: EB 1996



Source: Source: Standard Eurobarometer 45, Spring 1996, p. 3

Research about the historical development of the public opinion towards the EU is not easy, because the methodology of questioning and the sources have changed. From 1995 to 2011 Eurobarometer asked the question about "EU Membership: benefited or not?". This question is no longer asked by Eurobarometer but for some years by Parlemeter of the European Parliament[272]. The data, collected in Figures 8.5 and 8.6 are partly from Eurobarometer, partly from Parlemeter, and for some years (after 2011) with missing answers, interpolated.

Figure 8.5: Did your country benefit from being a member of the EU? (in %)



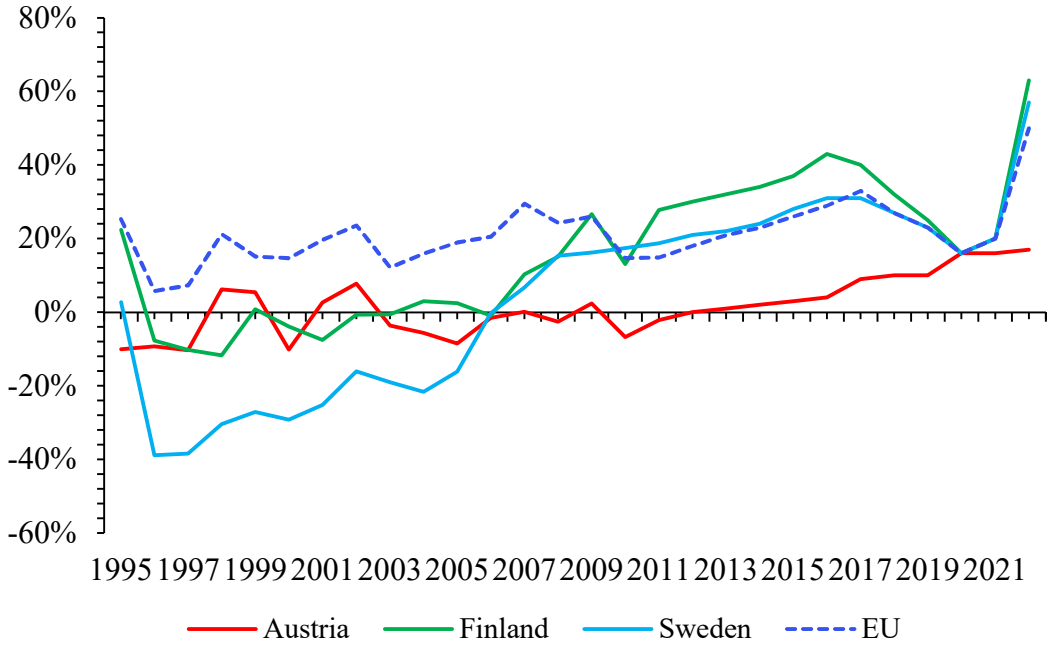
After 2011, some years are interpolated.
Source: Eurobarometer 1995-2011; Parlemeter 2012-2023

Figure 8.5 shows the answers to the question whether a country *"benefited"* from EU membership. Figure 8.6 gives the *balance of "benefited" and "not benefited"* from EU membership. Both figures show that, over time, the population of the three countries has taken an increasingly positive view of EU membership. In the early years of EU membership – from 1995 to 2006 – none of the three new EU members' population thought that their country has benefited more than the EU on average: the balance benefited minus not benefited was even negative (in Sweden very significant or balanced later (see Figure 8.6). Only from the year 2006, firstly Finland and Sweden, then Austria experienced a positive balance. Again, Finland

[272] See: https://www.europarl.europa.eu/at-your-service/de/be-heard/eurobarometer/parlemeter-of-the-european-parliament

and Sweden are in the lead concerning the public opinion towards EU membership. The EU on average had over the whole period a positive balance.

Figure 8.6: EU Membership: balance of benefited minus not benefited (in %)



After 2011, some years are interpolated.
Source: Eurobarometer 1995-2011; Parlemeter 2012-2022

On the occasion of the 20th anniversary of EU membership of Austria, Finland and Sweden, Eurobarometer has published a Flash Eurobarometer 407 (Eurobarometer, 2015) in January 2015[273]. A variety of questions are asked such as: feeling about the EU, cooperation with member states, impact of the EU membership, priorities of the new European Commission, which was the most memorable event in the EU so far.

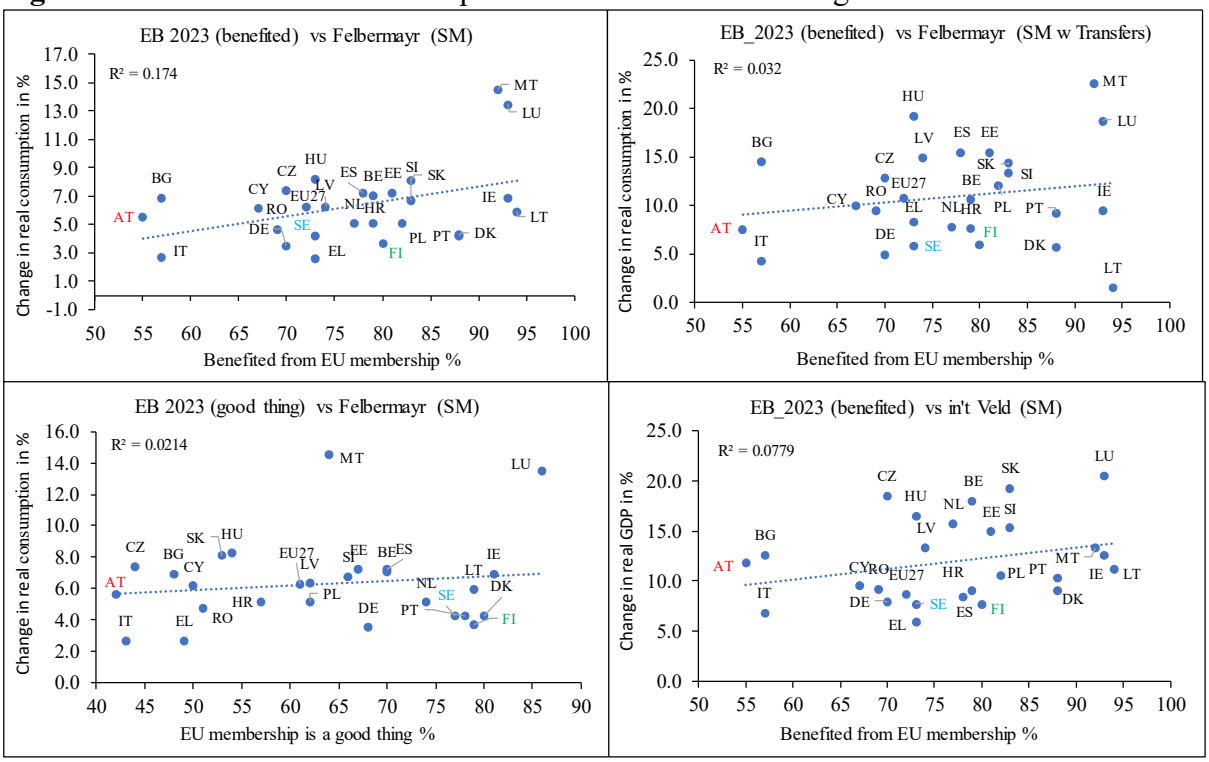
In Austria the most memorable events in the past 20 years were the introduction of the Euro, EU accession, the political sanctions against Austria in 2000, EU enlargement 2004, elections to the European Parliament.

The questions concerning the *impact of EU membership* are answered as follows. On average of the three countries, 24% qualify the mobility of students and workers very positive. Second important comes the better choice of consumer goods (17%). The role of the own country in the world is qualified only with 10% as very positive. Less important are the questions: infrastructure, environment, security of the people, economic situation, and social welfare. In

[273] See: https://data.europa.eu/data/datasets/s2053_407_eng?locale=en; see also GESIS: https://search.gesis.org/research_data/ZA5952

Austria are the priorities somewhat different. The mobility of student and workers comes first with 24% very positive. Second comes the choice of consumer goods (19%), Third comes – interestingly – the role in the world (12%), and fourth infrastructure (10%). In *Finland* also the mobility of students and workers is seen with 28% very positively at the first place of the positive effects of EU membership. Second comes the choice of consumer goods (16%), third the role in the world (11%), and fourth the environment (8%). A similar pattern of answers is given in *Sweden*: 22% mobility of students and workers, 17%, consumer goods, infrastructure (8%), environment (7%).

Figure 8.7: Correlation of Public Opinion and estimated EU integration effects



EB 2023 = European Parliament: Eurobarometer Parlemeter 2023, EB100.1, Autumn 2023; benefited = the question: "Would you say that our country has on balance benefited or not from being a member of the EU?", good thing = the question: "Do you think that membership of the EU is a good or bad thing?"; Felbermayr = estimation of EU SM (Single Market) effects and SM with Transfers) Felbermayr et al. (2022A); in't Veld = SM effects estimated by in't Veld (2019:

8.2 The riddle of Austrian EU membership

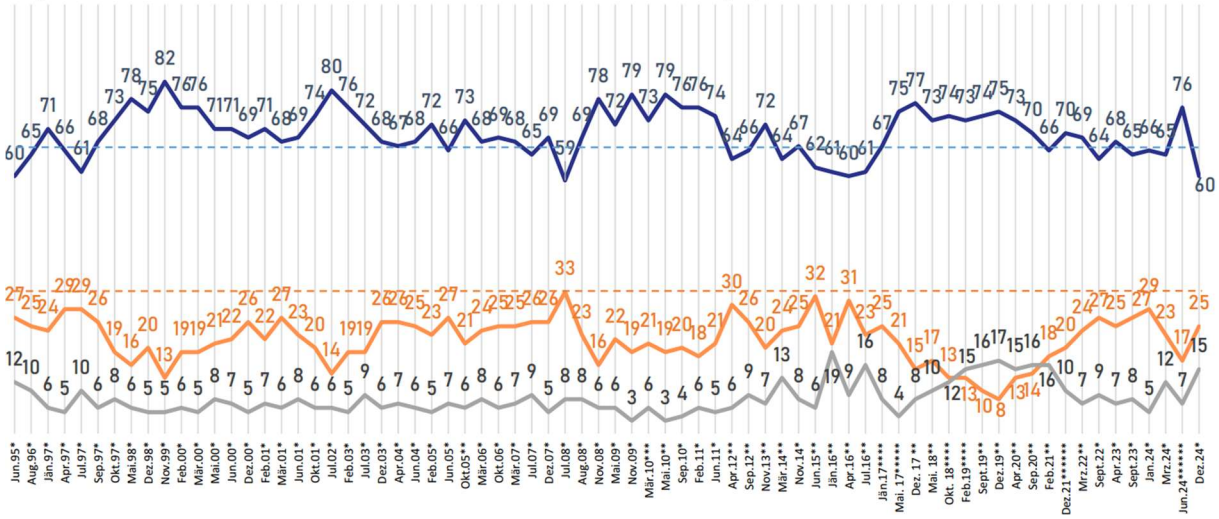
There is a fundamental contradiction between public opinion about the EU and the effects of membership. As Figures 8.1 and Figure 8.2 have shown, this is particularly glaring in the case of Austria. Almost all studies conclude that Austria has economically benefited more than Finland and Sweden from EU membership. However, according to Eurobarometer surveys, the Austrian population is the most sceptical of all EU member states.

A simple correlation analysis between the latest Eurobarometer survey results and estimated integration effects (GDP effects in %) shows that the correlation is extremely weak. This means that the population regularly underestimates the benefits of EU membership (see Figure 8.7).

8.3 No Öxit in sight

The Austrian Society for European Policy (Österreichische Gesellschaft für Europapolitik, ÖGfE[274]) regularly asks the population about their attitudes towards the EU. The question *"Shall Austria remain a member of the EU?"* is always answered in the affirmative (see Figure 8.8). At the EU referendum 1994, 66.6% of the Austrian population voted for an accession to the EU. Since then, on average the share of the "remainers" have (with ups and downs, depending on world crises) even increased. Over the last 30 years, the average number of those in favour of EU membership is 70 percent; the number of those who would prefer to leave the EU is 22 percent. The highest approval ratings for EU membership were recorded in November 1999 (82%) and June/July 2002 (80%), while the strongest desire to leave the EU was recorded in June/July 2008 (33%) and June 2015 (32%). In 2024 the ÖGfE survey recorded heavy fluctuations. Around the elections to the European Parliament in June, the rate of pro-EU supporters was particularly high at 76%, only to fall again to 60% by the end of 2024 (see Figure 8.8).

Figure 8.8: Shall Austria remain a member of the EU? (%)



Blue = remain EU member; red = leave the EU; grey = I do not know; dotted line = 66.6% positive vote at the EU referendum in 1994.
Source: Österreichische Gesellschaft für Europapolitik (ÖGfE), December 2024.

[274] See: https://www.oegfe.at/?lang=en

On the occasion of Austria's 30th anniversary of EU membership, the ÖGfE conducted an additional survey on the advantages and disadvantages of EU membership[275]. The following questions were asked:

- *What kind of citizen:* After three decades of EU membership, 47% see themselves as both "Austrians and Europeans", 43% as "Austrians only" and 5% as "Europeans only".
- *Euro:* Almost three quarters say that the introduction of the euro as a common currency has had a "very positive" (37%) or "fairly positive" (36%) effect on Austria. Just under a quarter, on the other hand, say that the introduction of the euro has been "rather" (10 percent) or "very negative" (13 percent) for Austria.
- *Schengen:* 37% consider the end of passport and border controls to be "very" or "rather positive" (33%) for Austria, an opinion that slightly more than a quarter do not share ("rather negative": 14% / "very negative": 13%). Compared to surveys on the 20th and 25th anniversary of EU accession, the balance has become significantly more positive.
- *Enlargement:* Just over half say that the EU's enlargements have been "very" (18%) or "fairly positive" (34%) for Austria. Four out of ten respondents do not see it that way and rate the admission of new members in the last 30 years as "rather" (24%) or "very negative" (18%). The opinion on enlargement has improved, especially compared to 2014, while the extreme positions ("very positive" - "very negative") have become more pronounced in the last five years.
- *Winners and losers:* According to the respondents, it is primarily large companies that have benefited from Austria's EU membership (72%), followed by young people (Pupils and students, thanks to Erasmus: 50%) and employees (thanks to the free movement of people in the EU single market: 45%). The balance for small and medium-sized enterprises, on the other hand, is mixed (only 36% see advantages; 39% see disadvantages), with farmers having benefited the least among the population groups surveyed (49% see only disadvantages; only 28% advantages), while pensioners, in turn, have seen the least change because of EU accession, according to the recent survey.
- *Confidence in the future of the EU:* Currently, 71% of respondents see the EU as "weak", 61% feel it is "insecure". 54% consider it to be "anti-social" and opinion is divided on the question of whether the EU is democratic. Also, the confidence in the future of the Union is just as low. A total of 55% are "rather" (34%) or "very pessimistic" (21%) about the future of the EU. 39% remain confident and are "rather" (33%) or "very" (6%) optimistic.

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[275] See: https://www.oegfe.at/umfragen/30-jahre-eu-mitgliedschaft/

Overall, the ÖGfE survey celebrating 30 years of Austria's EU membership, shows that an "Öxit" is currently not in sight.

Also, in the election campaign for the 2024 European elections (Votes for the European Parliament) on June 9, 2024, no party explicitly called for an Öxit[276].

Based on the results of their study (Felbermayr et al., 2022A; see more on the quantification of the economic benefits of EU membership in our chapter 12.2.1), Felbermayr and Heiland (2024) make an evaluation of a possible dissolution of the EU ("Undoing Europe") and the economic consequences for Austria ("Öxit"). Accordingly, real GDP would decline by 7.8% in the long run, which would cost Austria around 35 bn EUR. The advantage of being a member of the EU amounts to around 3.860 EUR per capita. ¾ of the economic benefits stem from being a member of EU's Single Market.

9. EU membership is more than just more trade

In chapter 12 on the evaluation of EU membership we will show that the majority of estimates of integration effects are based on the assumption that EU membership means more common trade. But belonging to the EU means much more than just economic considerations.

Already the Lisbon Treaty lays down the fundamental goals of the Union. The Preamble of the Treaty on European Union (TEU) defines the fundamental goals of the EU. Here are just a few examples:

- ending the division of the European continent
- respect of human rights, the rule of law
- European Social Charta
- deepen the solidarity between their peoples
- enhance further the democratic and efficient functioning of the institutions
- convergence of their economies and to establish an *economic and monetary union* including, a *single and stable currency ("Euro")*
- promote economic and social progress for their peoples, within the context of the accomplishment of the *internal market ("Single Market")*
- implement a common foreign and security policy including the progressive framing of a *common defence policy*

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[276] See: https://orf.at/stories/3360143/

- free movement of persons, while ensuring the safety and security of their peoples, by establishing an area of freedom, security and justice
- creating an *ever closer union* among the peoples of Europe.

Many of these lofty goals have not yet been achieved. The Single Market was created with an incomplete monetary union (not all EU MS have introduced the Euro). The political goals of global political capability and an effective defence and security policy to protect against aggressors such as Russia remain unfulfilled.

However, with Russia's unjustified war of aggression against Ukraine, high-intensity conflict has returned to Europe. This is why on 5 March 2024, the European Commission put forward a new, first-ever European Defence Industrial Strategy[277]. It sets a clear, long-term vision to achieve defence industrial readiness in the European Union**.** EU countries should invest more, better, together, and European. Funding is kicked off through a new European Defence Industry Programme worth EUR 1.5 billion. By 2030, EU countries should buy at least 40% of the defence equipment by working together, spend at least half of their defence procurement budget on products made in Europe, trade at least 35% of defence goods between EU countries instead of with other countries. This should help make the EU safer and more resilient.

The majority of EU Member States are also decidedly against *"an ever closer union"*, i.e. they do not want a United States of Europe (see Breuss, 2013), but want to maintain the status quo, in which the EU is only a union of states ("Staatenverbund" not a "Bundesstaat") in which the member states can act independently (especially in foreign policy).

The European Union is an ongoing project concerning deepening and widening. It goes without saying that a project as dynamic as the EU always receives good advice from various experts. In the anthology core elements of European integration ("Kernelemente der europäischen Integration"; see Müller-Graff, 2020), all aspects of the present EU and its future tasks are discussed from experts in the fields of law, political science, and economics.

Felbermayr (2024A) emphasizes that Europe should pay for itself. Without the numerous economic benefits of the European Union, Europe's people would be much poorer. Unfortunately, as we have shown, there is no (or only a weak) correlation between the economic benefits of EU membership and citizens' satisfaction with the EU (see Figure 8.7). This is why

[277] See: https://commission.europa.eu/news/first-ever-european-defence-industrial-strategy-enhance-europes-readiness-and-security-2024-03-05_en

Felbermayr (2024A) suggests that the EU should return to the old principle of subsidiarity. In other words, the EU should only deal with the provision of common goods (protection of external borders, common defence, etc.) and other matters should be dealt with nationally. The legal basis for the *principle of subsidiarity*[278] is Article 5, paragraph 3 of the Treaty on European Union (TEU) and Protocol No. 2 on the application of the principles of subsidiarity and proportionality. The inclusion of the principle of subsidiarity in the European Treaties is also intended to ensure that powers are exercised as closely as possible to the citizen in accordance with the principle of proximity enshrined in Article 10(3) TEU.

Handler (2024) is concerned about the "crisis-tested Europe" after the various crises (Brexit, Covid) and analyses how Europe can master the challenges of globalization, migration, nationalism, and populism and at the same time strengthen solidarity. The author provides comprehensive reflections on the added value of European integration and gives advice for the future of the EU.

In the latest ARENA Analysis 2024 (see Osztovics, 2024), the participants in the survey discussed many of the EU's current problems and proposed solutions. Osztovics (2024) recalled that in 2024, the EU has celebrated many milestones:

- 30 years ago, Austria (June), Finland (October), and Sweden (November) decide to join the EU in referenda with overwhelming majority. Only Norway voted against joining the EU for the second time.
- 20 years ago, the EU carried out the great eastward enlargement increasing the EU15 to EU25 when eight former communist countries, including three former Soviet republics, joined the EU (Malta and Cyprus also took part in this round of enlargement, followed by Bulgaria and Romania in 2007). In addition to deepening EU integration, further steps towards enlargement are on the agenda: Balkans, Ukraine, Moldova[279]. Current EU candidate countries are[280]: Albania, Bosnia and Herzegovina, Georgia, Moldova, Montenegro, North Macedonia, Serbia, Türkiye, Ukraine.
- 25 years ago, on January 1, 1999, eleven EU member states introduced the euro. The euro project is still unfinished. Seven EU member states (including Sweden) have not yet introduced the euro as legal tender.

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[278] See also the Fact Sheet of the European Parliament: https://www.europarl.europa.eu/factsheets/en/sheet/7/das-subsidiaritatsprinzip.

[279] See wiiw (2024): Special issue on *"20 Years of EU Enlargement"*: https://wiiw.ac.at/monthly-report-no-04-2024-dlp-6876.pdf; see also the EU website: see also the website of the European Commission "20 years together": https://commission.europa.eu/20-years-together_en

[280] See: https://european-union.europa.eu/principles-countries-history/eu-enlargement_en

- The European Political Community (EPC) was established in 2022 to increase global political capability[281]. In addition to the 27 countries of the Union, it includes 18 others, from Armenia to Andorra and from Iceland to North Macedonia. The common goal is to secure energy supplies, reduce dependencies, combat climate change and help each other during the next pandemic. Apart from the concrete cooperation, the rapid establishment of the EPG alone shows that the need to move closer together has been recognized.

One of the main messages of the ARENA Analysis 2024 is that Europe must significantly increase its defence readiness but must not abandon the original founding idea of the peace project. For a long time, military defence played a subordinate role in practically all member states. However, Vladimir Putin has now reinterpreted his invasion of Ukraine as an existential struggle between Russia and Europe and the European model. Putin needs the EU as an enemy, and Europe must expect recurring attempts at destabilization in the future.

To meet the challenges of the coming years, the EU must therefore throw the principle of *unanimity* overboard, warn the participants in the ARENA Analysis. Proposals for alternatives have long been on the table, there are well thought-out methods for qualified majority decisions that are designed so that genuine concerns of individual states are discussed and considered as far as possible. Nevertheless, smaller countries have so far been reluctant to let the veto club be taken away. Now, however, a window could open in response to Hungary's blockade policy, which bluntly linked a fateful decision that is important for the entire continent, such as support for Ukraine, to a petty demand for money.

Two Macron speeches on Europe

Since Emmanuel Macron became president of France in 2017, he makes efforts to give impulses to reform the EU. Two speeches at the University of Sorbonne in Paris bear witness of these efforts.

In his first Europe speech on 26 September 2017 on *"New Initiative for Europe"*[282] he stressed the route of rebuilding a "sovereign, united and democratic Europe". This ambition is based on the inside that Europe of today is too weak, too slow, too inefficient. Only a united Europe can deliver this. Accordingly, Europe must take actions to secure its sovereignty:

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[281] See: https://en.wikipedia.org/wiki/European_Political_Community
[282] See: https://www.elysee.fr/front/pdf/elysee-module-795-en.pdf

3) The key foundation of any political community is *security*. There is a two-fold movement in Europe: a gradual disengagement by the USA, and a long-term terrorist threat. Therefore, Europe should become autonomous in the area of defence in complement to NATO.
4) To ensure EU's sovereignty, one must *control the borders* and preserving European values. Migration is a long-lasting challenge.
5) Another key to EU's sovereignty is its *foreign policy*, the partnership with Africa.
6) The *ecological transition*.
7) The *digital technology*.
8) *Economic and Monetary Union (EMU):* The final key to EU's sovereignty is industrial and monetary economic power. A single currency and the eurozone is seen by Macron as the "heart of Europe's global economic power". He made several suggestions to reform EU's economic governance. One can summarise them with three points: the Eurozone should be controlled by the European Parliament; a Euro finance minister should be installed; the Eurozone should have its own budget.

Macron wished in his 2017 speech that his goals should be reached in 2024. Seven years later he must confess that "we have not accomplished all we set out". Well in the meantime, new crises (Brexit in 2021; COVID-19 in 2020/21 and the Ukraine war since 2022) have arisen. Therefore, Macron gave a new speech in 2024.

In his second Europe speech on 25 April 2024 on *"Europe: it can die: A New Paradigm"*[283] he addressed the new challenges for Europe. Looking back at Macron's 2017 speech, he lists the points that the EU has achieved since then. This ranges from the united combat of the COVID-19 pandemic crisis and the creation of the NextGenerationEU programme; a greater technological and industrial sovereignty; the transformation Green Deal; reaffirming the existence of its borders; for the first time the EU considered its links with everyone on a continental scale, through the European Political Community.

Starting with a quote by Paul Valéry after the World War I when he remarked that "we know our civilizations are mortal", Macron – in the light of the new war in the Ukraine – used this phrase to point out that "Europe is mortal. It can die. it can die". Then he lists the critical points of the EU:

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[283] See: https://geopolitique.eu/en/2024/04/26/macron-europe-it-can-die-a-new-paradigm-at-the-sorbonne/

2) *Europe must become a power*: Via "*strategic autonomy*" the EU and Europe must ensure its own security. For this the EU must scale-up its defence. It should become autonomous of the USA.
3) *The EU must control its borders*: The New Pact on Migration and Asylum was a major step forward.
4) *The EU of progress and prosperity*: One should become sovereign at a time of profound transformation. The EU must build a new model of growth and production. Macron enumerate six pillars to deliver prosperity:
   - The EU must produce more and greener.
   - The EU and its *Single Market* must end of complicated Europe. The Letta report of 2024 points also in this direction (see Letta, 2024).
   - One must accelerate *industrial policy* by a similar motion as in the USA ("America first"), namely by "Made in Europe". Europe should become a world leader in five of the most emerging and strategic sectors by 2030 (ranging from AI, quantum computing, space and aeronautics, biotechnology, and new energies). This sound like the strategic goals China ("Made in China 2025"[284]) formulated for 2050.
   - The EU should develop a *new trade policy*: Well, the suggested reform steps are already realized by the new EU trade policy (see chapter 9.3.3) with its *"Open, Sustainable and Assertive Trade Policy"* which supports the EU's "*Open Strategic Autonomy*" (OSA)". The latter is following the suggestions by Macron to secure EU's sovereignty.
   - *Investing in innovation, research and competitiveness*.
   - Ability to invest by creating a *savings and investment market.* This is not more or less than finalizing the project of a Banking and Capital Market Union.
5) A *humanist Europe*. With this slogan Macron pledges for the old values of Europe, the rules of law, freedom, liberal democracy etc.

The continent without qualities?

In a historically far-reaching analysis, Sloterdijk (2024) describes Europe as a continent without characteristics. He emphasises the very different origins of the EU member states - many were empires (Commonwealth, Habsburg Empire, Spain, Portugal) - and the difficulty of growing together into a new entity that no longer wants to be an empire. Europe's legacy is the two world

[284] See: https://de.wikipedia.org/wiki/Made_in_China_2025

wars, which led to Europe trying to exist solely as a peaceful entity. The 2012 Nobel Peace Prize has encouraged the EU in this endeavour.

From a union of peace to one of defense

As will be discussed in more detail in chapter 14, the EU, which has so far presented itself as a union for peace and economic prosperity, must also focus more on defense issues. The war in Ukraine and the ongoing threat from Russia led to the new Commission 2024-2029 appointing a Commissioner for Defense for the first time.

9.1 Single Market the pillar of EU's economy

Trade liberalization stood in the first place in EC integration in the sixties. With the completion of the Customs Union in 1968 and the Free Trade Agreements EU-EFTA in 1973, most hurdles (at least the tariff hurdles) were eliminated first between the 6 EC Member States and later between the EC9 and EFTA8 in the seventies. The Single Market Project, started in 1993 should complete trade liberalization and already go beyond freedom for trade of goods and services by enlarge the freedoms to those of persons and capital. The completion should bring the introduction of the Euro in 1999/2002.

But with the SM project the EU embarked into a position which – in the words and wishes of Commission's president Jean Claude Junker – should end in a "European Government". Although the heads of states and governments of the EU Member States stopped the ambitions of Junker, nevertheless the EU Commission is permanently acting like a European Government by suggesting and deciding (the Commission has the exclusive right to initiative, i.e. it can propose EU law) – together with the other EU institutions – European Parliament and Council – one ambitious project after the other. It culminated by the "European Grean Deal" of the European Commission under Ulrike von der Leyen.

9.1.1 Main features of the Single Market

In short, the EU officially describes the SM as: *"The internal market of the European Union (EU) is a single market in which the free movement of goods, services, capital and persons is assured, and in which citizens are free to live, work, study and do business"*[285].

The SM is the core of EU integration. Each incumbent is a member of it, and the first task of a new Member State (MS) is to enter the SM. Furthermore, the SM is never finished, it is a

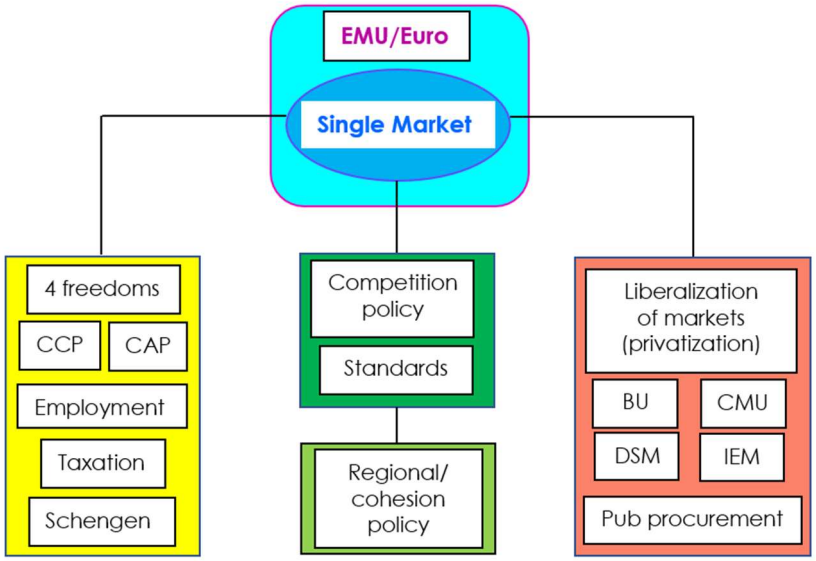
[285] See: https://eur-lex.europa.eu/content/summaries/summary-24-expanded-content.html

permanent "moving target". The basic idea is that with the SM the EU transforms from national heterogeneous markets with their own rules to a common or single market with common rules.

The Single Market Project (SMP) in the strict sense is defined in the TFEU, in the articles 4(2)(a), 26, 27, 101, 114 and 115 of the TFEU. The core are the four freedoms (free movement of goods, services, persons, and capital), accompanied with common rules on competition, taxation, and approximation of laws (Article 101 of TFEU).

The protracted Brexit negotiations have shown how complex the legal interdependence of an EU MS with the internal market already is (Breuss, 2021).

Figure 9.1: EU's Single Market – in a broader perspective



BU = Banking union; CAP = Common agricultural policy; CMU = Capital markets union; CCP = Common Commercial Policy; DSM = Digital single market; IEM = Internal energy market.
Source: Own drawing.

In a broader sense not only the four freedoms and competition policy constitute the SM (see Figure 9.1). A true single market also includes a common currency. The Economic and Monetary Union (EMU) – also still uncompleted - with the Euro and its components Banking union (BU) and Capital markets union (CMU) fulfils this goal. The SM encompasses all supporting policies that have a direct impact on the SM[286] such as taxation, employment, culture, social policy, education, public health, energy, consumer protection, transport, environment, and information society and media (see Figure 9.1). The Schengen Agreement

[286] The EU Treaty's primary law on the internal market is implemented by SM directives. SM directives are legal acts which have an impact on the functioning of the SM, as defined in Article 26(2) of TFEU. The huge body Internal Market legislation is summarized by EUR-Lex: https://eur-lex.europa.eu/content/summaries/summary-24-expanded-content.html

supports one of the four freedoms, the Visa-free movement between MS. Regional or cohesion policy aims at equalizing the development in the EU member states. In addition, in the meantime the EU has created additional single markets, one for energy (IEM) and a single digital market (SDM).

Common rules and laws on public procurement complete the SMP. One of the key principles underpinning the SM is *mutual recognition*[287] of standards[288]. This principle – initialized by Cassis de Dijon case[289] - was introduced because a complete harmonization of national legislation would have been too complicated.

With the start of the Single Market, EU MS more and more privatized their economic sectors and opened them to Single Market competition. Nevertheless, in some countries there are still significant shares of "State-Owned Enterprises (SOEs). These are companies where for various reasons, the state exercises control. According to the studies of the OECD (2021) and the European Commission (2016) in most Member States, SOEs are still significant players in the energy and rail sectors as these sectors have only recently been open to competition. In Europe the scope of public ownership in various sectors of the economy is particularly extensive in some of the new Member States such as Poland, Croatia, Romania, and Slovenia. However, SOEs prominently feature also in some EU15 Member States such as France,

9.1.2 Flexible integration or "Europe à la carte"

Only the six founding EU MS take part in all integration steps since World War II (see Figure 9.2). Since 2023, 20 EU MS pay with the Euro. Since 2025, 25 take part in the Schengen process. The only EU member states that are not part of the Schengen Area are Cyprus and Ireland. Cyprus is committed by treaty to join in the future, while Ireland maintains an opt-out and operates its own visa policy[290]. 21 EU MS are also members of NATO. As a rule, each MS must take part in EU's SM. A country acceding to the EU must participate in the SM and adopt the respective acquis communautaire.

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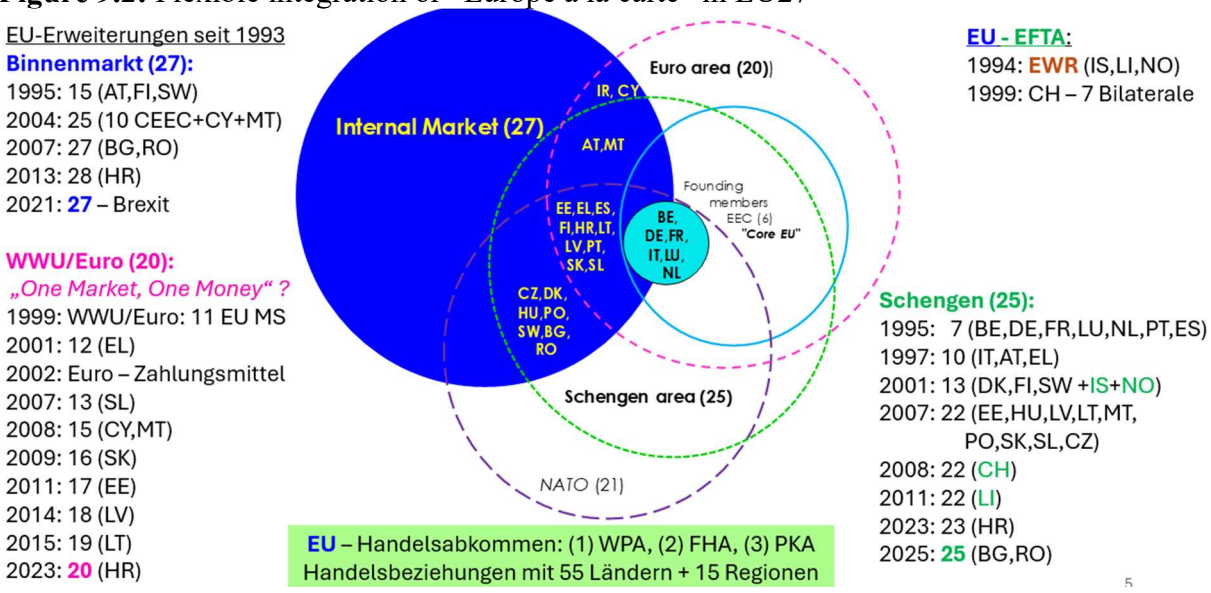
[287] Mutual recognition communication, see: https://eur-lex.europa.eu/EN/legal-content/summary/mutual-recognition-in-the-eu-s-single-market.html

[288] European standardization regulation, see: https://eur-lex.europa.eu/EN/legal-content/summary/european-standardisation.html

[289] See the judgement of the European Court of Justice: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A61978CJ0120

[290] See: https://en.wikipedia.org/wiki/Schengen_Area

Figure 9.2: Flexible integration or "Europe à la carte" in EU27



Croatia is member of the Euro area and Schengen since 1 January 2023. Finland in 2023 and Sweden in 2024 became NATO members. Bulgaria and Romania became members of Schengen in 2025.
EEA = European Economic Area; EPA = Economic Partnership Agreement; Free Trade Agreement; PCA = Partnership and Co-operation Agreement with preferential element.
Source: own drawing

9.2 Effective while strong competition policy

9.2.1 The legal basics

In TFEU, Part Three (Union Policies and Internal Actions), Title VII, (Common Rules on Competition, Taxation and Approximation of Laws" Chapter 1 'Rules on competition" rules the respective provisions, in Section 1 'Rules applying to undertakings', in Section 2 'Aids granted by States'.

Article 101, Paragraph 1 says: *"The following shall be prohibited as incompatible with the internal market: all agreements between undertakings, decisions by associations of undertakings and concerted practices which may affect trade between Member States, and which have as their object or effect the prevention, restriction or distortion of competition within the internal market, and in particular those which:*

(a) Directly or indirectly fix purchase or selling prices or any other trading conditions;

(b) Limit or control production, markets, technical development, or investment;

(c) Share markets or sources of supply;

(d) Apply dissimilar conditions to equivalent transactions with other trading parties, thereby placing them at a competitive disadvantage;

(e) Make the conclusion of contracts subject to acceptance by the other parties of supplementary obligations which, by their nature or according to commercial usage, have no connection with the subject of such contracts."

Article 102, TFEU, says: *"Any abuse by one or more undertakings of a dominant position within the internal market or in a substantial part of it shall be prohibited as incompatible with the internal market in so far as it may affect trade between Member States".*

Strong competition policy

To enhance the importance of a strong competition policy to shield the internal market, the TEU and the TFEU has added Protocol 27: 'On the internal market and competition': *"... internal market as set out in Article 3 of the TEU includes a system ensuring that competition is not distorted".*

The EU's competition policy is an important accompanying check that there are fair competitive conditions in the internal market. The European Commission is the competition authority of the EU[291]. It ensures the correct application of EU competition rules. The competition policy instruments are: *Antitrust & Cartels, Mergers, State Aid, Digital Markets Act, Foreign Subsidies*[292].

The EU competition policy is quite powerful. This is proofed in the case of antitrust and merger cases against the technology giants, like Apple and Google, which were punished with heavy fines[293].

9.2.2 Economic impact of more competition

The creation of EU's Single Market should have stimulated competition. Greater trade openness (increased intra-EU trade) has increased competition and lowered prices. Firms lost market power to raise mark-ups of their prices over their marginal costs, which has a positive impact on output. According to the study by Badinger (2007) mark-ups went up in most service industries of EU's SM since the early 1990s, confirming the weak state of the Single Market for services and provoked an additional liberalization program of services in the EU, the

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[291] See the "Competition" websites of the European Commission: https://ec.europa.eu/info/topics/competition_en; and : https://competition-policy.ec.europa.eu/index_en; see also the website "Competition" of the European Union: https://european-union.europa.eu/priorities-and-actions/actions-topic/competition_en; an overview on European Union competition law gives also Wikipedia: https://en.m.wikipedia.org/wiki/European_Union_competition_law#:~:text=In%20the%20European%20Union%2C%20competition,damage%20the%20interests%20of%20society.

[292] For the search of cases of competition policy of the European Commission, see: https://competition-cases.ec.europa.eu/search

[293] See the cases on the website: https://ec.europa.eu/competition/elojade/isef/index.cfm; for the database of national court cases, forwarded to the European Commission, see: https://ec.europa.eu/competition/elojade/antitrust/nationalcourts/

Services Directive (SD) of 2006[294]. In the manufacturing sectors, however, mark-ups declined on average by 26%. In't Veld (2019, p. 812) uses this figure in his counterfactual simulations of the impact of non-SM. Mion and Ponattu (2019 apply a new quantitative trade model (NQTM) of the global economy under monopolistic competition. Quantitative trade models incorporate the channels through which trade affects consumers, firms and workers and provide a mapping from trade data to welfare (See Costinot and Rodriguez-Clare, 2014).

The NQTM of Mion and Ponattu (2019, p. 12) is used to evaluate the impact of the trade boosting effects of the SM on productivity, markups (more competition), product variety, and welfare. They find that the higher competition on the grand EU SM has reduced markups by around 2.1% (Germany) to 3.3% in Austria, but only by 1.9% in Finland, and by -2.2% in Sweden. Breuss (2022B) with his small EU integration model also captures the competition effects of EU's Single Market.

There are recent studies by the European Commission (Cai et al., 2021, p. 12), demonstrating that EU's strict competition policy had a considerable impact on GDP. The authors used European Commission's QUEST III model to evaluate the macroeconomic impact of competition policy enforcement. Accordingly, prices (GDP deflator) decreased by 0.2 ppts after 5 years and real GDP increased by 0.3 ppts. See also an overview over similar studies by Ilzkovitz (2020).

Three EU assessments – in't Veld (2019), Mion and Ponattu (2019), and Breuss (2020B) – evaluate also the impact of more competition of being a member of EU's Single Market. In't Veld (2019, p. 813) with his DSGE model QUEST estimates that more competition due to EU's Single Market resulted in a quite similar medium-term increase of real GDP in the three countries: Austria +2.3%, Finland, +2.2%, and Sweden +2.0%. The welfare (income) effects of more competition in EU's Single Market in the model by Mion and Ponattu (2019, p. 12) can only be derived indirectly, by subtracting the total change in welfare (change in real income) minus the change in productivity. This exercise gives the following results: more competition measured by a reduction in markups results in all three countries (Austria, Finland, and Sweden) by an increase of welfare of around 0.7 ppts (in the medium-term).

Breuss (2022B) finds with an estimated macromodel with updated data up to 2023, that the competition effect of EU's Single Market resulted in the following GDP effects: Cumulative from 1995 to 2023 real GDP increased by 0.4 ppts (or 0.01% per year) in Austria, by 0.7 ppts

[294] The European Commission is now working with EU countries to further improve the single market for services (see: https://ec.europa.eu/growth/single-market/services/services-directive_en).

(or 0.02% per year) in Finland, and by 2.6 ppts (or 0.09% per year) in Sweden. These results might partly explain the much better performance of the recent inflation trends in the Scandinavian countries than in Austria.

With a political economy model of market regulation Gutiérrez and Philippon (2018) show that countries in a Single Market like those of the EU willingly promote a supranational regulator that enforces free markets beyond the preferences of any individual country. European institutions (the European Commission) are more independent and enforce competition more strongly than any individual country ever did. Countries with ex-ante weaker institutions benefit more from the delegation of competition policy to the EU level. Over the last two decades, U.S. markets have gradually become less competitive. Today, European markets are more competitive than those in the United States which invented modern antitrust in the late nineteenth and early twentieth century. By 1950 it was clear to most observers that American markets were more competitive that European ones. The creation of EU's Single Market with its fierce competition policy brought the turning point (see European Commission (2022B).

9.3 Policies supporting the SM

The Single Market is the backbone of EU integration. The word "internal market" occurs 60 times in the text of the treaties TFEU and TFEU. Its importance is further increased – at least in those MS which have introduced the Euro – by a common currency. Furthermore, it is supported by the following policies.

1) The Common Agricultural Policy (CAP), ruled in the TFEU, Part Three (Union Policies and Internal Actions), Title III: 'Agriculture and Fisheries'. The CAP started already in 1962.
2) Regional or cohesion policy, ruled in the TFEU, Part Three (Union Policies and Internal Actions), Title XVIII: 'Economic, Social and Territorial Cohesion'.
3) Taxation, ruled in the TFEU, Part Three (Union Policies and Internal Actions), Title VII: 'Common Rules on Competition, Taxation and Approximations of Laws', Chapter 2: 'Tax provisions'. Article 110 essentially rules the harmonization of indirect taxations[295]. Direct taxation is still a competence of the MS.
4) Industrial policy (a protective shield against unfair foreign competition)
5) Trade policy – Common Commercial Policy (CCP): (border adjustment mechanism)

[295] See the Taxation website of the European Union: https://european-union.europa.eu/priorities-and-actions/actions-topic/taxation_en; and the Taxation website of the European Commission: https://ec.europa.eu/info/policies/taxation_en

6) EU Budget[296] - Single Market highlight
7) Competition policy

9.3.1 Industrial policy

Increased globalization - although it has slowed down due to the various crises (GFC 2008/09, COVID-19 pandemic 2020/21, Energy crisis 2022) – went hand in hand with unfair foreign competition. This hampered EU's SM and especially the export-oriented European industry. Industry and Single Market is combined at the website of the European Commission ("Internal Market, Industry, Entrepreneurship and SMEs"[297]).

The European Commission, based on its *"European Industrial Strategy"*[298] initiated several legal instruments to make the SM more resilient and shield its industry against unfair foreign competition; just to mention a view:

- Screening of FDI in the EU: Regulation (EU) 2019/452 of 19 March 2019
- White Paper on foreign subsidies in the Single Market: 17 June 2020[299]
- Cyber security: proposal for a directive on measure for a high common level of cybersecurity across the Union of 16.12.2020[300].
- Proposal for a directive on corporate sustainability due diligence in case of global value chains[301]: 23 February 2022
- Single Market Emergency Instrument (SMEI): 19 September 2022[302]

An additional (administrative) hurdle for EU companies could bring the new reporting rules for EU companies. On 28 November 2022 the Council for Industry and Trade gave its final approval to the Corporate Sustainability Reporting Directive (CSRD; see also chapter 6.6.1)[303].

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[296] See the website of the European Commission "EU budget": https://ec.europa.eu/info/strategy/eu-budget_en
[297] See: https://single-market-economy.ec.europa.eu/index_en
[298] See: https://ec.europa.eu/info/strategy/priorities-2019-2024/europe-fit-digital-age/european-industrial-strategy_en
[299] See: https://ec.europa.eu/commission/presscorner/detail/en/ip_20_1070; see also the report by the European Parliament on the "future of EU international investment policy" of 25.5.2022: https://www.europarl.europa.eu/doceo/document/A-9-2022-0166_EN.html. On 28 November 2022 the EU Council approved the Foreign Subsidies Regulation to tackling distortive foreign subsidies on the internal market (See: https://www.consilium.europa.eu/en/press/press-releases/2022/11/28/council-gives-final-approval-to-tackling-distortive-foreign-subsidies-on-the-internal-market/
[300] See: https://eur-lex.europa.eu/resource.html?uri=cellar:be0b5038-3fa8-11eb-b27b-01aa75ed71a1.0001.02/DOC_1&format=PDF
[301] See: https://ec.europa.eu/commission/presscorner/detail/en/ip_22_1145
[302] See: https://ec.europa.eu/commission/presscorner/detail/en/IP_22_5443
[303] See: https://www.consilium.europa.eu/en/press/press-releases/2022/11/28/council-gives-final-green-light-to-corporate-sustainability-reporting-directive/

The application of the regulation will take place in four stages:

- reporting in 2025 on the financial year 2024 for companies already subject to the Non-Financial Reporting Directive (NFRD) 2014/95/EU of 22 October 2014;
- reporting in 2026 on the financial year 2025 for large companies that are not currently subject to the NFRD;
- reporting in 2027 on the financial year 2026 for listed SMEs (except micro undertakings), small and non-complex credit institutions and captive insurance undertakings;
- reporting in 2029 on the financial year 2028 for third-country undertakings with net turnover above 150 million in the EU if they have at least one subsidiary or branch in the EU exceeding certain thresholds.

9.3.2 Critical Raw Materials Act and Deforestation

CRM Act

On 16 March 2023 the Commission proposed a comprehensive set of actions (*Critical Raw Materials Act* -CRM Act), to ensure the EU's access to a secure, diversified, affordable and sustainable supply of critical raw materials[304]. These critical raw materials are indispensable for a wide set of strategic sectors including the net zero industry, the digital industry, aerospace, and defence sectors.

The Regulation and Communication on critical raw materials adopted leverage the strengths and opportunities of the Single Market and the EU's external partnerships to diversify and enhance the resilience of EU critical raw material supply chains. The Critical Raw Materials Act also improves the EU capacity to monitor and mitigate risks of disruptions and enhances circularity and sustainability.

The Critical Raw Materials Act will equip the EU with the tools to ensure the EU's access to a secure and sustainable supply of critical raw materials, mainly through:

- *Setting clear priorities for action:* In addition to an updated list of critical raw materials, the Act identifies a list of strategic raw materials, which are crucial to technologies important to Europe's green and digital ambitions and for defence and space applications, while being subject to potential supply risks in the future. The Regulation embeds both the critical and

[304] See the Websites of the European Commission. https://ec.europa.eu/commission/presscorner/detail/en/ip_23_1661; https://single-market-economy.ec.europa.eu/sectors/raw-materials/areas-specific-interest/critical-raw-materials_en; the assessment of the European Council (who adopted its position on the Critical Raw Material Act – CRMA – on 30 June 2023) can be found on: https://www.consilium.europa.eu/en/infographics/critical-raw-materials/

strategic raw materials lists in EU law. The Regulation sets clear benchmarks for domestic capacities along the strategic raw material supply chain and to diversify EU supply by 2030:

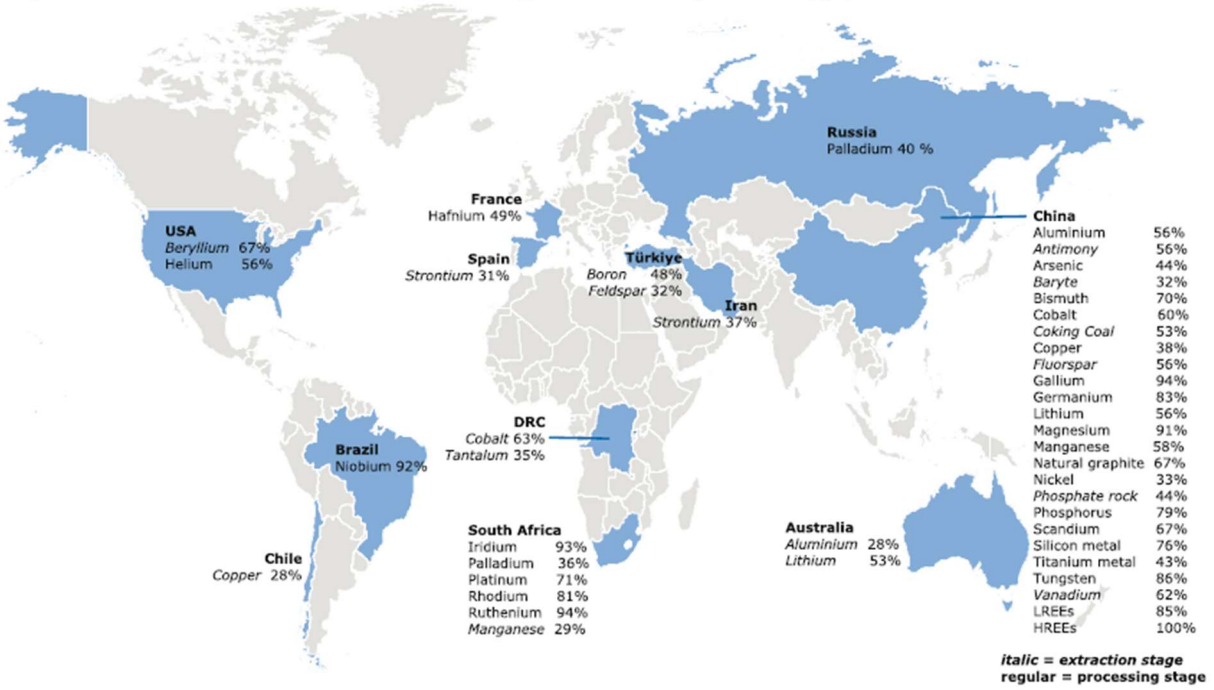
  - At least 10% of the EU's annual consumption for extraction,
  - At least 40% of the EU's annual consumption for processing,
  - At least 15% of the EU's annual consumption for recycling,
  - Not more than 65% of the Union's annual consumption of each strategic raw material at any relevant stage of processing from a single third country.
- *Creating secure and resilient EU critical raw materials supply chains*
- *Ensuring that the EU can mitigate supply risks*
- *Investing in research, innovation and skills*
- *Protecting the environment by improving circularity and sustainability of critical raw materials*
- *International Engagement:* The EU will never be self-sufficient in supplying such raw materials and will continue to rely on imports for a majority of its consumption. International trade is therefore essential to supporting global production and ensuring diversification of supply. For securing Critical Raw Materials in the EU it needs a role of trade and external actions[305]:
- CRM Club: establish a raw material alliance with partners to strengthen supply chains and diversify sourcing.
- Strategic Partnership on Raw Materials: Expand EU's network of strategic raw materials partnerships.
- Trade and Investment Agreements: Leverage and expand our trade agreements as regards raw materials extraction, processing and trade.
- Global Gateway: Support critical raw material supply projects, including on infrastructure, connectivity, and sustainability.
- Enforcing Trade Rules: Continue to combat unfair trade practices, especially when they concern trade investment in or access to critical raw materials.

The CRM Act defines 34 critical raw materials (17 of which have been proposed by the Council). A study assesses this list of critical raw materials (European Commission, 2023B). Figure 9.3 shows the world map of the main global producers of the raw materials listed as

[305] See "Critical Raw Materials and Trade – Infographic https://ec.europa.eu/commission/presscorner/detail/en/ip_23_1661

critical for the EU in 2023. An analysis of global supply confirms that China is the largest supplier of several critical raw materials. Other countries are also important global suppliers of specific materials. For instance, Russia and South Africa are the largest global suppliers for platinum group metals, Australia for lithium, the USA for beryllium and helium, and Brazil for niobium.

Figure 9.3: Countries accounting for largest share of global supply of CRMs



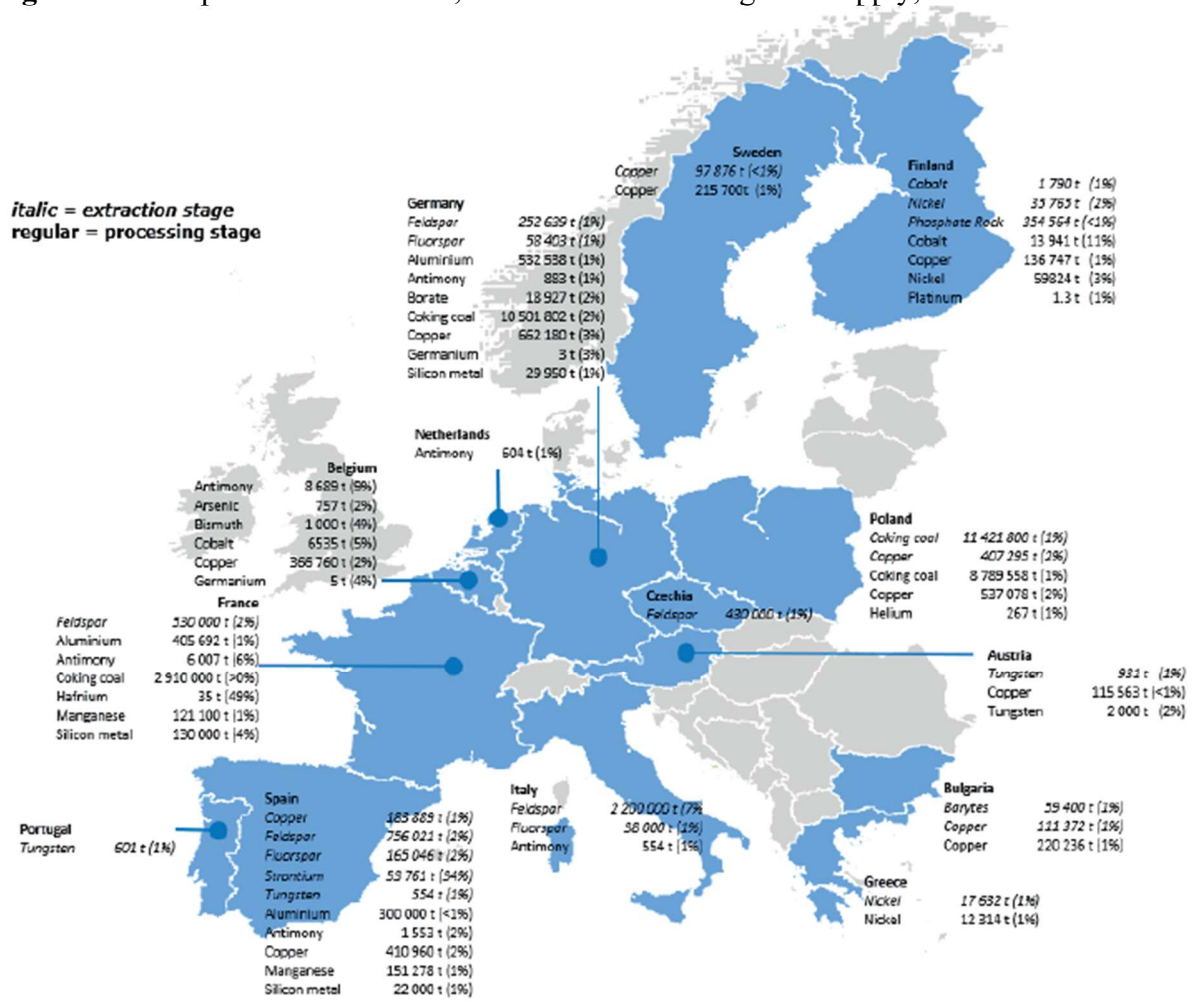
Source: European Commission (2023B), p. 6

Figure 9.4 provides an overview of the EU producers of CRMs with a global share of over 0.5%. It is worth mentioning that the EU extracts 34% of global supply of strontium in Spain; 14% of feldspar in Italy, Spain, France, Czechia, Germany and others; 3% of tungsten in Austria, Portugal and Spain. The EU processes and refines 49% of global supply of hafnium in France; 18% of antimony in Belgium, France, Spain and many others; 17% of cobalt in Finland, Belgium and France; 7% of germanium in Germany and Belgium; 5% of silicon metal in France, Spain and Slovakia; 4% of nickel in Finland, Greece and France. Copper in Sweden.

In a comprehensive study by the International Institute for Applied System Analysis (IIASA) in Laxenburg, Austria (see Creutzig et al., 2024) a large research team suggests demand-side strategies for mitigating material impasse of energy transitions. As fossil fuels are phased out in favour of renewable energy, electric cars and other low-carbon technologies, the future clean energy system is likely to require less overall mining than the current fossil-fuelled system. However, material extraction and waste flows, new infrastructure development, land-use

change, and the provision of new types of goods and services associated with decarbonization will produce social and environmental pressures at localized to regional scales. The authors belief that demand-side solutions can achieve the important outcome of reducing both the scale of the climate challenge and material resource requirements that explicitly consider planetary boundaries associated with Earth's material resources.

Figure 9.4: EU producers of CRMs, in brackets shares of global supply, 2016-2020



Source: European Commission (2023B), p. 8

Deforestation-free products[306]

With an EU Regulation on Deforestation-Fee Products (EUDR), the EU rules to guarantee that the products EU citizens consume do not contribute to deforestation or forest degradation worldwide.

By promoting the consumption of 'deforestation-free' products and reducing the EU's impact on global deforestation and forest degradation, the new *Regulation on deforestation-free*

[306] See: https://environment.ec.europa.eu/topics/forests/deforestation/regulation-deforestation-free-products_en

products (EUDR) is expected to bring down greenhouse gas emissions and biodiversity loss. The Regulation is part of a broader plan of actions to tackle deforestation and forest degradation first outlined in the 2019 Commission Communication on Stepping up *EU Action to Protect and Restore the World's Forests*. This commitment was later confirmed by the European Green Deal, the *EU Biodiversity Strategy for 2030* and the *Farm to Fork Strategy*.

On 29 June 2023, the *Regulation on deforestation-free products* entered into force[307]. The main driver of these processes is the expansion of agricultural land that is linked to the production of commodities like soy, beef, palm oil, wood, cocoa, coffee, rubber and some of their derived products, such as leather, chocolate, tyres, or furniture. As a major economy and consumer of these commodities linked to deforestation and forest degradation, the EU is partly responsible for this problem, and it wants to lead the way to solving it.

Under the Regulation, any operator or trader who places these commodities on the EU market, or exports from it, must be able to prove that the products do not originate from recently deforested land or have contributed to forest degradation.

The Regulation on deforestation-free products repeals the *EU Timber Regulation.* As of 29 June 2023, operators and traders will have 18 months to implement the new rules. Micro and small enterprises will enjoy a longer adaptation period, as well as other specific provisions.

The new rules aim to

- avoid that the listed products Europeans buy, use and consume contribute to deforestation and forest degradation in the EU and globally
- reduce carbon emissions caused by EU consumption and production of the relevant commodities by at least 32 million metric tonnes a year
- address all deforestation driven by agricultural expansion to produce the commodities in the scope of the regulation, as well as forest degradation.

On 3 October 2024, the Commission proposed postponing the application date of the deforestation regulation (EU) 2023/1115 by one year in response to concerns raised by EU member states, non-EU countries, traders and operators that they would not be able to fully comply with the rules if applied from the end of 2024. On 17 December 2024 the European Parliament adopted the provisional political agreement with the Council to delay the application

[307] See: Regulation (EU) 2023/1115 of the European Parliament and of the Council of 31 May 2023 on the making available on the Union market and the export from the Union of certain commodities and products associated with deforestation and forest degradation and repealing Regulation (EU) No 995/2010, OJEU, L 150/206, 9.6.2023.

of the new rules[308]. Large operators and traders will now have to respect the obligations of this regulation as of 30 December 2025, and micro- and small enterprises from 30 June 2026. This additional time is intended to help companies around the world implement the rules more smoothly from the date of application, without undermining the objectives of the law.

9.3.3 Trade policy: from pure economics to geostrategy

EU's common trade policy was from the beginning inherently linked to EU's Single Market. In TFEU, Part Five (External Action by the Union), Title II, 'Common Commercial Policy (CCP)' rules the respective provisions in Article 206: "*By establishing a customs union in accordance with Articles 28 to 32, the Union shall contribute, in the common interest, to the harmonious development of world trade, the progressive abolition of restrictions on international trade and on foreign direct investment, and the lowering of customs and other barriers*." Article 207 sets out the rules on EU trade policy.

On 18 February 2021, the European Commission sets course for an open, sustainable, and assertive EU trade policy for the coming years[309]. The Commission puts *"sustainability at the heart of its new trade strategy, supporting the fundamental transformation of its economy to a climate-neutral one".*

In its Trade Policy Review *"An Open, Sustainable and Assertive Trade Policy"* (European Commission 2021A), it defines European trade policy at a time of economic transformation and geopolitical instability new an prepares for the world of 2030. Accordingly, a trade policy that supports the EU's "*Open Strategic Autonomy*" (OSA). "It emphasises the EU's ability to make its own choices and shape the world around it through leadership and engagement, reflecting its strategic interests and values" (European Commission, 2021A, p. 4).

OSA is important concerning openness, recalling EU's commitment to open and fair trade with well-functioning, diversified and sustainable global value chains. OSA encompasses:

- *resilience and competitiveness* to strengthen the EU's economy.
- *sustainable and fairness*, reflecting the need for responsible and fair EU action.
- *Assertiveness and rules-based cooperation* to showcase the EU's preference for international cooperation and dialogue, but also its readiness to combat unfair practices and use autonomous tools to pursue its interests where needed.

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[308] See: https://www.europarl.europa.eu/news/en/press-room/20241212IPR25961/deforestation-law-parliament-gives-companies-extra-year-to-comply#:~:text=The%20deforestation%20regulation%2C%20adopted%20by,rubber%2C%20charcoal%20and%20printed%20paper.

[309] See: https://ec.europa.eu/commission/presscorner/detail/en/ip_21_644

Political power plays more and more an important role in trade relations. The disadvantage of the EU is that it is not a federal state, like the USA. Although trade policy is a unique EU competence, some EU Member States can be attacked by political and economic blockades, like China did with Lithuania. This would not be possible against one of US's federal states. Such events rapidly are a matter of foreign policy which the EU has no common competence.

This new trade strategy follows those of 2006, called the *"Global Europe"* strategy, that of 2015, called *"Trade for all"*[310] and those following the EU trade policy review of 2021[311].

The new OSA trade policy should enable the EU to embark stronger as before into the geostrategic play by the major actors in the world like the USA or China or the developing world by BRICS+.

The EU has developed several new instruments to implement the new trade policy. Some of them have already been dealt with in this study. Wolfmayr et al. (2024) have chosen seven of the most important recent trade policy instruments and analysed them quantitatively with structural gravity and CGE models (KITE model). Among the most important new trade policy instruments that the EU has introduced are the following seven:

1) *Anti-Coercion Instrument (ACI)* to protect against economic coercion. The ACI has entered into force on 27 September 2023[312], providing the EU with the means to deter and respond to economic coercion, and thereby better defend its interests and those of its Member States on the global stage. Examples are coercion of China against Lithuania because Taiwan opened a representative office in Vilnius[313]. The Regulation provides a legal framework for responding to coercion and sets down the means for the EU to investigate and take decisions. It includes timeframes and procedures for stakeholders affected by coercion to contact the Commission and hold a stakeholder consultation before taking countermeasures. The ACI likewise provides a framework for the EU to request a third country to repair the injury caused by its economic coercion. The simulated welfare effects of Chinas coercive actions are small for the EU and Austria.
2) *Enforcement Regulation (ER):* Due to the blocking of the WTO dispute settlement procedure by the USA, the EU has revised its EU' Enforcement Regulation (ER) with Regulation (EU)

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[310] See: "Trade for all". Towards a more responsible trade and investment policy, 2015: https://trade.ec.europa.eu/doclib/docs/2015/october/tradoc_153846.pdf

[311] See: https://ec.europa.eu/commission/presscorner/detail/en/ip_20_1058; and: https://eur-lex.europa.eu/resource.html?uri=cellar:5bf4e9d0-71d2-11eb-9ac9-01aa75ed71a1.0001.02/DOC_1&format=PDF

[312] See: https://ec.europa.eu/commission/presscorner/detail/en/ip_23_6804

[313] Further examples of coercion against EU member states, see: Wolfmayr et al. (2024), p. 19.

2021/167 of 10 February 2021[314]. The WTO Dispute Settlement Body has been unable to fill the outstanding vacancies on the WTO Appellate Body in December 2019. The WTO Appellate Body is no longer able to fulfil its function from the moment when there are fewer than three WTO Appellate Body Members left. Until that situation is resolved and in order to preserve the essential principles and features of the WTO dispute settlement system and the Union's procedural rights in ongoing and future disputes, the Union has sought to agree interim arrangements for appeal arbitration pursuant to Article 25 of the WTO Understanding on Rules and Procedures Governing the Settlement of Disputes (the "WTO Dispute Settlement Understanding"). The EU has taken a three-folded approach to address this issue, including submitting WTO reform proposals, advocating a contingency solution called the Multiparty Interim Appeal Arbitration Arrangement (MPIA), and proposing amendments to the 2014 Enforcement Regulation by the Regulation 2021/167. An overview over the current WTO disputes following the MPIA-route was collected by Wolfmayr et al. (2024, p. 45).

3) *International Procurement Instrument (IPI):* Protectionism in public procurement is on the rise worldwide. During the last decade, studies have shown that the number of public procurement barriers has been multiplied by 5. These public procurement barriers can take many forms. They can be legal provisions restricting de jure the market access for foreign bidder or they can be practices de facto lowering the chances of success of foreign bidders in public procurement procedures. Commonly observed restrictive schemes or measures adopted in third country include: (i) Local content requirements; (ii) Price preference schemes favouring domestic bidders in public procurement procedures; (iii) Legal restriction/prohibition for foreign bidders to participate in public procurement procedures. Legal basis is the Regulation (EU) 2022/1031 of 23 June 2022[315].

   The EU has been advocating for increased openness in international public procurement markets and for reciprocal access for EU businesses both, through its participation in the Government Procurement Agreement (GPA) within the WTO, and bilaterally via free trade agreements (FTAs) including provisions on government procurement. However, the IPI was born out of the moderate progress and success of both multilateral and bilateral efforts. The GPA has been signed by only 20 WTO members, including the EU, Canada, the United Kingdom, and the USA, but not China, India, Brazil, or Russia.

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[314] See: https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32021R0167
[315] See: https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32022R1031

The IPI will primarily apply to third countries that are not parties to the WTO GPA or do not have a FTA with the EU containing a public procurement chapter. This applies, for example, to China, India, or Brazil. A quantitative evaluation of IPI was not possible, due to a lack of data ((Wolfmayr et al., 2024, p. 65).

4) *Level playing field provisions in the EU-UK Trade and Cooperation Agreement (LPF):* After the Brexit, the Level Playing Field (LPF) provisions in the EU-United Kingdom Trade and Cooperation Agreement (TCA, 2021[316]; TITLE XI) seek to safeguard "open and fair competition and sustainable development, through effective and robust frameworks for subsidies and competition and a commitment to uphold their respective high levels of protection in the areas of labour and social standards, environment, the fight against climate change, and taxation" (TCA, 2021, Preamble, point 9).
5) *Corporate Sustainability Due Diligence Act (CSDD):* The EU proposal for a Directive on Corporate Sustainability Due Diligence (CSDD) – or also shortly called "Supply Chain Act" - and for a Corporate Sustainability Reporting Directive aims to promote sustainable and responsible business conduct (RBC) throughout global value chains, with companies playing a key role in building a sustainable economy and society. The proposed Directive is part of the EU's broader commitment to sustainable development and the United Nations Sustainable Development Goals (more about UN's SDG's, see chapter 10.4). The economic impact of the implementation is quantitatively analysed in Wolfmayr et al. (2014) and shortly surveyed in chapter 6.6.2.
6) *EU Regulation on Deforestation-Free Products (EUDR):* Deforestation is a significant and ongoing global challenge. Between 1990 and 2020, the world lost about 420 mn hectares of forest. Although rates have slowed, deforestation remains a major environmental threat with profound impacts on climate change, biodiversity, and human well-being. To safeguard the world's forests and the benefits they provide to society, initiatives such as the EU Deforestation Initiative (DI[317]) and other global efforts to promote sustainable land-use practices are essential. This topic is discussed in more detail in chapter 9.3.2.
7) *Carbon Border Adjustment Mechanism (CBAM):* The possible economic impact of the implementation of CBAM in 2026 is dealt with in detail in chapter 6.6.4.

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[316] See Trade and Cooperation Agreement: L q149/10 of 30.4.2021: https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:22021A0430(01)

[317] See: https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12137-Deforestation-and-forest-degradation-reducing-the-impact-of-products-placed-on-the-EU-market_en; and Wolfmayr et al. (2024), chapter 4.6.

The first three instruments (ACI, ER, and IPI) are classified by Wolfmayr et al. (2024, p. 2) as "defensive" EU trade policy instruments. The other instruments are more "offensive" and should help to enforce EU's policy aims, its responsibility of global value chain practices with CSDD, or the responsibility of managing climate change with CBAM or DI.

Instrument number one (ACI), although it has consequences on trade by EU Member States, it has more to do with foreign-trade policy, namely the question how an EU MS can politically retaliate against a trade giant like China. The application of the ACI at EU level is of course a question of credibility. At least the EU has a big economic power thanks to the asset of its large Single Market. The second instrument (ER) is more of an accompanying program to keep the WTO or its Dispute Settlement System alive. Instrument number three (IPI) has more to do with international competitiveness than with trade as such. LPF The fourth instrument (LPF) is a component of the EU-UK TCA and insofar has no relevance as a general EU trade policy, but only for the bilateral relations between the EU and the UK after the Brexit. The instruments five to seven (CSDD, EUDR, CBAM) – in particular CSDD and CBAM - are of unparalleled bureaucratic complexity that will burden and weaken companies in the EU in terms of competition without bringing any significant economic benefits. They are symbolic of the EU as a world leader in good governance. With these policy approaches the picture of the EU as a Union of Peace is transforming to a Union which rules, whereas the other big global players, the USA and China are the innovators.

The EU has a whole battery of defence instruments against unfair trade practices. *Trade defence instruments (TDIs)* are necessary to uphold the EU's commitment to open markets and free trade. The EU's use of TDIs is based on World Trade Organization rules. The EU uses these instruments and applies several extra conditions to the WTO rules to make sure their use is measured. Recently, the EU has improved its TDIs in the following areas[318]: (i) TDI modernisation, (ii) New anti-dumping methodology, (iii) TDI help for small companies in the EU, (iv) Deadlines in investigations, (v) Registration of imports.

New EU-China policy

On 30 March 2023, European Commission's President von der Leyen gave a speech at the Mercator Institute for China Studies and the European Policy Centre. There she pointed out the new trade policy approach towards China[319]. A policy reorientation became necessary after the

[318] See: https://policy.trade.ec.europa.eu/enforcement-and-protection/trade-defence_en
[319] See: https://ec.europa.eu/commission/presscorner/detail/en/SPEECH_23_2063

old formula of "change through trade" no longer seemed to be valid in a world full of instability and the threat of war. China is no longer called a friend but a competitor. In October 2022, President Xi told the Communist Party Congress that by 2049 he wanted China to become a world leader in "composite national strength and international influence". Or to put it in simpler terms: He essentially wants China to become the world's most powerful nation. After the declaration "no-limits friendship" of President Xi, the EU is watching how China continues to interact with Putin's war. This will be a determining factor for EU-China relations going forward. Von der Leyen names the new strategy towards China, "*de-risking*", not "de-coupling". The latter would hurt the European economy rather hard, whereas a de-risking strategy is only a precautionary strategy.

A de-coupling from China would lead to losses of welfare in Austria by 0.6%, in Finland by 1.0%, and in Sweden by 0.8% (see Felbermayr et al., 2022B, p. A1[320]).

A comprehensive study of the OECD (see Arriola et al., 2024) tries to demystify trade dependencies and analysis facts for the debate on "de-risking" international trade which the new EU trade policy aims at – at least vis a vis China. Supply chain disruptions related to natural events or geopolitical tensions have in recent years prompted policy makers to identify potential vulnerabilities related to critical trade dependencies (like the EU versus China) - commercial links that could potentially impose significant economic or societal harm, be a source of coercion, a risk to national security, or disrupt strategic activities. Using three complementary methodologies — detailed trade data analysis, input output data techniques, and computable general equilibrium (CGE) modelling — the OECD study examines the nature and evolution of trade dependencies between the OECD countries and major non-OECD economies (MNOE) at a country and sectoral level. It shows that global production has become increasingly concentrated at the product level, with China representing 15% of import dependencies in strategic products for OECD countries in 2020-21 compared to 4% in 1997-99. The study demonstrates a high degree of trade interdependency between OECD and MNOE countries. As a conclusion, the OECD means that the current debate on "de-risking" international trade, therefore, needs to carefully consider the possible costs and benefits of different policy choices.

China is increasingly penetrating the European market with cheap battery electric vehicles (BEVs). On 29 October 2024, after concluding its anti-subsidy investigation the European Commission imposed definitive countervailing duties on imports of battery electric vehicles

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[320] See also the De-coupling Generator by Hendrik Mahlkow, on: https://hendrikmahlkow.shinyapps.io/kite-shiny/

(BEVs) from China for a period of five years[321]. The investigation found that the BEV value chain in China benefits from unfair subsidization which is causing threat of economic injury to EU producers of BEVs. As a result, the duties will enter into force on the day following publication in the Official Journal[322]. The countervailing duties range from 17.0% for BYD to 35.3% for SAIC.

9.4 Still strong border effects within EU's SM

The empirical study by Santamaria et al. (2023) *"Exploring European regional trade"* reveals that the EU is far from having a (complete) Single Market. The authors use a new dataset of trade flows across 269 European regions in 24 countries constructed based on the European Road Freight Transport survey collecting data on truck shipments of goods in agriculture, manufacturing, and mining. The dataset spans from 2011 to 2017, disaggregated inti 12 different industries. This allows for the first time to measure trade flows both across and within country borders. The authors focus on the differences between home trade, country trade and foreign trade. They find the following facts: (i) European regional trade has a strong home and country bias, (ii) geographic distance and national borders are important determinants of regional trade but cannot explain the strong "regional home bias" and (iii) the home bias is heterogeneous across regions and seems to be driven by political regional borders.

The authors cannot explain the several home biases and therefore pose the questions for discussion (Santamaria et al., 2023, p. 22): *"Why is it that political borders and geographical distance still remain such a strong impediment to trade in the context of Europe? How does the behaviour of governments shape regional trade flows, contributing to the large home bias in trade? Which factors explain the heterogeneous home bias and border effects that we see across countries?"*

9.5 The Brussels Effect

For many observers, the European Union is mired in deep crises (COVID-19, energy crises). Between sluggish growth, Brexit, and the rise of Asian influence, political turmoil following Russia's invasion of Ukraine answered with severe sanctions against Russia; the EU is seen as a declining power on the world stage. Bradford (2012) first coined the phrase "Brussels Effects"

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[321] See: https://ec.europa.eu/commission/presscorner/detail/en/ip_24_5589

[322] See: Commission implementing Regulation (EU) 2024/2754 of 29 October 2024 imposing a definitive countervailing duty on imports of new battery electric vehicles designed for the transport of persons origination in the People's Republic of China, Official Journal of the EU, L, 29.10.2024 (https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=OJ:L_202402754).

and offered a novel account of the EU by challenging the view that it is a declining world power. Later, Bradford (2020) argues that the EU remains an influential superpower that shapes the world in its image. By promulgating regulations that shape the international business environment, elevating standards worldwide, and leading to a notable Europeanization of many important aspects of global commerce, the EU has managed to shape policy in areas such as data privacy, consumer health and safety, environmental protection, antitrust, and online hate speech. And in contrast to how superpowers wield their global influence, the Brussels Effect absolves the EU from playing a direct role in imposing standards, as market forces alone are often sufficient as multinational companies voluntarily extend the EU rule to govern their global operations. The Brussels Effect shows how the EU has acquired such power, why multinational companies use EU standards as global standards, and why the EU's role as the world's regulator is likely to outlive its gradual economic decline, extending the EU's influence long into the future.

Why is there no Peking or Washington Effect, but only a Brussels Effect? Bradford (2020) explains this by the lacking political will in the USA (the want to intervene in the market as less as possible) and in China. China has not yet the necessary legal institutions. Lastly, three ingredients are necessary for an effect like the Brussels Effect: (i) a large market, (ii) a regulatory capacity, and (iii) the political will. The EU is the only power that meet these three criteria.

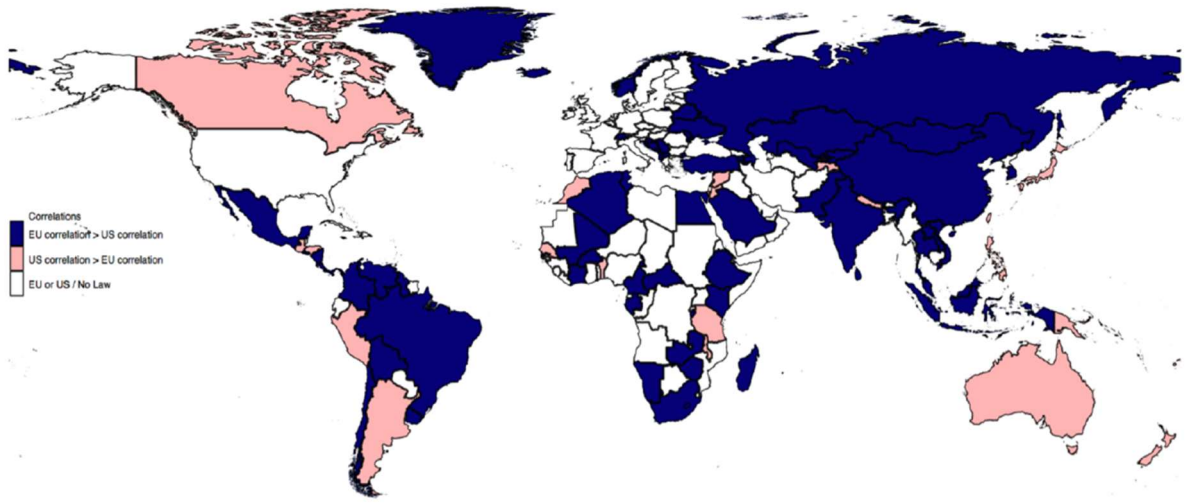
Bradford (2020), however, also mentions three common criticisms against the Brussels Effect:

1) Regulatory is costly and deters innovations. Because there is more regulation in Europe, there is more competition in Europe than in the USA.
2) The strict EU SM regulations, introduced primarily to rule the Single Market, exert indirectly a trade protectionist power against third countries (see Bradford, 2015). The US companies innovate, and the EU makes law cases against the major IT companies from Apple, Meta to Google. Some critics get to the heart of the matter by claiming that the *"US innovates, the Chinese imitate, and the Europeans regulate"*.
3) The Brussels effect is a manifestation of European regulatory imperialism: the EU is writing the rules for the world.

Figure 9.5 shows the global spread of the "Brussels Effect". It maps countries based on whether their correlation of competition law to the European Union or to the United States was higher in 2010. Among the countries whose substantive competition regulations more closely

resemble U.S. laws are states with strong cultural and legal ties to America, including Australia, Canada, and New Zealand. Important jurisdictions like Japan also have laws that are more like those of the United States than to those of the European Union. However, there are many more countries in every region of the world that have laws exhibiting higher correlations with the European Union than with the United States. These include important regional leaders in competition law and major emerging markets, including Brazil, China, India, Mexico, Russia, South Africa, and South Korea.

Figure 9.5: World map of countries with higher correlation to the US or the EU competition law in 2010



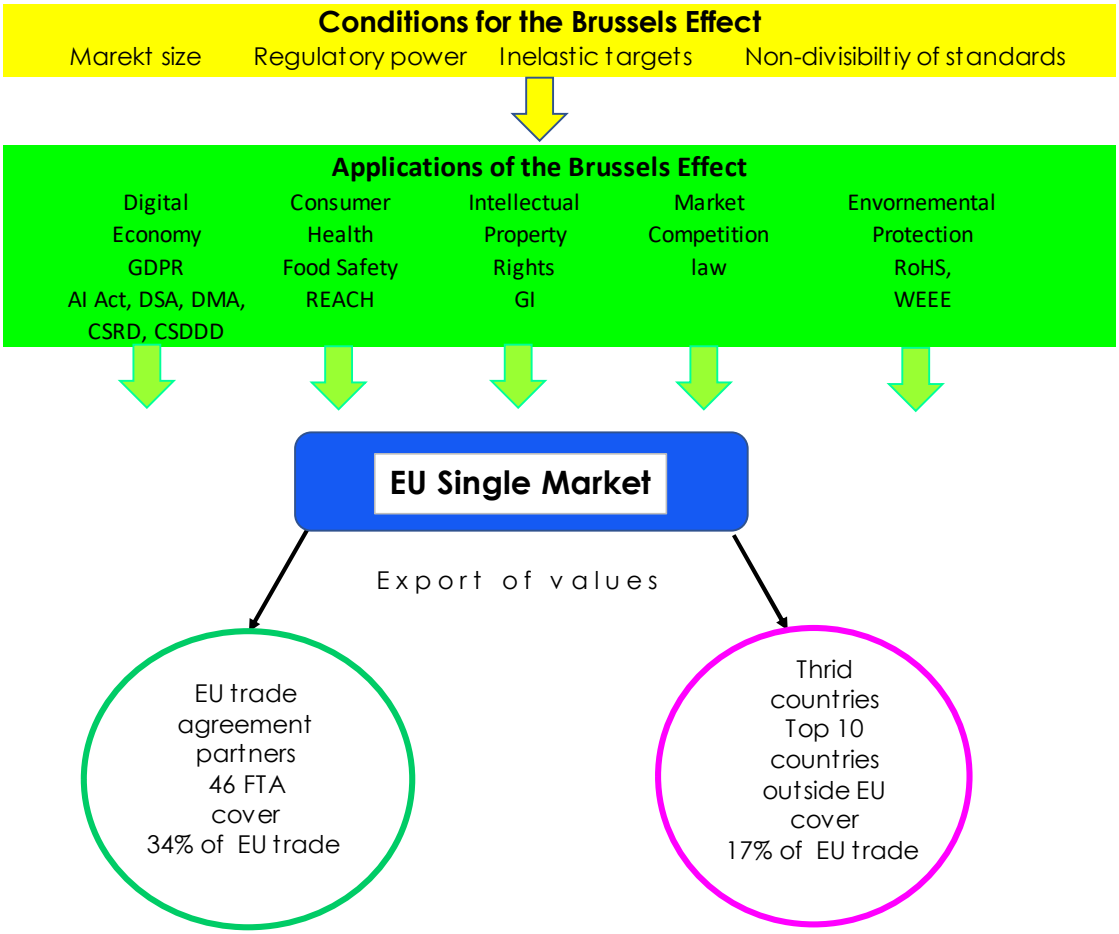
Competition law is coded for 36 variables of four groups: authority, merger control, abuse of dominance, and anticompetitive agreements. This figure maps each country based on whether it had a higher correlation to the United States or to the European Union in 2010. Countries are not shaded if they did not have a competition law in 2010, if there is no coding of their competition law, or if they are EU MS or the United States.
Source: Bradford et al (2019), Figure 4.

Bradford et al. (2019) also examine the extent to which various national laws replicate the language used in the EU and US competition law. This also influences the correlations of competition law with those of the EU or the US.

Although the above analysis has focused on competition law, the implications go well beyond it (see Bradford et al., 2019). Regulatory races between US and EU authorities are common in many policy fields. To take one example, the European General Data Protection Regulation (GDPR) entered into force in May 2018. Immediately, small, and large firms around the world altered their privacy practices. In addition, numerous diverse countries, as well as US states, have copied or are in the process of copying this EU template. Many of these dynamics driving the imitation of EU competition law (via the push factor “Brussels Effect”) also apply

to the field of privacy. Moreover, as with the European competition law model, the European privacy law model places less trust in the market than does its American equivalent, and in so doing appeals to governments around the world. Compared to the myriad sectoral laws on privacy in the United States, the European Union's privacy regulation is detailed, comprehensive, and easy to copy, thus serving as an effective off-the-shelf template for others to replicate. In sum, the European Union is winning the race for the globalization of various economic rules, Europeanizing the global regulatory environment in ways and to the extent that few have understood.

Figure 9.6: Brussels Effect in the context of EU trade policy



AI Act = EU Artificial Intelligence Act; DSA = Digital Services Act; DMA = Digital Market Act; CSRD = Corporate Sustainability Reporting Directive; CSDDD = Corporate Sustainability Due Diligence Directive; GDPR = General Data Protection Regulation; REACH = Registration, Evaluation, Authorization and Restriction of Chemicals; GI = Geographical Indication in the context of Intellectual Property Right (IPR); RoHS =Restriction of Hazardous Substances Directive; WEEE = Waste Electrical and Electronic Equipment Directive.
Source: Simplified version of Christen et al. (2022), p. 12

The Brussels Effect not only works through regulations on competition law in the Single Market, but also has an impact on trade policy. An overview of the Brussels Effect in the context

of EU trade policy is illustrated in Figure 9.6. The far-reaching regulatory framework, building the cornerstone of EU's SM demands a robust system of enforcement and regulatory convergence. In terms of the external reach of EU legislation, integration motives, especially EU accession and access to the Single Market, have driven the closest alignment with EU regulations, while regulatory cooperation within the new generation of free trade agreements (FTAs) focuses on mutual recognition, conformity assessment and a regulatory cooperation dialogue rather than alignment. Besides trade facilitation regulatory efficiency and reductions of compliance and regulatory costs seem to be the main driving forces for equivalency and adequacy agreements. Beyond formal agreement the regulatory reach of the EU builds on voluntary alignment with EU regulations in specific areas.

Through multilateral network effects the EU may also succeeded in exporting its regulations to third countries (or companies) outside the framework of international agreements. These transmission paths potentially reinforce the Brussels Effect as other countries find it beneficial to adopt the same standards or put in place less trade-hindering non-tariff measures.

This increases the global influence and competitiveness of the EU by providing a regulatory framework for these countries in specific areas. Overall, the ten most important trading partners of the EU outside the framework of international agreements are responsible for roughly 17% of EU external goods trade, lifting an enormous potential for the Brussels Effect to spread across third countries. Figure 10 portrays these interlinkages of the EU's influence towards regulatory globalization by providing a comprehensive overview in terms of essential conditions, network effects and policy domains that help understanding the Brussels Effect.

A prominent (early) example of an EU law which had a global "Brussels effect" is the General *Data Protection Regulation (GDPR)* as of April 2016.[323] It entered into force on 25 May 2018. It provides the protection of natural persons in relation to the processing of personal data and on the movement of such data. This is a fundamental right. Article 8(1) of the Charter of Fundamental Rights of the European Union and Article 16(1) of the TFEI provide that everyone has the right to the protection of personal data concerning him or her.

The GDPR applies to all 27 EU member states, but even almost four years after the latest amendment came into force, it is still not really possible to speak of a Europe-wide data

[323] Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016, on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation), Official Journal of the European Union, L 119/1, 4.5.2016: https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32016R0679

protection reform. Experts and consumer advocates criticize the inertia of European and national legislators, while companies are particularly annoyed by the additional bureaucracy and the sometimes opaque legal situation[324].

The GDPR has not only drastic consequences in the EU, but every company that processes the personal data of EU citizens will in future be obliged to apply the EU rules - at least for European customers and users[325]. According to the GDPR, large platforms in particular must obtain "free, specific, informed and unambiguous" consent from their users for the processing of their personal data. Facebook, Twitter, Airbnb and other large US platforms have already started to inform European users about changes to their terms of use.

Even Chinese platform will obey to the EU rules. In China, sensitivity to data protection issues is much lower. European employee of a Chinese internet company, however, said that they will respect the GDPR for European customers. For Chinese nationals, however, the application of the EU regulation is out of the question.

The most recent law cases concerning the use of digital services (AI Act, DSA, DMA) are primarily regulatory instruments to protect the consumers of EU's Single Market but automatically exerts the need to foreign companies (all IT multinationals, Amazon, Apple Facebook (Meta), Google, Microsoft) to apply the EU Single Market rules to operate at one of the most powerful marketplaces in the world.

The *Digital Services Act (DSA)* – in force since 16 November 2022, and the *Digital Markets Act (DMA)*[326] – in force since 1 November 2022 - form a single set of rules that apply across the whole EU. They have two main goals:

1. to create a safer digital space in which the fundamental rights of all users of digital services are protected, and
2. to establish a level playing field to foster innovation, growth, and competitiveness, both in the European Single Market and globally.

A good example of the effectiveness of the "Brussels effect" is the changes Apple announced on January 25, 2024. Apple will comply with the DMA for customers in Europe[327]. The changes concern iOS (Software update 17.4), Safari, and the App Store impacting developers' apps in

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[324] See: https://www.ionos.at/digitalguide/websites/online-recht/datenschutz-grundverordnung-regeln-fuer-unternehmen/

[325] See "Der Standard, 23 May 2018: https://www.derstandard.at/story/2000080250486/eu-datenschutzverordnung-wird-weltweit-auswirkungen-haben

[326] See: https://digital-strategy.ec.europa.eu/en/policies/digital-services-act-package

[327] See: https://www.apple.com/newsroom/2024/01/apple-announces-changes-to-ios-safari-and-the-app-store-in-the-european-union/

the European Union (EU). The changes include more than 600 new APIs, expanded app analytics, functionality for alternative browser engines, and options for processing app payments and distributing iOS apps. Across every change, Apple is introducing new safeguards that reduce — but don't eliminate — new risks the DMA poses to EU users.

On 9 December 2023, the European Parliament reached a provisional agreement with the Council on the *Artificial Intelligence Act (AI Act)*[328]. Already, in April 2021, the European Commission proposed the first EU regulatory framework for AI. It says that AI systems that can be used in different applications are analysed and classified according to the risk they pose to users. The different risk levels will mean more or less regulation.

The AI Act knows different rules for different risk levels:

6) *Unacceptable risks* (social scoring: classifying people based on behaviour (e.g. used in China), *biometric identifications*); there are exceptions for prosecuting serious crimes.
7) *High risks*: AI systems that negatively affect safety or fundamental rights will be considered high risk and will be divided into two categories: (i) AI systems that are used in products falling under the EU's product safety legislation. This includes toys, aviation, cars, medical devices and lifts. (ii) AI systems falling into specific areas that will have to be registered in an EU database (education, migration etc.).
8) *General purpose and generative AI:* ChatGPT would have to comply with transparency requirements.
9) *Limited risks:* AI systems should comply with minimal transparency requirements that would allow users to make informed decisions.

Once the AI Act is formally adopted by both the European Parliament and the Council it will become EU law and approved, these will be the world's first rules on AI and will further enhance the so-called Brussels Effect. On 13 March 2024, the European Parliament approved the Artificial Intelligence Act that ensures safety and compliance with fundamental rights, while boosting innovation. The regulation, agreed in negotiations with member states in December 2023, was endorsed by MEPs with 523 votes in favour, 46 against and 49 abstentions[329]. The

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[328] See: https://www.europarl.europa.eu/news/en/headlines/society/20230601STO93804/eu-ai-act-first-regulation-on-artificial-intelligence

[329] See: https://www.europarl.europa.eu/news/en/press-room/20240308IPR19015/artificial-intelligence-act-meps-adopt-landmark-law

use of artificial intelligence in the EU will be regulated by the AI Act, the world's first comprehensive AI law. On 21 May 2024 the Council approved the AI Act[330].

The AI Act entered into force on 1 Augus, 2024[331] and will be fully applicable two years later, with some exceptions: prohibitions will take effect after six months, the governance rules and the obligations for general-purpose AI models become applicable after 12 months and the rules for AI systems - embedded into regulated products - will apply after 36 months. To facilitate the transition to the new regulatory framework, the Commission has launched the AI Pact, a voluntary initiative that seeks to support the future implementation and invites AI developers from Europe and beyond to comply with the key obligations of the AI Act ahead of time.

Christen et al. (2022) attempt to quantify the Brussels Effect from an economic point of view which was postulated by Bradford (2012, 2020) primarily from a legal standpoint. By applying a two-step approach (a gravity model, and the CGE model KITE) Christen eta l. (2022) analyze to what extent the Brussels Effect can be observed in the network of EU trade agreements. The effects, derived from a "Brussels Effect 2.0" are quantitatively very modest.

The empirical findings of the gravity model suggest that countries forming a free trade agreement with the EU engage less (by 24% to 29%) in issuing NTMs. The general equilibrium KITE trade model delivers as the main findings that the reduction of NTMs induced by EU trade agreements has had very moderate welfare effects. Austria would lose only 0.004% in the absence of the NTM reduction.

However, one could critically note that the Brussels effect only relates to the EU's legal requirements and regulations for modern platforms, but that the necessary innovation was not created in the EU, but took place exclusively abroad (USA, China). The seven sisters (Alphabet, Amazon, Apple, Meta, Microsoft, Nvidia, Tesla) are all American high-tech giants.

Although the EU with the AI Act is "innovative in regulation", there are many *critical voices*[332]. Most of the rules won't come into force until 2026 anyway - which will probably keep the new Commission busy, regardless of what it looks like. This is because the rapid development in the field of AI is overtaking regulation, which was one of the reasons why

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[330] See: https://www.consilium.europa.eu/en/press/press-releases/2024/05/21/artificial-intelligence-ai-act-council-gives-final-green-light-to-the-first-worldwide-rules-on-ai/#:~:text=The%20new%20law%20aims%20to,on%20artificial%20intelligence%20in%20Europe

[331] See: Regulation (EU) 2024/1689 of the European Parliament and of the Council of 13 June 2024, OJEU, L series 12.7.2024 (https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=OJ:L_202401689).

[332] See "Schwierige Zukunft für KI-Lückentext": https://orf.at/euwahl24/stories/3358413/

negotiations took so long in the run-up: The introduction of ChatGPT, for example, turned the discourse upside down once again.

One of the biggest problems with the AI regulation is that it is a *"loophole law"*: there are too many exceptions for companies and authorities, making it extremely difficult to effectively monitor the social damage caused by AI.

A further focus of criticism is the use of AI for *biometric applications* - such as facial recognition. Although this is prohibited per se (see above under "unacceptable risks"), but there are exceptions. The AI law could be a dangerous step towards legitimizing various biometric mass surveillance practices. Critics say that there are "loopholes" that create the possibility for "state surveillance". At the same time, it is up to the member states to ban "facial recognition by the police".

9.6 Much more than a Market – the Letta Report

To mark 30 years of the Single Market[333], former Italian Prime Minister Enrico Letta was commissioned by the Heads of State and Government of the EU to write a report on the future of the single market. In his report *"Much more than a Market"* (Letta, 2024) states that *"the Single Market was a product of an era when both the EU and the world were "smaller"*, simpler, and less integrated, and many of today's key players had not yet entered the scene." Today we live in a world where the weights of economic and political power have changed. China and India have grown to considerable competitors besides the already existing economic superpowers USA and Japan.

To take into account the changed landscape the Letta report presents practical political recommendations and explores technical aspects for the future of the SM in six chapters:

2. *A 5th Freedom to enhance research, innovation, and education in the Single Market*: Besides the existing four freedoms the "fifth freedom" should focus on research, innovation, knowledge and education in order to overcome the lack in these areas against the USA and China.
3. *A Single Market to finance strategic goals:* The aim is to finance EU's common key objectives and mobilise private and public resources to direct them towards bridging the current investment gaps in many modern fields of technology.

[333] For an evaluation of EU's SM at 30, see Breuss (2023A, 2023B).

4. *A Single Market to play big: scale matters:* This should support the scale-up and growth of European companies. Specific focus should given those sectors that require transformative action to raise the ambition of the Single Market.
5. *A sustainable Single Market for all:* The EU must improve the distribution of the benefits of economic integration. The conditions of EU membership should be improved for all citizens, SMEs, and regions.
6. *A Single Market to go fast and go far:* The regulatory framework should be improved, and the enforcement of the tools should be strengthened with the aim of enhancing speed and efficiency in the SM.
7. *The Single Market beyond its borders:* The external dimension of the SM is also important. Specifically concerning Economic Security, trade, enlargement, and the relationship with key strategic partners. This chapter explores the interaction between internal and external dynamics and the potential for the SM to extend the EU's influence on the global stage.

Many if not all of these suggestions to improve the SM are not new and partly already on the agenda of many projects of the EU. Nonetheless, after 30 years of the Single Market, it is not a bad idea to start thinking about its future once again. It the conclusions, the Letta report (Letta, 2024, p. 144) makes the suggestion that the Council should delegate to the European Commission the task of drafting a comprehensive SM Strategy. He also stresses the important role of the social partners in addressing today's challenges, such as climate change and digitalization. The Conference on the Future of Europe (2022) made also helpful suggestion to improve the economic, political, and social cohesion of the EU.

Also, the International Monetary Fund in its recent Regional Economic Outlook "Europe" (IMF, 2024B) appeals to realise the full potential of EU's Single Market. Referring to the reports by Letta (2024) on the reform of the Single Market and Draghi (2024A, 2024B) on improving Europe's competitiveness, the OECD states that there is widespread agreement on the sources of Europe's growth weakness. Europe's low productivity is related to lack of market depth and scale. Both reports link Europe's lack of competitiveness to Europe's incomplete single market in the trade of goods, services, and factors of production (capital, labour). Remaining barriers are still substantial and have resulted in less investment and innovation than necessary to accelerate growth and productivity to levels seen in other advanced regions.

A deeper and larger single market offers the potential for a resurgence in productivity growth. European integration delivered tangible growth benefits in the past and could do so again. Following the two EU enlargement waves in 1995 and 2004, EU member countries began trading more with each other. Therefore, in the decade following accession, regions in new member states saw on average GDP per capita rise by more than 30 percent relative to comparable non-accession regions and existing member states gained too.

The IMF report (2024B) notes that regions within Europe that were better integrated through value chains and transport networks registered higher gains. However, value chain integration has stalled since the last decade, and substantial barriers to goods and trade flows remain. The analysis by the IMF (2024B, p. 18) finds that in 2020 trade costs within Europe were equivalent to a sizable ad-valorem tariff of 44 percent for the average manufacturing sector compared to 15 percent between US states, and as high as 110 percent in the case of services sectors. A particular problem is the substantial domestic barriers to entry in services in several countries. Except France, the largest barriers to entry into services business are in the new EU member states. Finland and Sweden have low barriers, whereas Austria belongs to countries with relative high barriers (see IMF (2024B, p. 19, Figure 15.5).

Similar to the suggestions in the report by Letta (2024), according to the IMF (2024B) reform priorities at the European level include removing barriers and advancing the capital market and banking union.

9.7 How to improve European competitiveness

9.7.1 Towards a new European Competitiveness Deal

On the Special meeting of the European Council on 17 to 18 April 2024 (European Council, 2024), a shift in EU's priority took place from the "Green Deal" to a *"New European competitiveness deal"*. Along the lines of the suggestion of the Letta report (2024), the Heads of State and Government of the EU27 formulated the new goals for the EU. In the light of a shrinking competitiveness of Europe compared to those of the USA and China, the EU must take actions. One reason for the decline in competitiveness is the higher energy costs in Europe since the Ukraine war. According to an international energy cost comparison by Prognos (2023), the price for electricity (Euro Cent/ kWh) is 8.4 in the USA and China but 19.9 in the EU, with Italy the highest (31.8). Also, within Europe there is a big heterogeneity. Similarly, the gas prices (Euro Cent/kWh) are higher in Europe (8.3) than in USA (2.0).

The European Council (2024, p. 4) notes that *"In the face of a new geopolitical reality and increasingly complex challenges, the European Union is committed to acting decisively to*

ensure its long-term competitiveness, prosperity, and leadership on the global stage and to strengthen its strategic sovereignty. Over the past 30 years, the Single Market and its four freedoms have been a powerful engine of convergence and growth in the European Union and its Member States, promoting a highly competitive social market economy, economic, social and territorial cohesion, and a level playing field based, inter alia, on an effective State aid and competition framework." But in view of Europe's dwindling competitiveness, "a new European competitiveness deal is needed, anchored in a fully integrated Single Market. Investment in key strategic sectors and infrastructure require a combination of both public and private financing working together.

The European Council calls for work to be taken swiftly on the following key competitiveness drivers:

- *Single Market:* Removing remaining barriers, improving transport links, tackling unfair commercial practices, modernising the SM by June 2025.
- *Capital Markets Union:* This long-lasting project (suggested already in 2015; see chapter 3.1.3) should finally put to a realization to reach a truly integrated European capital market. One should create a simple and effective cross-border investment/savings product for retail investors, developing pensions and long-term savings products.
- *Industry:* Developing an effective industrial policy, in dialogue with stakeholders, that decarbonises Europe's industry in a competitive manner, developing the EU's competitive edge in digital and clean technologies.
- *Research and Innovation:* Create an innovation-friendly environment. Investment in R&D should meet the 3% GDP expenditure target.
- *Energy:* Achieve a genuine Energy Union. This requires ambitious electrification using all net-zero- and low-carbon solutions.
- *Circular economy*: Resource efficient production by reducing primary resource dependencies on critical raw materials.
- *Digital*: Supporting the digital transformation to close the innovation gap between Europe and the other world competitors USA and China.
- *Social*: Fostering high-quality jobs throughout Europe.
- *Trade*: Supporting the core role of the WTO. Defending EU interests.

In addition to these all too often heard noble goals of the EU, there are also demands for "A better and smarter regulatory framework", and "a competitive, sustainable and resilient agricultural sector". These tasks should be reviewed regularly by the European Council.

9.7.2 Single Market and competitiveness report

In its latest *Annual Single Market and Competitiveness Report* (ASMCR) of 14 February 2024, the European Commission[334] identifies a gradual weakening of Europe's competitiveness – in particular vis à vis that of the United States and China. The ASMCR is accompanied by three additional publications: (a) Two *staff working documents* with detailed information on key performance indicators for competitiveness and findings of the "European Monitor of Industrial Ecosystems" on the green and digital transitions; (b) The 2024 *"Single Market and Competitiveness Scoreboard"* with additional data on the integration of the Single Market: progress in implementing EU law, overall business conditions, policy goals like growth and jobs, resilience and digital and green economy; (w) The 2022-2023 *"Single Market Enforcement Taskforce (SMET) report"*. In the SMET, the Commission and Member States work together to remove unjustified barriers in the SM.

9.7.3 Draghi Report on competitiveness

On 9 September 2024, Mario Draghi presented his report on *"The future of European competitiveness"*, commissioned by the European Commission[335]. The report consists of two parts: "Part A: A comprehensive strategy for Europe" (Draghi, 2004A) and Part B: In-depth analysis and recommendations" (Draghi, 2024B).

The findings in the Draghi report are not new. Across different metrics, a wide gap in GDP has opened between the EU and the US, driven mainly by a more pronounced slowdown in productivity growth in Europe (see the same conclusion in Breuss, 2017). The fact that the EU - despite progressive steps of deepening and widening economic integration since World War II - has an ever-widening welfare gap compared to the USA points back to the "EU integration puzzle" identified and discussed in chapter 13.

In Part A, Draghi identifies three main areas of action to reignite sustainable growth:

1) Europe must refocus its efforts on closing the innovation gap with the US and China, especially in advanced technologies.

2) The second area of action is a joint plan for decarbonization and competitiveness.

3) The third area for action is increasing security and reducing dependencies.

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[334] See: https://ec.europa.eu/commission/presscorner/detail/en/ip_24_821

[335] See: https://commission.europa.eu/topics/strengthening-european-competitiveness/eu-competitiveness-looking-ahead_en

To meet the massive financing needs to fulfil EU's objectives, many actions and reforms in the financial area are necessary. To meet the objectives laid out in Draghi's report, a minimum annual additional investment of EUR 750 to 800 billion is needed, based on the latest Commission estimates, corresponding to 4.4-4.7% of EU GDP in 2023. For comparison, investment under the Marshall Plan between 1948-51 was equivalent to 1-2% of EU GDP. Delivering this increase would require the EU's investment share to jump from around 22% of GDP today to around 27%, reversing a multi-decade decline across most large EU economies.

Draghi means that the EU could meet these investment needs without overstretching the resources of the European economy, but the private sector will need public support to finance the plan. One necessity is the European capital market overcomes its fragmentation. The genuine completion of the Capital Markets Union (CMU) is necessary. Finally, the report suggests that the EU should move towards regular issuance of common safe assets to enable joint investment projects among Member States, building on the model of NGEU. This last suggestion will probably be rejected by the Netherlands and Germany.

Part B of Draghi's report is a comprehensive in-depth analysis in section 1 of the critical sectors (energy, critical raw materials, digitalization and advanced technologies, high-speed/capacity broadband networks, computing and AI, semiconductors, energy-intensive industries, clean technologies, automotive, defence, space, pharma, transport). In section 2, horizontal policies (accelerating innovation, closing the skills gap, sustaining investment, revamping competition, strengthening governance) are addressed.

10. Welfare measures beyond GDP

10.1 Beyond GDP

It has been known for some time that the universally used measure of a country's economic strength, gross domestic product (GDP), does not reflect all aspects of a country's welfare. This is why the term "Beyond GDP" was coined.

In February of 2008, amid the looming global financial crisis, President Nicolas Sarkozy of France asked Nobel Prize–winning economists Joseph Stiglitz and Amartya Sen, along with the distinguished French economist Jean Paul Fitoussi, to establish a commission of leading economists to study whether Gross Domestic Product (GDP)—the most widely used measure of economic activity—is a reliable indicator of economic and social progress. The Commission was given the further task of laying out an agenda for developing better measures. The result was published as the "Report by the Commission on the Measurement of Economic

Performance and Social Progress" with the book title "Mismeasuring our Lives: Why GDP Doesn't Add Up" by Stiglitz, Sen, and Fitoussi (2010)[336].

Figure 10.1: Economy as Part of a Larger System

Source: Costanza et al (2009), p. 8

Mismeasuring Our Lives is the result of this major intellectual effort, one with pressing relevance for anyone engaged in assessing how and whether our economy is serving the needs of our society. The authors offer a sweeping assessment of the limits of GDP as a measurement of the well-being of societies—considering, for example, how GDP overlooks economic inequality (with the result that most people can be worse off even though average income is increasing); and does not factor environmental impacts into economic decisions.

In place of GDP, *Mismeasuring Our Lives* introduces a bold new array of concepts, from sustainable measures of economic welfare, to measures of savings and wealth, to a "green GDP." At a time when policymakers worldwide are grappling with unprecedented global financial and environmental issues, here is an essential guide to measuring the things that matter.

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[336] See also: Stiglitz et al. (2018).

Parallel to the work of the Sarkozy Commission, there were other publications focussing on the agenda of "Beyond GDP". Costancza et al. (2009) describe in Figure 10.1 that the economy is part of a larger system[337].

10.2 Better Life Index

All major institutions were currently concerned with linking economic, social, and environmental realities.

Durand (2022) in a talk about "Measuring Progress Beyond GDP", a UNSC side event on 17 February 2022, outlined the Beyond-GDP Dashboard of the OECD of an economy in four dimensions[338]:

- *Strong economy* – its robustness: GDP growth (by sectors), total hours worked, household income, business dynamism, health risks (by gender).
- *Green economy* – climate proofness: Greenhouse gas emissions (GHG), renewable energy share, material consumption, natural land cover, exposure to outdoor air pollution.
- *Inclusive economy* – more equal opportunities for all: income inequality, labour underutilization (by gender), young people out of job or training (by gender), financial insecurity (by gender), life satisfaction (by gender).
- *Resilient economy* – withstand a crisis and prepare for future challenges: liabilities by institutional sector (by government, households, non-financial institutions), investment, broadband coverage (by regions), trust in government (by gender).

Based on these considerations, the OECD publishes a "Better Life Index (BLI)"[339]. The BLI consists of 11 dimensions with sub-indicators:

- *Housing:* dwellings without basic facilities, housing expenditure, rooms per person
- *Income:* household net disposable income, household net wealth
- *Jobs:* labour market insecurity, employment rate, long-term unemployment rate, personal earnings
- *Community:* quality of support network

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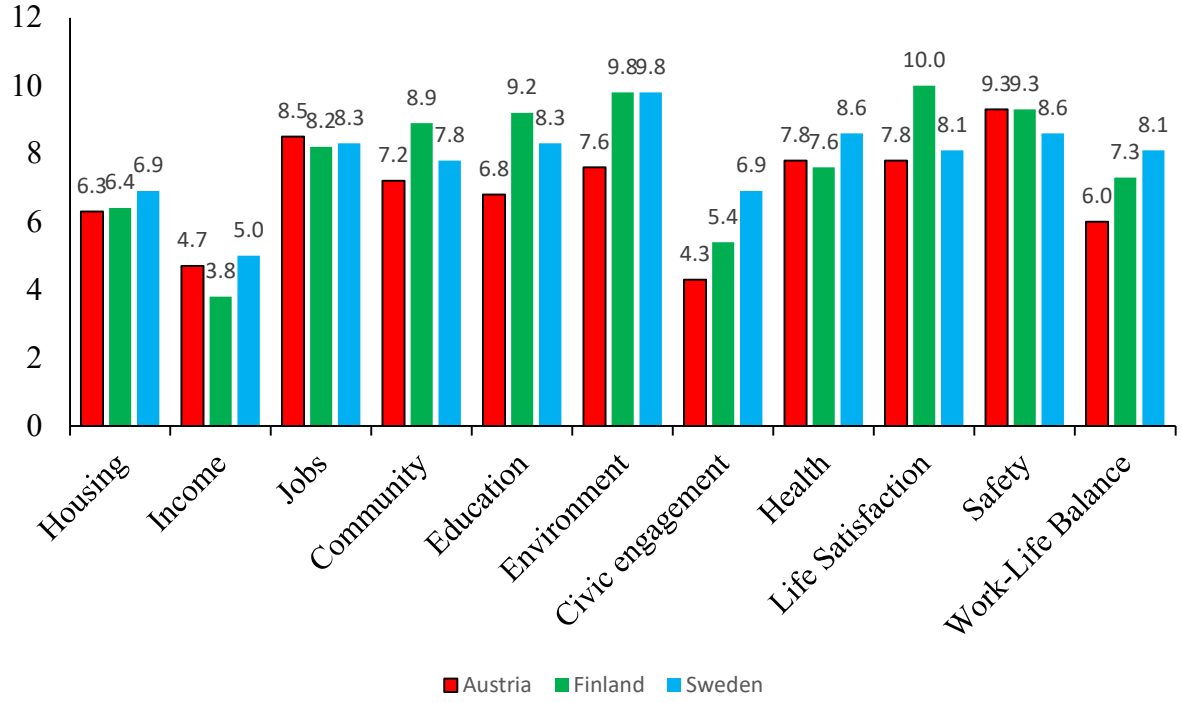
[337] See also: Produktivitätsrat/Austrian Productivity Board (2023), p. 2.

[338] See: https://www.unescap.org/sites/default/d8files/event-documents/OECD_framework_UNSC_side_event_17Feb2022.pdf. On 27 February 2023, The United Nations: Department of Economic and Social Affairs: Statistics held a conference on "Statistical measures beyond GDP": https://unstats.un.org/UNSDWebsite/events-details/un54sc-27022023-A-_statistcal_measures_beyond_gdp

[339] See: https://stats.oecd.org/Index.aspx?DataSetCode=BLI

- *Education:* educational attainment, student skills, years in education
- *Environment:* air pollution, water quality
- *Civic engagement:* stakeholder engagement for developing regulations, voter turnout,
- *Health:* Life expectancy, self-reported health
- *Life satisfaction:* life satisfaction
- *Safety:* feeling safe walking alone at night, homicide rate
- *Work-Life Balance:* employees working very long hors, time devoted to leisure and personal care.

Figure 10.2: Better Life Index (BLI) for Austria, Finland, and Sweden



Source: OECD: https://stats.oecd.org/Index.aspx?DataSetCode=BLI

Most of the indicators of the BLI are statistical facts, some are personal assessments or based on surveys. In a dashboard of the OECD, everyone can determine the BLI according to personal assessment[340]. In addition, there is also a regional BLI[341], broken down by city.

[340] See: https://www.oecdbetterlifeindex.org/#/11111111111

[341] See for Vienna: https://www.oecdregionalwellbeing.org/AT13.html; for Helsinki: https://www.oecdregionalwellbeing.org/FI1B.html; for Stockholm: https://www.oecdregionalwellbeing.org/SE11.html

A comparison of the three countries, Austria[342], Finland[343] and Sweden[344] gives the following results, based on the OECD assessment (see Figure 10.2.):

In the category housing, jobs, health, and safety, the values of the BLI are rather similar in the three countries. Environment and work-life balance is assessed much better in Finland and Sweden than in Austria. Austria is only slightly better than the other two countries concerning jobs and safety.

10.3 Human Development Index

The Human Development Index (HDI)[345] created by the United Nations Human Development reports (UNDP) was created to emphasize that people and their capabilities should be the ultimate criteria for assessing the development of a country, not economic growth alone.

Sweden with a HDI of 0.947, ranks highest of the three countries, followed by Finland (0.940), and Austria (0.916). The best ranking has Switzerland with 0.962, followed by Norway (0.961), and Iceland (0.959).

10.4 Sustainable Development Goals

The 2030 Agenda for Sustainable Development and its 17 Sustainable Development Goals (SDGs), adopted by the United Nations (UN) in September 2015, is the world's roadmap for achieving sustainable development in this decade. The European Union (EU) has fully committed itself to delivering on the 2030 Agenda, and the SDGs form an intrinsic part of the European Commission's work programme and the Political Guidelines of Commission's President Ursula von der Leyen.

Monitoring is an essential component in realizing the 2030 Agenda's vision, both globally and in the EU, by assessing and visualising the progress made so far towards the 17 SDGs. Since 2017, Eurostat has been preparing annual reports monitoring the progress towards the SDGs in the EU context. This 2022 edition is the sixth report in this series, analysing the EU's progress towards the goals based on the official EU SDG indicator set.

In September 2015, the UN General Assembly (UNGA) adopted the 'Transforming our world: the *2030 Agenda* for Sustainable Development' document. The 2030 Agenda is the current global sustainable development agenda. At the core of the 2030 Agenda is a list of 17 SDGs

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[342] See: https://www.oecdbetterlifeindex.org/countries/austria/
[343] See: https://www.oecdbetterlifeindex.org/countries/finland/
[344] See: https://www.oecdbetterlifeindex.org/countries/sweden/
[345] See: https://hdr.undp.org/data-center/human-development-index#/indicies/HDI

(see Figure 10.3) and 169 related targets to end poverty, protect the planet and ensure prosperity and peace.

Figure 10.3: The 17 UN Sustainable Development Goals

Source: Eurostat (2022), p. 21.

The Agenda also calls for a revitalised global partnership to ensure its implementation. The Agenda also calls for a revitalised global partnership to ensure its implementation. The SDGs are unprecedented in terms of significance and scope and go far beyond the UN Millennium Development Goals by setting a wide range of economic, social and environmental objectives and calling for action by all countries, regardless of their level of economic development. The agenda emphasises that strategies for ending poverty and promoting sustainable development for all must go hand-in-hand with actions that address a wider range of social needs, and which foster peaceful, just and inclusive societies, protect the environment and help tackle climate change. Although the SDGs are not legally binding, governments are expected to take ownership and establish national frameworks for achieving the 17 goals.

Figure 10.4 gives an overview, how the EU has progressed towards the SDGs. This synopsis chapter provides a statistical overview of progress towards the SDGs in the EU. Because a long-term assessment is not possible for a number of indicators due to limited data availability, the progress at goal-level presented below is assessed over the most recent five- year period ('short-term') based on the EU SDG indicators. The figure on the next page shows the pace at which the EU has progressed towards each of the 17 goals over this short-term period according to the selected indicators. The method for assessing indicator trends and aggregating them at the goal-level is explained in Annex II. As in previous years, the EU continued to make the strongest

progress towards fostering peace and personal security within its territory and improving access to justice and trust in institutions (SDG 16).

Figure 10.4: Overview of EU progress towards the SDGs over the past 5 years, 2022

Source: Eurostat (2022), p. 10.

Significant progress was also visible for the goals on reducing poverty and social exclusion (SDG 1), on the economy and the labour market (SDG 8), on clean and affordable energy (SDG 7) and on innovation and infrastructure (SDG 9). It is important to note that in the area of poverty (SDG 1), available data partly refer to the period up to 2019 only and therefore do not yet fully take into account the pandemic's impacts. In contrast, the favourable assessment of SDG 7 is strongly influenced by a remarkable reduction in energy consumption in 2020 as a result of COVID-19 related restrictions on public life and lower economic activity.

The EU has also achieved good progress towards the goals on health and well-being (SDG 3), life below water (SDG 14) and gender equality (SDG 5). Progress towards the remaining nine goals was markedly slower, as shown in the figure on the previous page, with few goals even experiencing slightly unsustainable overall trends over the most recent five-year period of

available data. For each of the goals, the following section provides a brief overview of the main indicator trends standing behind the goal-level assessment.

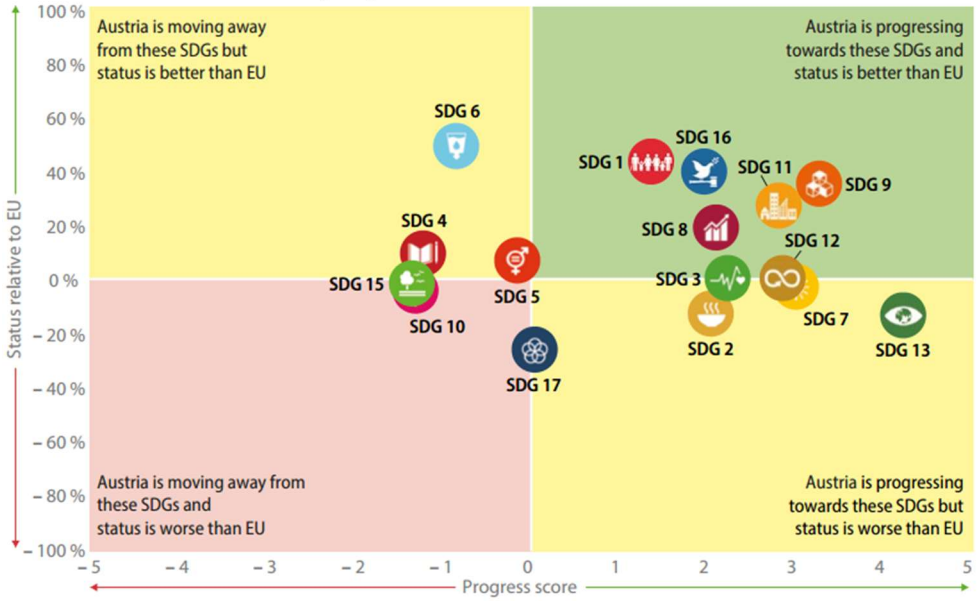
Figure 10.5: The European Commission Priorities

Source: Eurostat (2022), p. 23.

Sustainable development has long been a core principle for the European Union, enshrined in its Treaties since 1997, and a priority objective for the EU's internal and external policies. The EU actively contributed to the design of the 2030 Agenda, welcomed its adoption and committed to implementing the SDGs and fully integrating the goals into the European policy framework.

Sustainable development is also an overriding political priority for the von der Leyen Commission, which is reflected in the six headline ambitions for Europe announced in the Political Guidelines (see Figure 10.5). Each Commissioner is responsible for ensuring that the policies under his or her oversight reflect the Sustainable Development Goals, while the college of Commissioners is jointly responsible for implementing the 2030 Agenda. The President set out a 'whole-of-government approach' towards the implementation of the SDGs.

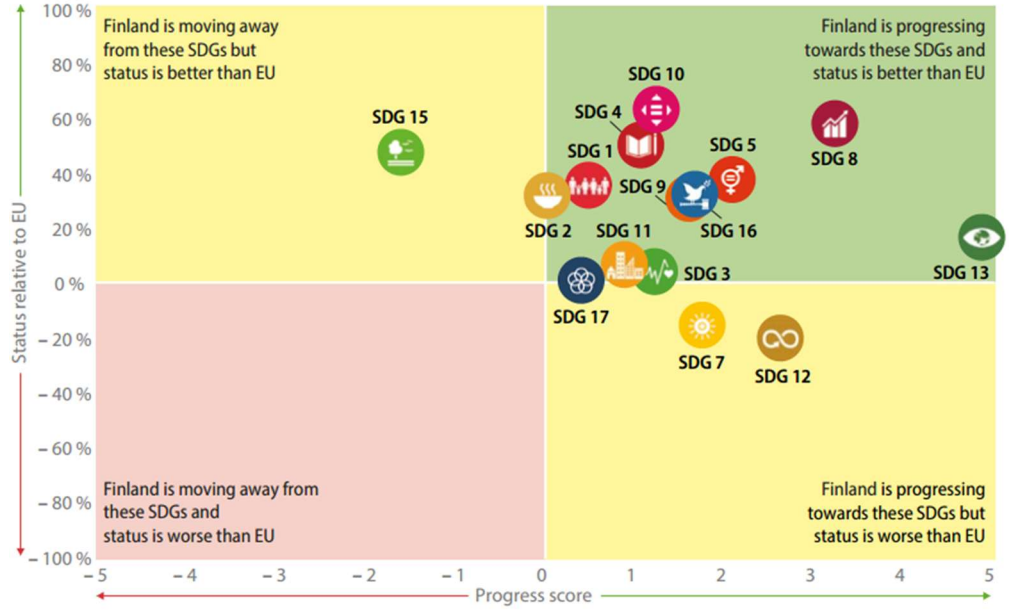
Figure 10.6: Austria's status and progress towards the SDGs



Source: Eurostat (2022), p. 332

SDG 1: No poverty; SDG 2: Zero hunger, SDG 3: Good health and well-being, SDG 4: Quality education, SDG 5: Gender equality, SDG 6: Clean water and sanitation, SDG 7: Affordable and clean energy, SDG 8: Decent work and economic growth, SDG 9: Industry, innovation and infrastructure, SDG 10: Reduced inequalities, SDG 11: Sustainable cities and communities, SDG 12: Responsible consumption and production, SDG 13: Climate action, SDG 14: Life below water, SDG 15: Life on land, SDG 16: Peace, justice and strong institutions, SDG 17: Partnerships for the goals.

Figure 10.7: Finland's status and progress towards the SDGs



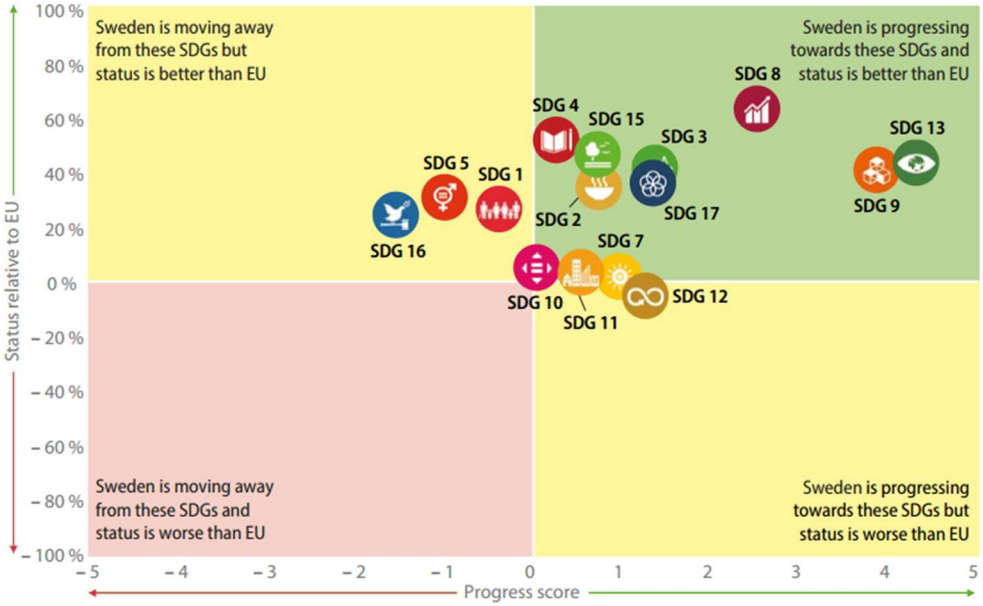
Source: Eurostat (2022), p. 335

SDG 1: No poverty; SDG 2: Zero hunger, SDG 3: Good health and well-being, SDG 4: Quality education, SDG 5: Gender equality, SDG 6: Clean water and sanitation, SDG 7: Affordable and clean energy, SDG 8: Decent work and economic growth, SDG 9: Industry, innovation and infrastructure, SDG 10: Reduced inequalities, SDG 11: Sustainable cities and communities, SDG 12: Responsible consumption and production, SDG 13: Climate action, SDG 14: Life below water, SDG 15: Life on land, SDG 16: Peace, justice and strong institutions, SDG 17: Partnerships for the goals.

The following figures document the Eurostat's assessment of the progress concerning the SDGs made my *Austria* (Figure 10.6), *Finland* (Figure 10.7), and *Sweden* (Figure 10.8). Data mainly refer to the periods 2015–2020 or 2016–2021: Roughly speaking, the change over the past five years. Progress score is calculated on page 320.

Finland (10 goals) and Sweden (9 goals) have much more SDGs in the "green" quadrant" (progressing) than Austria (only 6 goals).

Figure 10.8: Sweden's status and progress towards the SDGs



Source: Eurostat (2022), p. 336

SDG 1: No poverty; SDG 2: Zero hunger, SDG 3: Good health and well-being, SDG 4: Quality education, SDG 5: Gender equality, SDG 6: Clean water and sanitation, SDG 7: Affordable and clean energy, SDG 8: Decent work and economic growth, SDG 9: Industry, innovation and infrastructure, SDG 10: Reduced inequalities, SDG 11: Sustainable cities and communities, SDG 12: Responsible consumption and production, SDG 13: Climate action, SDG 14: Life below water, SDG 15: Life on land, SDG 16: Peace, justice and strong institutions, SDG 17: Partnerships for the goals.

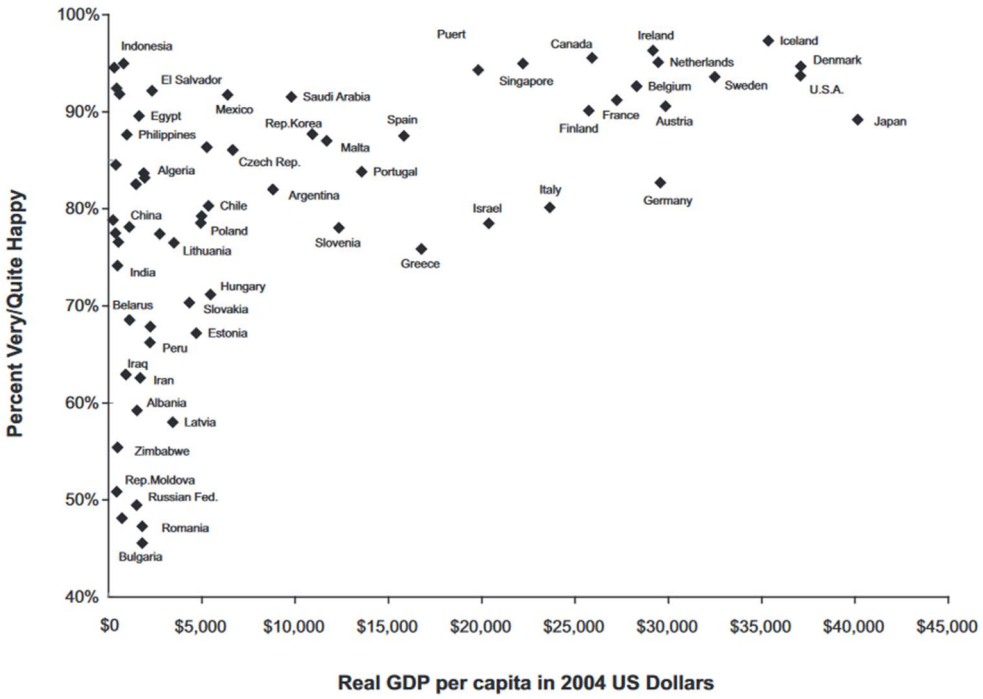
10.5 Happiness

On July 2011, the UN General Assembly adopted resolution 65/309 *Happiness: Towards a Holistic Definition of Development* inviting member countries to measure the happiness of their people and to use the data to help guide public policy[346]. On April 2, 2012, this was followed by the first UN High Level Meeting called *Wellbeing and Happiness: Defining a New Economic Paradigm*, which was chaired by UN Secretary General Ban Ki-moon and Prime Minister Jigmi Thinley of Bhutan, a nation that adopted gross national happiness instead of gross domestic

[346] For the following, see Wikipeida: https://en.wikipedia.org/wiki/World_Happiness_Report

product as their main development indicator. Since then, a World Happiness Report is published annually.

Figure 10.9: Relationship between wealth and happiness



Source: Costancza et al. (2009), p 17

The *World Happiness Report* is a publication that contains articles and rankings of national happiness, based on respondent ratings of their own lives, which the report also correlates with various (quality of) life factors. According to the World Happiness Report 2023[347], Finland has been ranked the happiest country in the world six times in a row. Sweden ranks at third place, Austria at seventh. Over time there was no significant change of "happiness" in the three countries. In the World Happiness Report 2024[348], again Finland ranks first, Sweden at place four, and Austria lost ground and ranks now at place 14.

The report is a publication of the Sustainable Development Solutions Network, a global initiative of the United Nations. The report primarily uses data from the Gallup World Poll. Each annual report is available to the public to download on the World Happiness Report website. The editors of the WHR 2023 are John F. Helliwell, Richard Layard, Jeffrey D. Sachs, Jan-Emmanuel De Neve, Lara Aknin, and Shun Wang.

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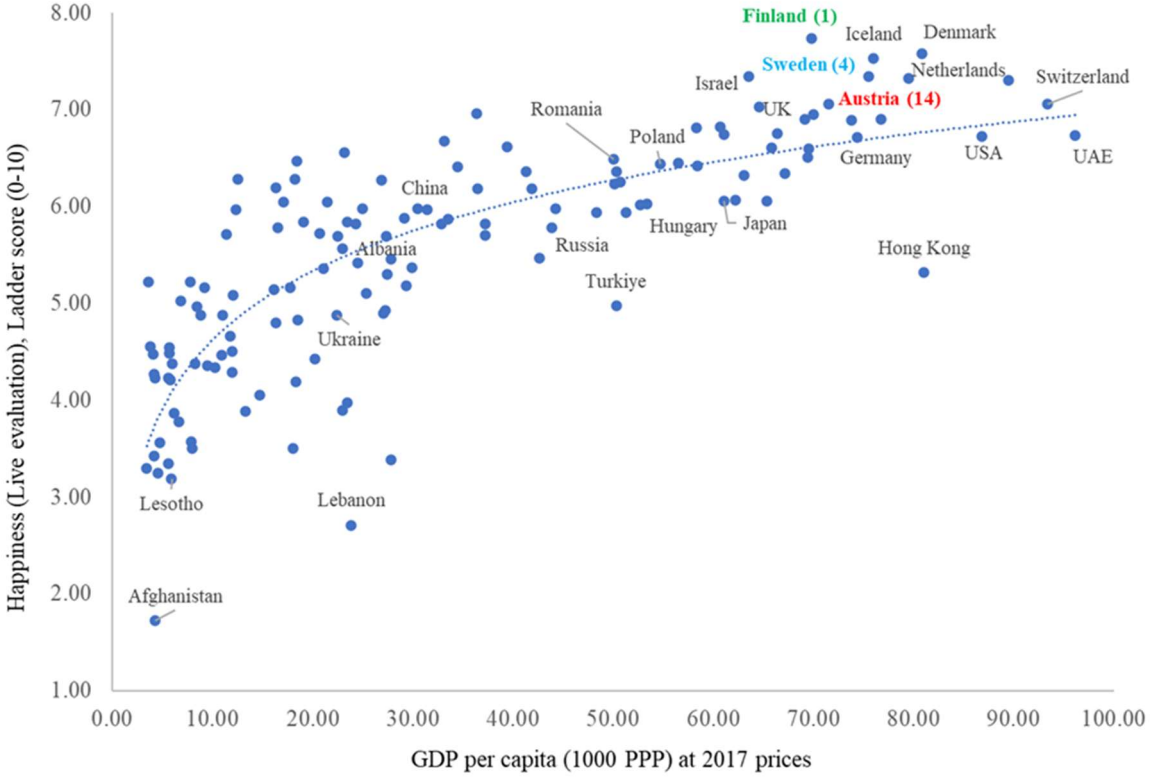
[347] See the World Happiness Report 2023: https://worldhappiness.report/ed/2023/
[348] See the World Happiness Report 2024: https://worldhappiness.report/; https://happiness-report.s3.amazonaws.com/2024/WHR+24.pdf

The first World Happiness Report was released on 1 April 2012 as a foundational text for the UN *High Level Meeting: Well-being and Happiness: Defining a New Economic Paradigm*, drawing international attention. The first report outlined the state of world happiness, causes of happiness and misery, and policy implications highlighted by case studies. In 2013, the second World Happiness Report was issued, and in 2015 the third. Since 2016, it has been issued on an annual basis on the 20th of March, to coincide with the UN's International Day of Happiness.

Figure 10.10: Self-reported life satisfaction vs GDP per capita, 2022



Source: World Happiness Report 2024 (https://worldhappiness.report/ed/2024/#appendices-and-data)[349]

The rankings of national happiness are based on a Cantril ladder survey undertaken world-wide by the polling company Gallup, Inc[350]. Nationally representative samples of respondents are asked to think of a ladder, with the best possible life for them being a 10, and the worst possible life being a 0. They are then asked to rate their own current lives on that 0 to 10 scale. The report correlates the life evaluation results with various life factors.

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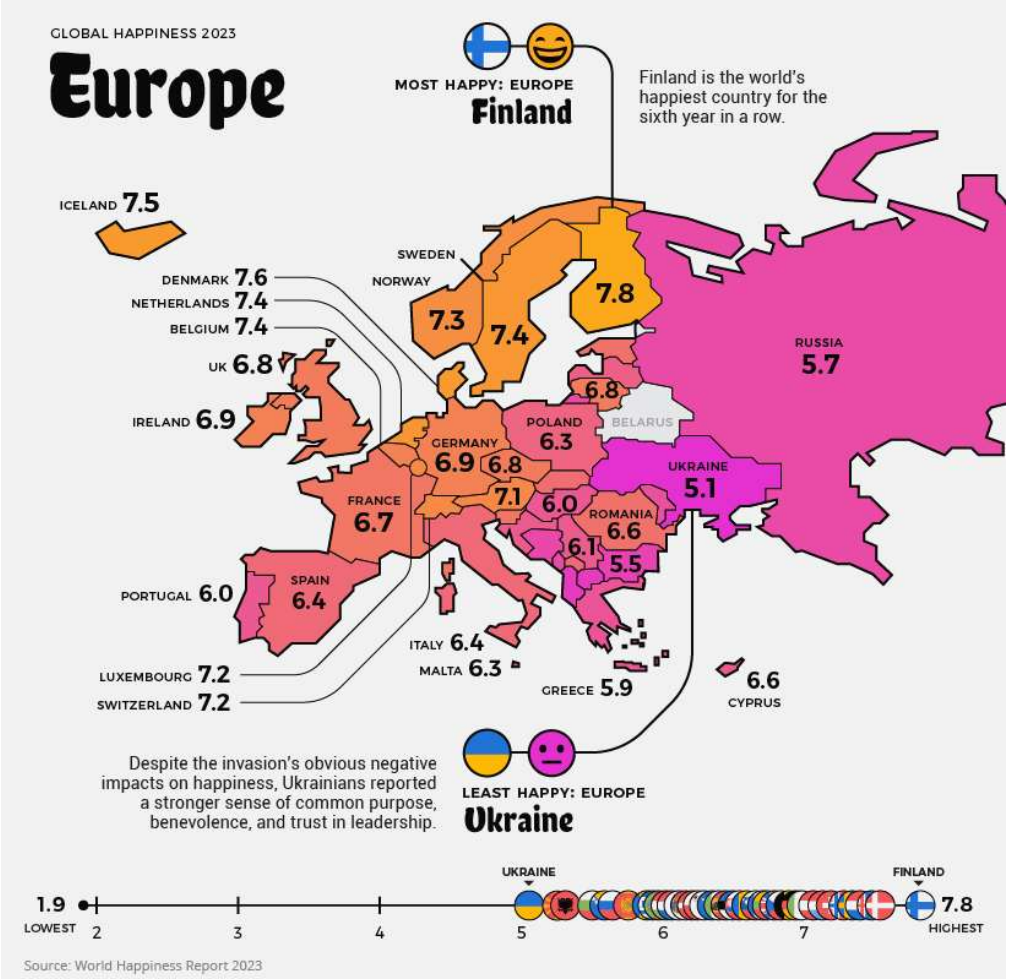
[349] Under the title "Happiness and Life Satisfaction", the webpage Our World in Data (https://ourworldindata.org/happiness-and-life-satisfaction) provides data on several links between happiness (life satisfaction) and income across countries and within countries (happiness inequality); economic growth and happiness; the Easterlin Paradox; health and life satisfaction; life satisfaction and society (culture); sense of freedom and life satisfaction.

[350] For an explanations of the Cantril Scale, see: https://news.gallup.com/poll/122453/understanding-gallup-uses-cantril-scale.aspx

The life factor variables used in the reports are reflective of determinants that explain national-level differences in life evaluations across research literature. However, certain variables, such as unemployment or inequality, are not considered because comparable data is not yet available across all countries. The variables used illustrate important correlations rather than causal estimates.

Figure 10.11: The World Happiest Countries in 2023



Source: https://www.visualcapitalist.com/worlds-happiest-countries-2023/

The use of subjective measurements of wellbeing is meant to be a bottom-up approach which emancipates respondents to evaluate their own wellbeing. In this context, the value of the Cantril Ladder is the fact that a respondent can self-anchor themselves based on their perspective.

In the reports, experts in fields including economics, psychology, survey analysis, and national statistics, describe how measurements of well-being can be used effectively to assess the progress of nations, and other topics. Each report is organized by chapters that delve deeper into issues relating to happiness, including mental illness, the objective benefits of happiness,

the importance of ethics, policy implications, and links with the Organisation for Economic Co-operation and Development's (OECD) approach to measuring subjective well-being and other international and national efforts.

There seems to be a positive correlation between the level of development (measured in GDP per capita) and happiness (see Figure 10.9 and 10.10).

A visualization of the results of the World Happiness Report (WHR) 2023 for Europe is presented in Figure 10.11. Finland is the happiest European country, followed by Denmark. Sweden is in third place (ex aequo with Belgium). Austria ranks in place nine.

The figures about the relationship between happiness and income (Figure 10.9 and 10.10) represent the usual view of happiness research, according to which richer countries are happier. However, as already Easterlin (1974), the first economist to study happiness data in his "*Easterlin Paradox*" stated that at a point in time happiness varies directly with income both among and within nations, but over time happiness does not trend upward as income continues to grow: while people on higher incomes are typically happier than their lower-income counterparts at a given point in time, higher incomes don't produce greater happiness over time. That means the curve of happiness – the positive relationship between happiness and income - shows diminishing marginal returns[351]. In the World Happiness Report 2024 (WHR, 2024, p. 18), the happiness scores (life evaluation) are explained by six variables: GDP per capita, healthy life expectancy, having someone to count on, freedom to make life choices, generosity, and freedom from corruption. Taken together, these six variables explain mor than three-quarters of the variation in national annual average ladder scores.

A new scientific research could challenge the widely held perception that "money buys happiness". Global polls usually find that people in high-income countries generally report being more satisfied with their lives than people in low-income countries. The persistence of this correlation, and its similarity to correlations between income and life satisfaction within countries (see the figures above), could lead to the impression that high levels of life satisfaction can only be achieved in wealthy societies.

However, global polls have typically overlooked small-scale, non-industrialized societies, which can provide an alternative test of the consistency of this relationship. Galbraith et al. (2024) present results from a survey of 2,966 members of Indigenous Peoples and local communities among 19 globally distributed sites. The authors find that high average levels of

[351] See also: https://en.wikipedia.org/wiki/Easterlin_paradox

life satisfaction, comparable to those of wealthy countries, are reported for numerous populations that have very low monetary incomes. Their results are consistent with the notion that human societies can support very satisfying lives for their members without necessarily requiring high degrees of monetary wealth.

Besides the World Happiness Report, also the *Eurobarometer* survey collects data on life satisfaction as part of their public opinion surveys. For several countries, these surveys have been conducted at least annually for more than 40 years. The visualization here shows the share of people who report being 'very satisfied' or 'fairly satisfied' with their standards of living. In the Standard Eurobarometer 98 (Eurobarometer, 2022-2023[352]), the question D70 asks for "happiness" as follows: *"On the whole, are you very satisfied, fairly satisfied, not very satisfied or not at all satisfied with the life you lead?"*[353]. In EU27 on average 83% of the people are satisfied overall, 17% are not satisfied overall. The Austrian population has the same score as those of EU27. The Finish (94%) and the Swedish (97%) population, however, are much more satisfied with their life. This result is consistent with that of the surveys of the WHR 2024.

Tichy (1974) questions the recent trend towards happiness as a political goal. He criticises that happiness surveys often interchange the terms well-being (SWB), happiness and life satisfaction whereas psychologists and sociologists differentiate between them. On the one hand, a life-satisfaction-oriented policy would prove welfare-improving, focusing on fair distribution of income and wealth, social goals and institutional goals such as health, freedom and social capital. On the other hand, the respondents of the happiness surveys can misjudge the satisfaction resulting from their choices and may not be aware of the (longer-term) consequences of their decisions. Lastly, he states that happiness as a policy goal cannot relieve politicians from constantly assessing trade-offs and sustainability and searching for compromises among the conflicting ideological positions.

11. Political regime and its quality

11.1 National government and EU engagement

Since EU accession of the three countries, the political regimes (all are full democracies) have not changed. But the way governments are put together has changed a lot, not least because new parties have been formed in the meantime (the greens) and due to the migration shocks after 2015, there has been a tendency towards right-wing and national parties.

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[352] See: https://europa.eu/eurobarometer/surveys/detail/2872

[353] A very similar question in the Standard Eurobarometer 98 (2022-2023) is that of D70a: *"On the whole, are you very satisfied, fairly satisfied, not very satisfied or not at all satisfied with your daily life?"*

European Elections 2024

The recent European elections to the European Parliament took place on 6-9 June 2024. This was be the tenth parliamentary election since the first direct elections in 1979, and the first European Parliament election after Brexit.

As a result of Brexit, 27 seats from the British delegation were distributed to other countries in January 2020 (those elected in 2019, but not yet seated took their seats). The other 46 seats were abolished with the total number of MEPs decreasing from 751 to 705 after that.

A report in the European Parliament proposed in February 2023 and passed in June 2023 to modify the apportionment in the European Parliament and increase the number of MEPs again in order to adapt to the development of the population and preserve degressive proportionality. The European Council will, by unanimity, take the final decision on the size of the European Parliament and each national seat quota. On 26 July 2023, the Council reached a preliminary agreement, which would increase the size of the European Parliament to 720 seats. On 13 September 2023, the European Parliament consented to this decision, which was adopted by the European Council on 22 September 2023[354].

The results of the 2024 European elections on 6-9 June 2024 show a majority for pro-European parties (EPP, S&D, Renew Europe) of together 400 seats out of 720. At the same time, far-right forces are gaining in importance (ECR, ID) with together 131 seats. The Greens/EFA felt back to 53 seats (see Figure 11.1).

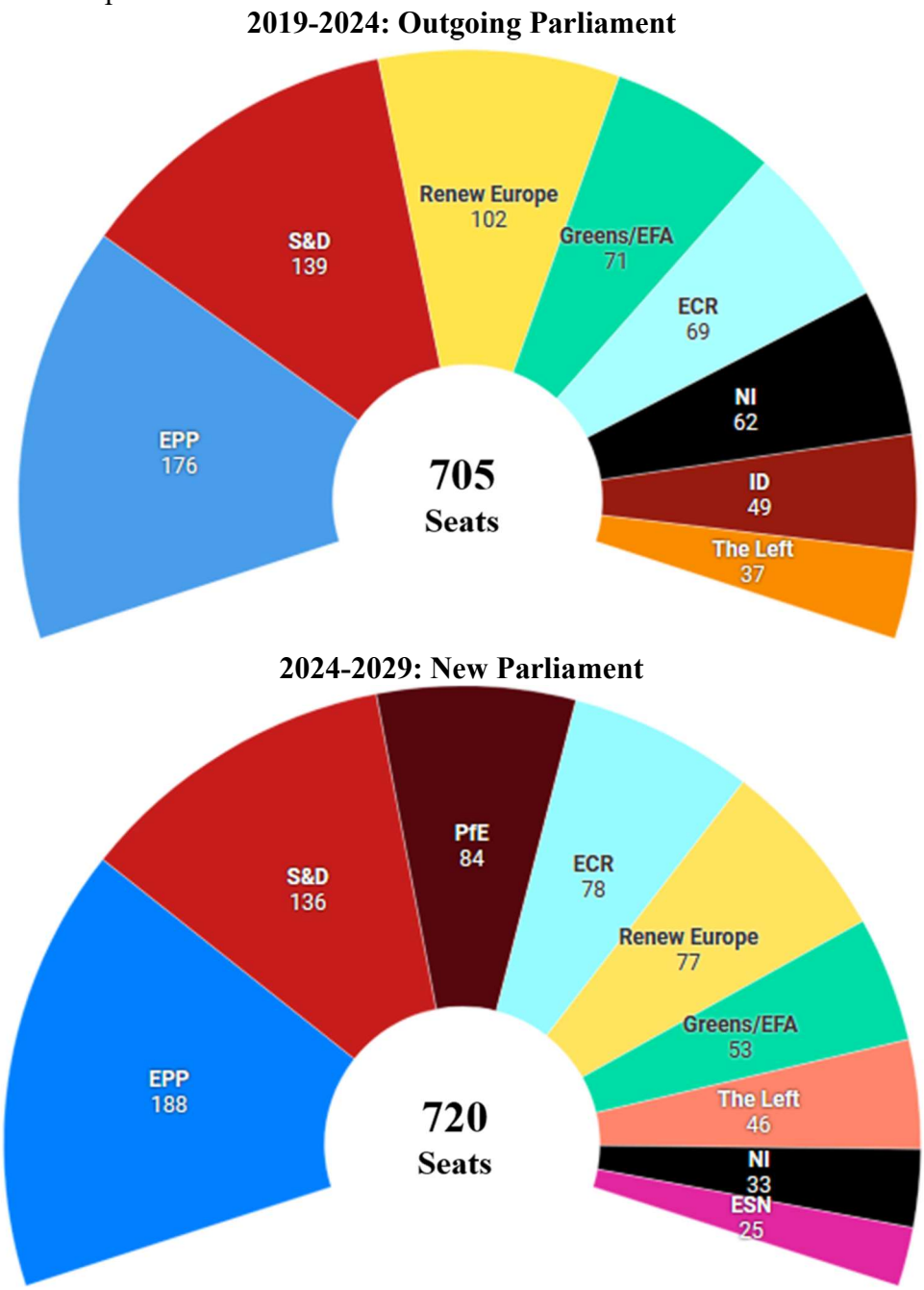
Since the migration crisis (2015 and subsequent years) and the Russian invasion of Ukraine on 24 February 2022, two top issues have been on the electorate's agenda: migration and security. As a result, the EU's green agenda ("European Green Deal") has taken a back seat. The individual parties gave different answers to the new European challenges. The right-wing parties came out strongly against migration and wanted to support Ukraine less rather than more. In addition, the European elections are not true European elections held across Europe with common European candidates, but nationally with candidates of national parties. As a result, supporters of parties in opposition are happy to hand out memorandums to the governing parties (also in European elections).

The EP election 2024 has demonstrated that extreme positions no longer deter voters in the European Union, on the contrary: nationalist radicals have made gains in the 2024 European elections. Despite its scandals, the AfD is the second-strongest force in Germany, while the

[354] See: https://en.wikipedia.org/wiki/Apportionment_in_the_European_Parliament

FPÖ is even at the top of the list in Austria. In France, the right-wing populists from the Rassemblement National are also far ahead with more than thirty percent.

Figure 11.1: European Parliament 2019-2024 and 2024-2029



EPP = Group of the European People's Party (Christian Democrats), S&D = Group of the Progressive Alliance of Socialists and Democrats in the EP, Renew Europe = Renew Europe Group (Liberals), Greens/EFA = Group of the Greens/European Free Alliance, The Left = The Left group in the European Parliament – GUE/NGL, ECR = European Conservatives and Reformists Group, ID = Identity and Democracy Group, NI = Non-attached Members.
New since 2024: PfE = Patriots for Europe; ESN = Europe of Sovereign Nations,

There seems also to exist a further main reason for the shift to the right in Europe. Right-wing populists have been on the rise since the pandemic, partly because they are adopting a

more moderate tone. They have an interest in normalization and are courting voters in some countries with supposedly statist positions. This can be seen in Italy or the Netherlands but also in France under Le Pen.

In France, Marine Le Pen is using the AfD to distance herself from the far right. In her own words, the German sister party is now too radical for her. She used the media to stage her break with the AfD, which she was still courting in 2017. Le Pen is now adopting a much more moderate tone towards Europe. Right-wing populists are trying to consolidate themselves and their positions.

The result of the 2024 European elections also shows that former President of the European Commission, Von der Leyen has made the right socially acceptable. She confirmed before the election that she was open to working with Italy's right-wing head of government, Giorgia Meloni. In doing so she has made extreme right-wing parties electable for many people in Europe.

The new European Parliament for the period 2024-2019 was officially constituted on 16 June 2024 in Strasbourg, following the European elections on 6-9 June 2024[355].

On 18 July 2024, the European Parliament re-elected Ursula von der Leyen as Commission President[356]. This will be von der Leyen's second term as Commission President. Sie was first elected by MEPs in July 2019. Before her election, on 18 July 2024, in her statement at the European Parliament Plenary [357] she gave a first overview about the priorities of the Commission for the next five years (2024-2029). The first priority should be prosperity and competitiveness without giving up the targets of the European Green Deal. Due to the high-tech giants USA and China, and the high energy prices hampered European competitiveness and needs therefore a major boost. She will also introduce a revamped SME and competitiveness check as part of our Better Regulation toolbox. She will also propose a new European Competitiveness Fund, also to support the Clean Industrial Deal.

Austria

Austria is a federal parliamentary republic with a head of government - the chancellor - and a head of state - the president. The country consists of 9 states (Bundesländer). Both regional and federal governments exercise executive power. The federal Parliament consists of 2 chambers:

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[355] See: https://multimedia.europarl.europa.eu/en/topic/new-european-parliament-2024-2029_27312

[356] See: https://www.europarl.europa.eu/news/en/press-room/20240710IPR22812/parliament-re-elects-ursula-von-der-leyen-as-commission-president

[357] See: https://ec.europa.eu/commission/presscorner/detail/en/statement_24_3871

the Lower House (Nationalrat) - directly elected - and the Upper House (Bundesrat) - elected by regional parliaments.

After World War II Austrian governments worked primarily with a grand coalition led mostly by the conservative Austrian People's Party (ÖVP) and the centre-left Social Democratic Party of Austria (SPÖ)[358]. This constellation dominated politics and public life for decades, with only one additional party—the FPÖ—playing a significant role at the national level. More recently, the pattern of two-party dominance withered with the rise of newer parties, such as the Greens and the NEOS.

The negotiations for EU accession were conducted under a grand coalition government ÖVP-SPÖ with chancellor Franz Vranitzky (SPÖ) and Vice-chancellor Erhard Busek (ÖVP). This grand coalition held in the following years until 2000.

After the election of 1999, despite emerging only in third place after the elections, the ÖVP formed a coalition with the right wing-populist Freedom Party (FPÖ) in early 2000. The SPÖ, which was the strongest party in the 1999 elections, and the Greens now form the opposition.

As a result of the inclusion of the FPÖ (led by Jörg Haider) in the government, 14 EU Member States (these were not sanctions of the EU) imposed symbolic sanctions on Austria. The *"EU-XIV sanctions against Austria"*[359] meant that the fourteen governments decided to reduce bilateral relations with the Austrian federal government at governmental and diplomatic levels to the bare minimum. Apart from these measures, which were expressly limited to reducing contacts with the ÖVP-FPÖ government and its representatives, there was no action taken against Austria. These measures were triggered by fears that xenophobic and racist statements by leading FPÖ officials could rub off on government policy. After the establishment of a council of wise men under Martti Ahtisaari and its report, they were ended in September 2000.

The USA and Israel, as well as various other countries, also reduced contacts with the Austrian Government. The ÖVP was re-elected, this time with a plurality of votes, in the 2002 elections, and formed another coalition government with the FPÖ, this time largely ignored by other countries.

The coalition of ÖVP and FPO continued from 2000 to 2007. Then a grand coalition of SPÖ and ÖVP built the Austrian government with varying chancellors and vice-chancellors until 2017. It follows with a coalition of ÖVP and FPO for two years (2017-2019). After the Ibiza

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[358] See: https://www.bundeskanzleramt.gv.at/bundeskanzleramt/geschichte/regierungen-seit-1945.html
[359] See: https://de.wikipedia.org/wiki/Sanktionen_der_EU-XIV_gegen_%C3%96sterreich

scandal, a transitional government with experts was formed during 2017/2020. Then a coalition of the ÖVP with the Greens was formed with varying chancellors which is still governing.

In its Declaration of Neutrality (*Neutralitätserklärung*) the Austrian Parliament declared that Austria will be permanently neutral. It was enacted on 26 October 1955 as a constitutional act of parliament, i.e., as part of the Constitution of Austria.

Pursuant to resolution of the Federal Assembly of Parliament following the Austrian State Treaty, Austria declared in its *Neutralitätsgesetz*[360] "its permanent neutrality of its own accord". The second section of this law stated: "In all future times Austria will not join any military alliances and will not permit the establishment of any foreign military bases on her territory."

This raises problems with the duty of (military) assistance laid down in the Lisbon Treaty (TFEU, Article 42(7)): *"If a Member State is the victim of armed aggression on its territory, the other Member States shall have towards it an obligation of aid and assistance by all the means in their power, in accordance with Article 51 of the United Nations Charter. This shall not prejudice the specific character of the security and defence policy of certain Member States."* The last sentence expresses the reservation of the duty of (military) assistance for neutral states, like Austria.

When joining the EU on 1 January 1995, Austria had to adapt its constitution[361]. The EU accession had the be based on a referendum on 12 June 1994. Several new articles were introduced in the constitution. The EU membership has - according to the legal interpretation of Öhlinger (2015, p. 144-147) changed the status of Austria's neutrality. Article 23j of the Austrian constitution (BVG[362]) allows Austria to participate in EU's Common Security and Defence Policy (Article 42(7) TEU) which includes – like Article 5 of the NATO Treaty – a duty of common assistance. Article 42(2) of TEU considers the "specific character of the security and defence policy of certain Member States" (which means for Austria its neutrality status which excludes military actions outside its country). For the time being, the Austrian population is highly satisfied with the neutrality status[363]. In a recent Gallup survey in Austria and Switzerland shortly after the Russian invasion of the Ukraine, 71% of their population are

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[360] Bundesverfassungsgesetz vom 26. Oktober 1955 über die Neutralität Österreichs, Bundesgesetzblatt Nr. 211 vom 4. November 1955.

[361] See EU-Beitritts-BVG: https://www.ris.bka.gv.at/GeltendeFassung.wxe?Abfrage=Bundesnormen&Gesetzesnummer=10001317

[362] See the Austrian Constitution - Bundesverfassungsesetz in the status of 18 April 2024: https://www.ris.bka.gv.at/GeltendeFassung.wxe?Abfrage=Bundesnormen&Gesetzesnummer=10000138

[363] See also about Austrian Neutrality: https://de.wikipedia.org/wiki/%C3%96sterreichische_Neutralit%C3%A4t

happy with the neutrality[364].Therefore, Austria will not join NATO, like Finland and Sweden after the Russian invasion in Ukraine.

European engagement

Austria had 19 members (in 1995 it started with 21 seats) in the *European Parliament (2019-2024; 705 members)*[365]: 7 ÖVP in EPP (European People's Party; Christian Democrats), 5 SPÖ in S&D (Progressive Alliance of Socialists and Democrats), 1 NEOS in Renew (Renew Europe Group), 3 Grüne in Greens/EFA (Greens/European Free Alliance), 3 FPÖ in ID (Identity and Democracy).

European Elections 9 June 2024[366]

In the 2024 European elections, Austria gains one seat, from 19 to 20[367]. The European The European Parliament (2024-2029) will have 720 (+15 compared to before). Austria gets 20 seats in the new EP. The EP elections resulted in the following distribution of seats by national party: 5 ÖVP (-2 compared to the EP elections 2019), 5 SPÖ (no change), 6 FPÖ (+3), 2 Greens (-1), 2 NEOS (+1). The allocation to the political groups in the EP will remain the same. Hence, Austria followed the general European trend of the 2024 EP election, namely a shift from conservative to right-wing parties. The ÖVP lost, the FPÖ won.

Since EU accession in 1995, Austria chaired three times the *presidency of the Council* of the EU: Jul-Dec 1998, Jan-Jun 2006, and Jul-Dec 2018.

The *European Commission* (2019-2024) – the political leadership - provides by a team of 27 Commissioners[368] (one from each EU country: Austria's Commissioner is Johannes Hahn, Budget and Administration). According to the statistics of the organizational structure, on 1

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[364] See: https://www.gallup.at/de/unternehmen/studien/2022/zwei-laender-umfrage-zum-thema-neutralitaet-oesterreich-und-schweiz/

[365] See the profile of Austria: https://european-union.europa.eu/principles-countries-history/country-profiles/austria_en

[366] See: https://results.elections.europa.eu/en/austria/

[367] See: https://en.wikipedia.org/wiki/Apportionment_in_the_European_Parliament

[368] In view of an ever-larger EU, a reduction in the size of the EC is repeatedly discussed in the interests of more efficient administration. The Lisbon Treaty (TFEU, Article 17(5)) already provided for a reduction in the size of the Commission: *"As from 1 November 2014, the Commission shall consist of a number of members, including its President and the High Representative of the Union for Foreign Affairs and Security Policy, corresponding to two thirds of the number of Member States, unless the European Council, acting unanimously, decides to alter this number"*. This option has so far been denied by the EU Member States.

July 2023, the European Commission[369] had a staff of 30.093 persons, 463 (or 1.5%) of which are Austrians.

Finland

The politics of Finland take place within the framework of a parliamentary representative democracy. Finland is a republic whose head of state is President Alexander Stubb, who leads the nation's foreign policy and is the supreme commander of the Finnish Defence Forces. Finland's head of government is Prime Minister Petteri Orpo, who leads the nation's executive branch, called the Finnish Government. Legislative power is vested in the Parliament of Finland (Finnish: *Suomen eduskunta*, Swedish: *Finlands riksdag*), and the Government has limited rights to amend or extend legislation. The Constitution of Finland vests power to both the President and Government: the President has veto power over parliamentary decisions, although this power can be overruled by a majority vote in the Parliament.

The central government is based in Helsinki and the local governments in the 309 municipalities (towns and cities). The country is divided into 19 regions and 70 sub-regions. The smallest region, Åland, is an autonomous archipelago in the south-west. The northern Lappi region comprises the Sami Domicile Area, home to around half of Finland's indigenous Sami people (also known as Lapps or Laplanders[370]).

As no one party ever dominates the parliament, Finnish cabinets are multi-party coalitions. As a rule, the post of prime minister goes to the leader of the biggest party and that of the minister of finance to the leader of the second biggest[371].

The Orpo Cabinet is the incumbent 77th government of Finland. It took office on 20 June 2023. The cabinet is headed by Petteri Orpo and is a coalition between the National Coalition Party, Finns Party, the Swedish People's Party, and the Christian Democrats.

After the second world war, Paasikivi–Kekkonen doctrine was the foreign policy doctrine which aimed at Finland's survival as an independent sovereign, democratic, and capitalist country in the immediate proximity of the Soviet Union. After the collapse of the Soviet Union in 1991, Finland freed itself from the last restrictions imposed on it by the Paris peace treaties of 1947. The Finnish-Soviet Agreement of Friendship, Co-operation, and Mutual Assistance (and the restrictions included therein) was annulled but Finland recognized the Russian

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[369] See. https://commission.europa.eu/about-european-commission/organisational-structure/commission-staff_de

[370] See the profile of Finland: https://european-union.europa.eu/principles-countries-history/country-profiles/finland_en

[371] See: https://en.wikipedia.org/wiki/Finland; and https://en.wikipedia.org/wiki/Politics_of_Finland

Federation as the successor of the USSR and was quick to draft bilateral treaties of goodwill as well as reallocating Soviet debts.

Finland deepened her participation in the European integration by joining the European Union with Sweden and Austria in 1995. The country's policy of *neutrality* has been moderated to "military non-alignment" with an emphasis on maintaining a competent independent defence. Peacekeeping under the auspices of the United Nations is the only real extra-national military responsibility which Finland undertakes.

Finland-Russia relations have been under pressure with annexation of Crimea by the Russian Federation in 2014, which Finland considers illegal. Together with the rest of the European Union, Finland enforces sanctions against Russia that followed. Still, economic relations have not entirely deteriorated: 11.2% of imports to Finland are from Russia, and 5.7% of exports from Finland are to Russia, and cooperation between Finnish and Russian authorities continues.

After almost 30 years of close partnership with NATO, Finland joined the Alliance on 4 April 2023[372]. Finland's partnership with NATO was historically based on its policy of military non-alignment, which changed following Russia's full-scale invasion of Ukraine on 24 February 2022.

European engagement

Finland had 14 members (in 1995 it started with 16 seats) in the *European Parliament (2019-2024; 705 members)*[373]: 3 Kansallinen Kokoomus (KOK) in EPP (European People's Party; Christian Democrats), 2 Suomen Sosialdemokraattinen Puolue (SDP) in S&D (Progressive Alliance of Socialists and Democrats), 3 Suomen Keskusta (KESK) in Renew (Renew Europe Group), 3 Vihrea liitto (VIHR) in Greens/EFA (Greens/European Free Alliance), 2 Perussuomalaiset (PS) in ECR (European Conservatives and Reformists), 1 Vasemmistoliitto (VAS) in The Left.

European Elections 9 June 2024[374]

In the 2024 European elections, Finland gains one seat, from 14 to 15[375]. The European Parliament (2024-2029) will have 720 seats. Finland gets 15 seats. The EP elections resulted in the following distribution of seats by national party: 4 KOK (+1 compared to the EP elections

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[372] See: https://www.nato.int/cps/en/natohq/topics_52044.htm#finland

[373] See the profile of Finland: https://european-union.europa.eu/principles-countries-history/country-profiles/finland_en

[374] See: https://results.elections.europa.eu/en/finland/

[375] See: https://en.wikipedia.org/wiki/Apportionment_in_the_European_Parliament

2019), 2 SDP (no change), 3 KESK (no change), 2 VIHR (-1), 1 PS (-1), 3 VAS (+2). The allocation to the political groups in the EP will remain the same.

In contrast to Austria, Finland did not follow the general European trend of the 2024 EP election, namely a shift from conservative to right-wing parties. In Finland the conservative KOK and the left party VAS won, the Greens (VIHR) and the right-wing party PS lost.

Since EU accession in 1995, Finland chaired three times the *presidency of the Council* of the EU: Jul-Dec 1999, Jul-Dec 2006, and Jul-Dec 2019.

The *European Commission* (2019-2024) – the political leadership - provides by a team of 27 Commissioners (one from each EU country: Finland's Commissioner is Jutta Urpilainen, responsible for International Partnerships). According to the statistics of the organizational structure, on 1 July 2023, the European Commission[376] had a staff of 30.093 persons, 491 (or 1.6%) of which are Fins.

Sweden

Sweden is a constitutional monarchy and parliamentary democracy with a head of government - the prime minister - and a head of state - the monarch. The government exercises executive power. Legislative power is vested in the single-chamber parliament. Sweden is a unitary state, divided into 20 counties and 290 municipalities.

Sweden joined the European Union on 1 January 1995 but rejected Eurozone membership following a referendum. It is also a member of the United Nations, the Nordic Council, the Schengen Area, the Council of Europe, the World Trade Organization and the Organisation for Economic Co-operation and Development (OECD)[377].

A non-binding referendum on introduction of the euro was held in Sweden on 14 September 2003. The majority *voted not to adopt the euro* (55.9%), and thus Sweden decided in 2003 not to adopt the euro for the time being. Had they voted in favour, the plan was that Sweden would have adopted the euro on 1 January 2006.

Until recently Sweden remained non-aligned militarily, although it participated in some joint military exercises with NATO and some other countries, in addition to extensive cooperation with other European countries in the area of defence technology and defence industry. However, in 2022, in response to the Russian invasion of Ukraine, Sweden moved to formally join the

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[376] See. https://commission.europa.eu/about-european-commission/organisational-structure/commission-staff_de
[377] See: https://en.wikipedia.org/wiki/Sweden; https://en.wikipedia.org/wiki/2003_Swedish_euro_referendum

NATO alliance. After opposing the Swedish NATO application since its application, on 23 January 2024, the Turkish parliament has given its long-awaited approval to Sweden's membership of NATO, bringing the Nordic country significantly closer to joining the western military alliance after months in limbo. Sweden deposited its Instrument of Accession to the North Atlantic Treaty on 7 March 2024, becoming NATO's 32nd member country[378].

Swedish-exported weaponry was also used by Coalition militaries in Iraq. Sweden has a long history of participating in international military operations[379], including in Afghanistan, where Swedish troops were under NATO command, and in EU-sponsored peacekeeping operations in Kosovo, Bosnia and Herzegovina, and Cyprus. Sweden also participated in enforcing a UN mandated no-fly zone over Libya during the Arab Spring.

In recent decades Sweden has become a more culturally diverse nation due to significant immigration; in 2013, it was estimated that 15% of the population was foreign-born, and an additional 5% of the population were born to two immigrant parents. The influx of immigrants has brought new social challenges. Violent incidents have periodically occurred including the 2013 Stockholm riots. In response to these violent events, the anti-immigration opposition party, the Sweden Democrats, promoted their anti-immigration policies, while the left-wing opposition blamed growing inequality caused by the centre-right government's socioeconomic policies.

Sweden was heavily affected by the 2015 European migrant crisis, eventually forcing the government to tighten regulations of entry to the country. Some of the asylum restrictions were relaxed again later.

On 30 November 2021, Magdalena Andersson became Sweden's first female prime minister. The September 2022 general election ended in a narrow win to a bloc of right-wing parties. On 18 October 2022, Ulf Kristersson of the Moderate Party became the new Prime Minister.

European engagement

Sweden had 21 members (in 1995 it started with 22 seats) in the *European Parliament (2019-2024; 705 members)*[380]: 6 (4 Sweden Moderaterna (M), 1 Sweden Kristdemokraterna (KD), 1 Sweden Folkistan (SF)) in EPP (European People's Party; Christian Democrats), 5 Sweden Arbetarepartief-Socialdemokraterna (S) in S&D (Progressive Alliance of Socialists and

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[378] See: https://www.nato.int/cps/en/natohq/topics_52044.htm#sweden

[379] See: https://en.wikipedia.org/wiki/Sweden

[380] See the profile of Sweden: https://european-union.europa.eu/principles-countries-history/country-profiles/sweden_en

Democrats), 3 (2 Sweden Centerpartiet (C), 1 Sweden Liberaterna (L)) in Renew (Renew Europe Group), 3 Sweden Milijöpartief de gröna (MP) in Greens/EFA (Greens/European Free Alliance), 3 Sweden Sverigedemokraterna (SD) in ECR (European Conservatives and Reformists), 1 Sweden Vänsterpartiet (V) in The Left.

European Elections 9 June 2024[381]

In the 2024 European elections, Sweden will have the same number of seats (21).[382]. The European Parliament (2024-2029) will have 720 seats. Sweden gets 21 seats. The EP elections resulted in the following distribution of seats by national party: 5 M+KD (-1 compared to the EP elections 2019), 5 S (no change), 3 C+L (no change), 3 MP (no change), 3 SD (no change), 2 V(+1).

In contrast to Austria, also Sweden did not follow the general European trend of the 2024 EP election, namely a shift from conservative to right-wing parties. In Sweden the conservative parties (M and KD) lost, but the Socialists (S) and the left party (V) either did not change or even won. The right-wing party (SD) had no change.

Since EU accession in 1995, Sweden chaired three times the *presidency of the Council* of the EU: Jan-Jun 2001, Jul-Dec 2009, and Jan-Jun 2023.

The *European Commission* (2019-2024) – the political leadership - provides by a team of 27 Commissioners (one from each EU country: Sweden's Commissioner is Ylva Johansson, responsible Home Affairs). According to the statistics of the organizational structure, on 1 July 2023, the European Commission[383] had a staff of 30.093 persons, 480 (or 1.6%) of which are Sweds.

11.2 The quality of democracy

The Geopolitics (TGP[384]) state that the ability of democracies throughout the world to provide critical public goods to their citizens and narrow the gap between societal expectations and institutional performance is under threat. According to the most recent data, democracy is in decline, compounding a decade defined by more degradation than democratization. There are several sources of political and economic instability, such as rising food and energy prices,

[381] See: https://results.elections.europa.eu/en/finland/
[382] See: https://en.wikipedia.org/wiki/Apportionment_in_the_European_Parliament
[383] See. https://commission.europa.eu/about-european-commission/organisational-structure/commission-staff_de
[384] See: https://thegeopolitics.com/democracy-index-2023-understanding-the-global-scenarios/

soaring inflation, and an imminent recession**.** Democracy appears to be evolving in a way that does not reflect rapidly changing needs and objectives. Even in democracies that are operating at a medium or high level, there is minimal improvement. The globe is far behind in developing democratic societies.

The Economist Intelligence Unit's (EIU) *Democracy Index* provides a snapshot of the state of democracy in 165 independent states and two territories. Each country is classified as one of four types of regimes: "full democracy" (most industrial countries), "flawed democracy" (many new EU MS, e.g. Hungary), "hybrid regime" (e.g. Turkey) or "authoritarian regime" (e.g. China, Russia). This edition of the Democracy Index examines the state of global democracy in 2023. The global results of the 2023 edition (EIU, 2024) can be summarised as follows: The good news is that the number of countries classified as democracies increased by two, to 74, in 2023. However, measured by other metrics, the year was not an auspicious one for democracy. The global average index score fell to 5.23, down from 5.29 in 2022. This is in keeping with a general trend of regression and stagnation in recent years, and it marks a new low since the index began in 2006 with 5.53. Most of the regression occurred among the non-democracies classified as "hybrid regimes" and "authoritarian regimes". Between 2022 and 2023 the average score for "authoritarian regimes" fell by 0.12 points and that for "hybrid regimes" by 0.07 points. The year-on-year decline in the average score of the "full democracies" and "flawed democracies" was modest by comparison, falling by 0.01 and 0.03 points respectively. This suggests that non-democratic regimes are becoming more entrenched, and "hybrid regimes" are struggling to democratise.

In the 2023 EIU Democracy Index, Norway takes rank 1, Sweden ranks at place four, Finland at five, and Austria at 18 (improvement by 2 places from 2022). Since 2006 (8.69) Austria decline its score to 8.28 in 2023. Finland increased its score from 9.25 to 9.30, and Sweden decline from 9.88 to 9.39.

In its review of the quality of democracy, economic development, and governance performance in 137 countries, the *Bertelsmann Stiftung's Transformation Index (BTI)* registers new average global lows in each of these areas (see Bertelsmann Stiftung, 2024[385]). Accordingly, democracy continues to lose ground worldwide. At no time in the past 20 years have so few states been governed democratically as today. The BTI 2024 reveals a negative ratio reversal, with 74 autocracies now outnumbering 63 democracies. This reversal has

[385] See: https://bti-project.org/de/downloads-1?sword=&years%5B%5D=2024; another source of watching the international development of democracy is *Freedom House*: https://freedomhouse.org/

occurred in just four years, with clear setbacks in terms of political transformation evident in a fifth of the countries examined. The quality of elections, association and assembly rights, the freedom of expression, and the separation of powers have all shown particularly sharp declines. Despite these challenges, many civil society actors continue to engage in democratic processes.

As a correlate to the democracy status of a country, one can also consider the indicator about the state of development in a country is the Report on *Press Freedom*. According to "Reporters without Borders (RSF)"[386] the Press-Freedom-Index 2022 (2023) ranks Sweden at place number three (three), Finland at five (five) and Austria only at place 31 (29). In the 2024 ranking, Austria fell back to place to place 32, whereas Finland (five), and Sweden (three) kept their ranks.

11.3 Social progress

The *Social Progress Index (SPI)* is one of the world's largest curated collections of social and environmental data[387]. It uniquely concentrates on the non-economic aspects of global social performance, providing transparent and actionable data and comprehensive insights into the true state of our society.

The *2024 Social Progress Index* encompasses 13 years (2011-2023) of social progress data across 170 countries. After a decade of steady growth (SPI Score: 58.34 in 2011), for the first time the world has fallen into a social progress recession: from the peak in 2022 (SPI 63.75) down to 63.44 in 2023.

The 2024 SPI provide a detailed analysis of a country's strength and vulnerability relative to its economic peers. It is based on several indicators:

a. *Basic Needs (*Nutrition and Medical Care: 6 subcategories; Water and Sanitation: 4 subcategories; Housing: 4 subcategories; Safety: 5 subcategories).
b. *Foundations of Wellbeing* (Basic Education: 5 subcategories; Information and Communications: 4 subcategories; Health: 5 subcategories; Environmental Quality: 5 subcategories).
c. *Opportunity* (Rights and Voice: 4 subcategories; Freedom and Choice: 6 subcategories; Inclusive Society: 4 subcategories; Advanced Education: 5 subcategories)

[386] See: https://rsf.org/en/index
[387] See: https://www.socialprogress.org/2024-social-progress-index/

Table 11.1: Social progress of Austria, Finland, and Sweden: SPI Index 2024

Country	GDP pc (PPP) USD	SPI Score /100	Rank /170
Austria	56,280.51	86.73	11
Finland	49,586.41	89.96	3
Sweden	54,818.40	89.09	5

Source: 2024 Social Progress Index: https://www.socialprogress.org/2024-social-progress-index/

In the overall Social Progress Index (SPI 2024), Austria (rank 11 of 170 countries) is outperformed by Finland (rank 3) and Sweden (rank 5; see Table 11.1). The country's performance is also evaluated relative to their Peer Countries: for Austria, Finland, and Sweden these are: Germany, Iceland, Belgium, Bahrain, Netherlands, Australia, Denmark, Canada, Saudi Arabia, Kuwait, Malta, UK, France.

Austria and *Finland* overperform in "Basic Needs", are within the expected range in "Foundations of Wellbeing", and "Opportunity". *Sweden* overperforms in the category "Basic Needs", performs within the expected range in "Foundations of Wellbeing", and overperforms in "Opportunity".

11.4 Corruption standards

The Scandinavian countries rank regularly at the top concerning corruption. The Corruption Perception Index (CPI) 2023, published by Transparency International[388], sees Finland at the second place (after Denmark). A top position means that this country is least corrupt. Sweden ranks at place six. Austria ranks at place 20. Interestingly, the United States rank even further behind, at place 24. The rankings are not unimportant when companies choose where to invest and produce. The degree of corruption influences the location competition. This is underlined by a special Flash Eurobarometer 524 on "Businesses' attitudes towards corruption", published in June 2023[389].

Accordingly, 65% think that the problem of corruption is widespread in their country. Corruption is seen by 35% companies in the EU as a problem when doing business in their country. The extent to which corruption is perceived by respondents as a serious problem varies considerably across Member States. Most widespread is the problem of corruption in Greece (very widespread 56%), Romania (55%), Cyprus (52%), and Italy (49%). Corruption is least

[388] See: https://www.transparency.org/en
[389] See: https://europa.eu/eurobarometer/surveys/detail/2969

widespread – in accordance with the CPI 2023 – in Finland (very widespread problem 3%) and Sweden (7%); in Austria it is a bigger problem (16%).

12. Evaluation of EU membership

Each new step in European integration is accompanied by numerous studies on the possible economic effects. This was the case after the full effectiveness of the EEC customs union in the early 1970s, but it was especially so during the major steps of deepening EU integration with the creation of the Single Market in 1993 and the introduction of the euro in 1999/2002.

Each time a country joins the EU, countless studies are conducted on the advantages and disadvantages of joining the EU. This was also the case with the accession of the three countries Austria, Finland, and Sweden around the years 1994/95.

In the following, the studies ex-ante (i.e., the assessment of EU membership before accession) are explained first. This is followed by the studies ex-post, i.e., those that have come up with the actual effects after several years of being a member of the EU.

12.1 Ex ante projections

12.1.1 Participation in EU's Single Market

In *Austria,* the debate about a possible EU membership started early. The impetus came from the plan of the then EC to create a Single Market, announced in the White Paper "Completing the Internal Market" (Commission of the European Communities, 1985).

In a first comprehensive economic assessment Breuss and Stankovsky (1988) analysed all aspects of Austria's future changes in the event of a possible accession to an EC that intends to create the Single Market in the near future. Politically, the biggest hurdle seemed to be the declaration of perpetual neutrality and the obligations under the State Treaty. A Russian veto was feared. However, this fear became obsolete with the collapse of the USSR in 1990/91.

After a comprehensive weighing of the opportunities and risks of EC accession, Breuss and Stankovsky (1988, p. 166-167, and p.170-171) estimate the possible welfare effects for various scenarios. In the case of static effects (after a complete tariff dismantling in the context of the Tokyo Round of the WTO or EC membership), the net-welfare effects range from -0.05% (CGE model) to -0.5% of GDP (regression model). The dynamic integration effects (economies of scale, more competition) range from 1.0% to 5.5% of GDP (see Table 12.1).

The next study commissioned by the Ministry of Finance - which served to form the government's opinion on the decision to apply for membership in the EC - simulated with a macro model from WIFO (Austrian Institute of Economic Research) several EU integration

scenarios (Breuss and Schebeck, 1989). The study used the methodology of the Cecchini report (specifically those of the model study by Catinat et al., 1988). The integration effects (effects on GDP) result from four partial effects: (1) elimination of border controls, (2) public procurement, (3) liberalization of financial services, (4) supply-side effects (economies of scale and more price competition). According to Catinat et al. (1988) the creation of EC's Single (or Internal) Market should cumulatively increase EC's real GDP by 4.5 percentage points after six years.

Table 12.1: Ex ante estimations of EU integration effects of Austria, Finland, and Sweden

Authors	Method	Scale	Austria	Finland	Sweden
			In % of GDP		
Breuss-Stankovsky (1988, p. 170)	Dynamic integration effects	GDP, real	1.0 to 5.5		
			Effects in % cumulative after 6 years		
Breuss-Schebeck (1989, p. 52)	WIFO macro model	GDP, real	3.5		
			Effects in % cumulative after 6 years		
Breuss-Kratena-Schebeck (1994, p. S27)	WIFO macro plus Input-Output model	GDP, real	2.8		
			In % of GDP		
Flam (1995, p. 465)	Cost calculations for policy regime change	Net welfare effects	0.08	0.86	0.22
			In % of GDP		
Keuschnigg-Kohler (1996, p. 187)	Dynamic CGE model	Net welfare effects	1.18	1.00	0.59
		long-run	1.92		
			% change relative to baseline in the long run		
Alho et al. (1996) Widgrén (1999, p. 83	Non-model estimations of benefits and costs of EU accession	GDP, real Welfare effects		4.20	

In the case of Austria, Breuss and Schebeck (1989, p. 52) estimated that full EU membership (baseline scenario) would increase real GDP after six years by 3.5 ppts (see Table 12.1). If the increased deficit in public budget (because Austria was expected to be a net payer into the EU budget) would be compensated by increasing taxes, the integration effect would shrink to a cumulative increase of real GDP after six years by 2.5 ppts. Even if Austria would not join the

EC real GDP would increase by 1.6 ppts after six years – simply by spill-over effects via the integration effects of the EC when completing the Single Market.

After Austria had applied for EC membership (17 July 1989) and the positive vote in a referendum (12 June 1994) Austria was about to join the EU in 1995 (for a detailed description of Austria's approach towards the EU, see Breuss, 1996; Gehler, 2002). Shortly before EU accession, Breuss et al. (1994, p. S27) evaluated the effects of EU membership with the Wifo macro model plus the sectoral Input-Output model. Overall, real GDP was expected to increase cumulatively after six years in the EU by 2.8 ppts (see Table 12.1).

In the case of the EU ambitions of Finland and Sweden, there are not as many studies as for Austria. Flam (1995) surveyed and evaluated the economic consequences for Austria, Finland, Norway, and Sweden of becoming members of the EU that are the least difficult to quantify, namely transfers to and from the EU budget, changes in agricultural policy, and changes in trade barriers. Flam (1995, p. 465) estimated – in a kind of back-of-the-envelope calculation - that the net welfare effects for Austria (0.08% of GDP) are the lowest one, followed by Sweden (0.22%), and Finland (0.86%) with the highest positive effects of EU membership (see Table 12.1)[390]. The welfare effect of the net transfers to the EU budget are similar in Austria (-0.52% of GDP) and Sweden (-0.54%), somewhat lower in Finland (-0.30%). The big difference stems from a much higher consumer surplus in Sweden (0.8%) against 0.4% in Austria and 0.1% in Sweden. Transactions costs in trade are similar of around 0.3% of GDP. The rest are net government revenues (agriculture, tariffs) and producer surplus (negative in the case of Austria).

With a much more sophisticated method, with a dynamic computable general equilibrium (CGE) model with imperfect competition and 10 sectors Keuschnigg and Kohler (1996) estimated the potential economic effects of the EU accession of Austria, Finland, and Sweden. Accordingly, Austria (net welfare 1.18% of GDP; in the long-run, real GDP should increase by 1.9 ppts) could expect a higher increase of net welfare than Finland (1.0%) and Sweden (0.59%; see Table 12.1). The dynamic integration effects of the model analysis by Keuschnigg and Kohler (1996) rest on the following assumptions: (i) trade integration (lower trade costs, a common external tariff), (ii) adoption of the common agricultural policy (CAP) of the EU, (iii) net contribution to the EU budget. The model with imperfect competition implies also that the integration into EU's Single Market would increase product variety which increases consumer

[390] According to Flam (1995, p. 465), Norway would (had it not voted twice – 1972 and 1994 - against EU membership) have benefited most from EU membership: net welfare effect of 0.96% of GDP.

welfare. Additional capital accumulation magnifies the welfare gains from more product variety.

Alho et al (1996; also reported in Widgren, 1999) made non-model estimations of the benefits and costs of EU access (see Table 12.1). In the long-run Finland's real GDP is estimated to increase by 4.2%.

In the few studies which compare the EU integration effects of the three countries, Flam (1995) sees Finland as the winner, followed by Sweden and Austria. The model simulation study of Keuschnigg and Kohler (1996) qualifies Austria as the possible winner of an EU accession, followed by Finland and Sweden. The other studies mentioned in Table 12.1 only evaluate the EU integration effects for only one country: Austria in Breuss and Schebeck (1989) and Breuss et al. (1994), Finland in Alho et al. (1996), and Widgrén (1999). Therefore, no conclusion is possible as to which of the three countries was expected to gain more from EU membership.

In any case the ex-ante studies mentioned above vary in methodology and derive EU integration effects not only from trade liberalization.

Before the three countries became members of the EU in 1995, most studies evaluated primarily the effects which could occur if the countries changed its membership from EFTA/EEA to EU. The focus was on the effects of full participation in the EU's Single Market.

It was only later, when the EU deepened its integration policy - through the introduction of the euro - and then expanded by the grand enlargement towards Eastern Europe, that the question arose as to how these innovations might affect the economies of the new (and old) EU member states.

12.1.2 Expectations of EMU and Euro

The plans to deepen the EU single market to create an Economic and Monetary Union (EMU) with the introduction of a single currency (euro) were already known through the Delors Report (1989). The timetable for the creation of EMU on January 1, 1999, and the introduction of the euro as legal tender on January 1, 2002, were also already known.

The Delors Report, also known as the "Delors White Paper", published in 1989, formed the basis for the Maastricht Treaty and the creation of Economic and Monetary Union (EMU). The Committee for the Study of Economic and Monetary Union, better known as the Delors Committee, was set up in June 1988. It was established under a European Council mandate to examine and propose concrete stages leading to European Economic and Monetary Union. The Committee was chaired by Jacques Delors, then President of the European Commission.

Among other things, the report suggested three stages for achieving Economic and Monetary Union and helped to advance the process of monetary and economic integration (see more in Breuss, 2006, p. 397 following).

It was the second attempt to created Monetary Union in the EU, after the Werner Plan of 1970, which failed due to breakdown of the exchange rate system of Bretton Woods in 1971 (see more in Breuss, 2006, p. 395/396).

The study "One market, one money" by the Commission of the European Communities (1990) provided the first comprehensive ex ante evaluation for the EU as a whole. The study analyzed the possible impact of the introduction of the euro from several viewpoints. It gave insights of the possible political, micro and macro economic challenges a monetary union would involve.

In a study by Wifo (Baumgarnter et al., 1997), Breuss (1997) executed simulations with the Oxford Economic global model. Before the introduction of the euro, it was common practice (despite the predecessor of EMU, the European Monetary System EMS) for countries with current account deficits (mostly the southern states - the soft currency bloc - Greece, Italy, Portugal and Spain) to devalue their currencies against the hard currency bloc around the DM (German mark). With the introduction of the euro, this option was no longer available. It came to a so-called "misalignment effect". As a consequence, the hard currency countries Germany and Austria were expected to benefit more from the introduction of the euro and thus the fixing of exchange rates than the soft currency countries in the south. The simulations by Breuss (1997, p. 62) include four partial effects of the introduction of the euro (reduction of transaction costs, more competition in the financial sector, exchange rate stability, growth effects) and result in a positive welfare effect of 2 1/4% higher real GDP for Austria in the medium term (after 5 years). The effect for Austria would therefore be above the EU average (+1 3/4% more real GDP). In the average EU effects also include the growth dampening effects of the soft countries Greece, Italy, and Spain.

12.1.3 Impact of Opening-up of Eastern Europe and EU enlargement

After the fourth EU enlargement in 1995 by Austria, Finland, and Sweden the EU started with the Grand Eastern Enlargement in 2004 with 10 new member states, followed by the inclusion of Bulgaria and Romania in 2007, and Croatia in 2013. In the pre-accession phase after the opening-up of Eastern Europe in 1989, the EU has already linked the potential new member states in Eastern Europe (the CEECs) to the Single Market via asymmetric free trade agreements – *Europe Agreements* (the EU lifted tariffs more rapid than the partners in the East vis à vis the

EU). As Austria (and Finland) hat already long-term good trade relations with Eastern Europe this opened a new window of opportunities for them mor so than for countries with traditionally weak links to the East. in terms of trade policy with European agreements.

Several ex ante studies tried to figure out the economic impact of opening-up of Eastern Europe in 1989, and particularly the possible impact of Eastern enlargement since 2004. Breuss (2002, p. 252) in comprehensive model simulations with the World Macroeconomic Model of Oxford Economics saw benefits and dangers of EU enlargement. The total effects on real GDP are the result of five partial effects (trade effects, SM effects, FDI effects, migration effects, budgetary costs of enlargement). Again, Austria is expected to be the winner with an increase of real GDP in the short term by 0.8% and in the long term by 0.7%. Germany follows closely with +0.6% and 0.5%. In Finland (+0.5%) and in Sweden (+0.7%) the short-term effects are higher than the long-term effects (0.3% and -0.1% respectively). Whereas on average in the EU the GDP effects would amount to 0.4% and 0.3%, those of Eastern Europe would be 2.2% and 3.1% respectively). This reflects the usual pattern that the new member states gain more than the incumbents. As a rule of thumb, one could say that the expectations of EU enlargement ex ante were in the relationship of one to ten as far as the welfare effects are concerned.

A similar picture of benefits of EU enlargement was drawn in the studies by Kohler (2000, 2004) shortly before the grand enlargement took place. In a comprehensive welfare assessment, Kohler (2004) identified the winners and losers of EU enlargement. Based on Baldwin and Venables (1995), Kohler derives an equation explaining the various welfare effects of an eastern EU enlargement for incumbent EU member states. The quantification is based on a numerical simulation model for Germany. The derived welfare elasticities are then applied to other EU15 countries. According to the calculations by Kohler (2004, p. 883), the long-term welfare effect (real income) is highest in Austria (+2.0%), followed by Germany (+1.2%). Finland would gain only 0.7%, Sweden +0.6%. EU average welfare gains are 0.3%. Losers on EU enlargement would be Portugal (-1.3%), Greece and Ireland (each -0.7%), and Spain (-0.4%).

12.2 Ex post evaluations

There are various studies which evaluated the EU membership ex post, namely after several years of EU experience. As a rule, before countries join the EU, they have far too high expectations of the economic benefits of being a member of the EU. Only when one is an EU member, one realizes how complex the political mechanism of the EU is. Relatively soon, the exaggerated expectations are disappointed and the euphoria for the EU cools down very quickly. This is also reflected in the regular Eurobarometer surveys.

The following overview of the ex-post integration studies is intended primarily to provide information as to which country has benefited most from EU membership and, above all, to clarify the question of why.

The ex-post studies use a great range of methods and can be divided into those that derive EU integration effects mainly from trade effects (EU membership means more intra-EU trade) and studies that take a broader view of EU integration. Besides this "classical" approaches one study is an "outlier" insofar, as it cannot verify that EU integrations leads to economic growth effects (Andersen et al (2019). With the unique event of the "Brexit" (for the first time since World War II, EU integration is not moving forward, but backwards), we have a practical political life experiment that shows us whether EU integration is positive or negative.

The steady post-war integration of the EEC, EC, and EU with the creation of the customs union in 1968, the EU-EFTA Free Trade Agreement in 1973, the Single Market in 1993 and the introduction of the euro in 1999/2002 was primarily aimed at liberalizing trade links between the members of the ever-expanding EU.

To clarify the question what determined the growth of intra-EU trade from 1960 to 2000, Badinger and Breuss (2004) used a static and dynamic gravity panel approach. Accordingly, income growth was the major force, accounting for approximately two-thirds of total growth. European integration and GATT/WTO liberalization, reflected in the reduction of tariffs, also played a substantial trade-creating role, accounting for approximately one-quarter (25 per cent) of the growth of intra-EU trade. Increased income similarity had a positive but little effect, while the real effective appreciation of most countries slightly impeded the growth of trade. The reduction in trade costs played no role.

12.2.1 Gravity studies

The gravity model is now a workhorse of applied international trade analysis. The gravity model is one of the most popular and successful frameworks in economics. Hundreds of papers have used the gravity equation to study and quantify the effects of various determinants of international trade. Yotov et al. (2016) mention at least five compelling arguments that, in combination, may explain the remarkable success and popularity of the gravity model:

- *First,* the gravity model of trade is very intuitive. Using the metaphor of Newton's Law of Universal Gravitation, the gravity model of trade predicts that international trade (gravitational force) between two countries (objects) is directly proportional to the product of their sizes (masses, measure by GDP) and inversely proportional to the trade frictions (the square of distance) between them.

- *Second*, the gravity model of trade is a structural model with solid theoretical foundations. This property makes the gravity framework particularly appropriate for counterfactual analysis, such as quantifying the effects of trade policy. However, trade policy changes (e.g. membership in EU, NAFTA, TFA etc.) are captured only with dummy variables (1 or 0). Therefore, one can name the gravity analysis a kind of "0-1 economy".
- *Third,* the gravity model represents a realistic general equilibrium environment that simultaneously accommodates multiple countries, multiple sectors, and even firms. As such, the gravity framework can be used to capture the possibility that markets (sectors, countries, etc.) are linked and that trade policy changes in one market will trigger ripple effects in the rest of the world.
- *Fourth*, the gravity setting is a very flexible structure that can be integrated within a wide class of broader general equilibrium models in order to study the links between trade and labour markets, investment, the environment, etc.
- *Finally*, one of the most attractive properties of the gravity model is its predictive power. Empirical gravity equations of trade flows consistently deliver a remarkable fit of between 60 and 90 percent with aggregate data as well as with sectoral data for both goods and services.

Table 12.2: Ex post estimations of EU integration effects: Structural gravity models

Authors	Method	Scale	Austria	Finland	Sweden
			% change relative to baseline 2014		
Felbermayr et al. (2018, p. 24)	ifo trade multi-sector gravity model	GDP, real per capita	6.17 to 7.91	3.78 to 5.60	4.22 to 5.75
(2022A, p. 15)		Real consumption	5.60 to 7.57	3.72 to 5.97	4.26 to 5.89
			% change relative to baseline 2014		
Mayer et al. (2019, p. 174)	Structural gravity model	Real income	6.60 to 9.60	3.50 to 5.00	4.10 to 5.90
			Cumulative increase 1995 to 2014 in ppts		
Oberhofer (2019, p. 888)	Structural gravity plus ADAGIO model	GDP, real	15.6 *(0.70)*	7.10 *(0.30)*	4.30 *(0.20)*

The from-to values (Felbermayr et al., Mayer et al.) are low for the scenario Single Market (SM) and high for all other scenarios.
The values in brackets (Oberhofer) are annual percentage changes.

Capitalizing on solid micro-foundations, both on the supply side (Eaton and Kortum, 2002) and on the demand side (Anderson and van Wincoop, 2003), and on tight connection to the data

(Costinot and Rodriguez-Claire, 2014), counterfactual analysis of the effects of various trade policies using the gravity model has been the object of a series of recent studies.

Table 12.2 reports the results of two recently contributions with the gravity cum general equilibrium approach to study the impact of a dissolution of the EU or positively seen, to demonstrate how much trade and welfare are due to the EU. One study comes from Felbermayr et al. (2018, 2022), the other one from Mayer et al (2019). Also included is the study by Oberhofer (2019), who estimates gravity equations and combines them with an input-output model.

Because there is often the presence of zero trade flow data in the gravity analysis a convenient solution is to estimate the gravity model in multiplicative form instead of logarithmic form. This approach, advocated by Santos Silva and Tenreyro (2006), consists in applying the Poisson Pseudo Maximum Likelihood (PPML) estimator to estimate the gravity model (see also Yotov et al., 2016, p. 20). The estimations are done either in Stata or in a combination of Stata and MATLAB (in Felbermay et al., 2018, 2022A), recently also in Python or R.

12.2.1.1 Undoing complex Europe

Felbermayr et al. (2018, 2022A) conduct simulation experiments for different steps of European integration. For this purpose, the authors use the ifo trade model, a computable general equilibrium (CGE) model, termed in the literature as "New Quantitative Trade Model" (NQTM). It is a combination of gravity model plus general equilibrium analysis, based on the theory mentioned before, in particular on the model by Caliendo and Parro (2015) estimating the trade and welfare effects of NAFTA. Therefore, it can be coined general equilibrium gravity model (or GE gravity model). The model features 43 countries and 50 goods and services sectors with data from the World Input-Output Database (WIOD) over the period 2000-2014.

"Undoing Europe" is simulated by looking at seven different counterfactual scenarios or steps of EU integration since World War II which makes the EU the complex structure of today. For this purpose, gravity equations are estimated which explain bilateral trade in goods and services with the following variables which characterise the *EU scenarios*. Countries which take part in these integration steps get a 1, non-members a 0[391]:

(1) collapse of the European Customs Union (tariff-free trade replaced by MFN tariffs),

[391] Interestingly, the dummy variable "Euro" and "Other RTAs" are insignificant. After 25 years after the introduction of the Euro this negative result is surprising. Perhaps the two dummy variables SM and Euro overlap, whereby the SM dummy has more weight for firms doing business in the EU.

(2) dismantling the European Single Market,

(3) dissolution of the Eurozone (statistically not significant),

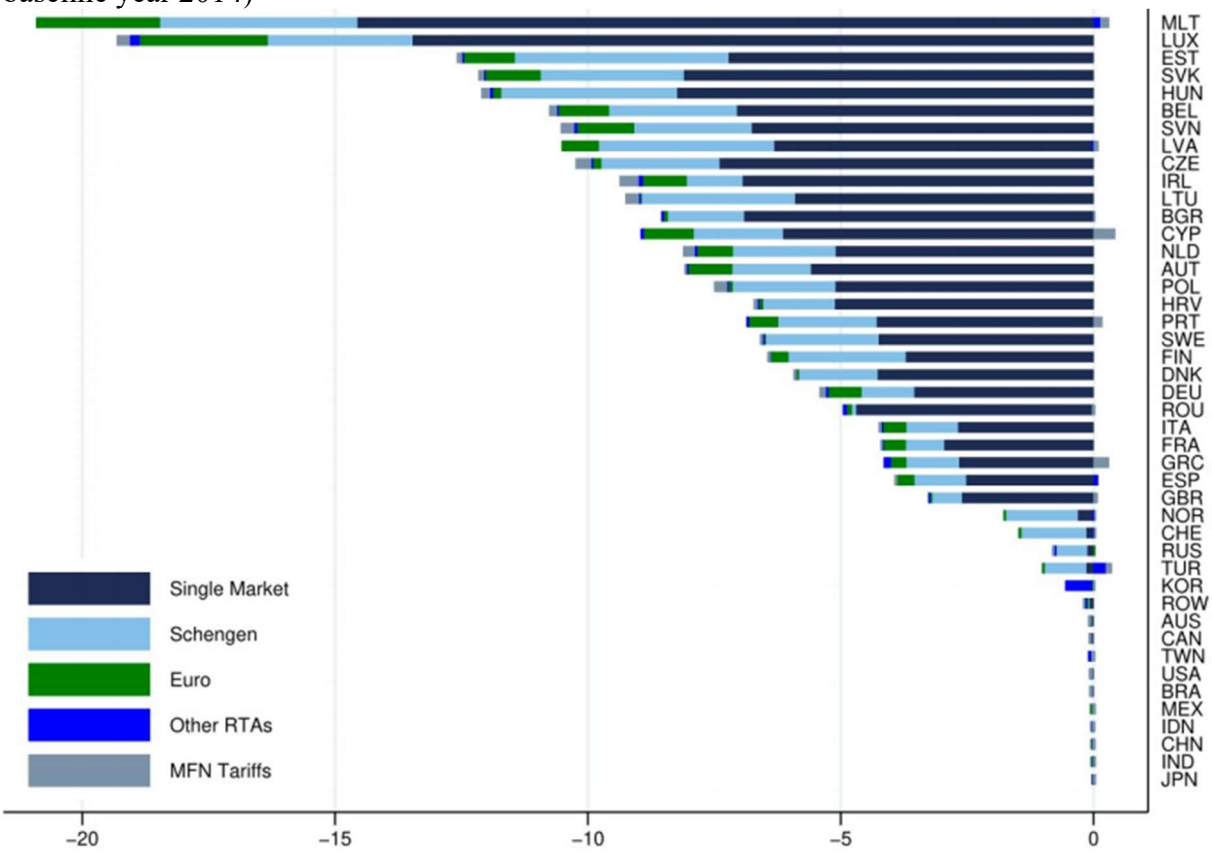
(4) breakup of the Schengen Agreement,

(5) undoing all RTAs with third countries,

(6) complete collapse of all European integration steps,

(7) complete EU collapse including the termination of fiscal transfers.

Figure: 12.1: Change in real consumption in % for various scenarios
(Simulated real consumption changes of five disintegration scenarios as % of the level in the baseline year 2014)



Source: Felbermayr et al. (2022A), p. 16.

Overall, the largest losses of income per capita (measured in real consumption) in the base year 2014 would result from the dissolution of the *Single Market* which is at the heart of EU integration (see Figure 12.1). Adding up all steps of EU integration results in scenario (7), a collapse of the EU including the non-existence of EU transfers. The complete collapse of all EU integration steps would have significant welfare losses. Income (GDP) per capita of the EU28 would shrink by 10.2%; but heterogeneity would exist across countries.

Malta (-14.6% by ending the SM and in case of the total end of EU -22.6%) would suffer the most, followed by Luxembourg (-13.5% to -18.7%) and the new EU Member States, which

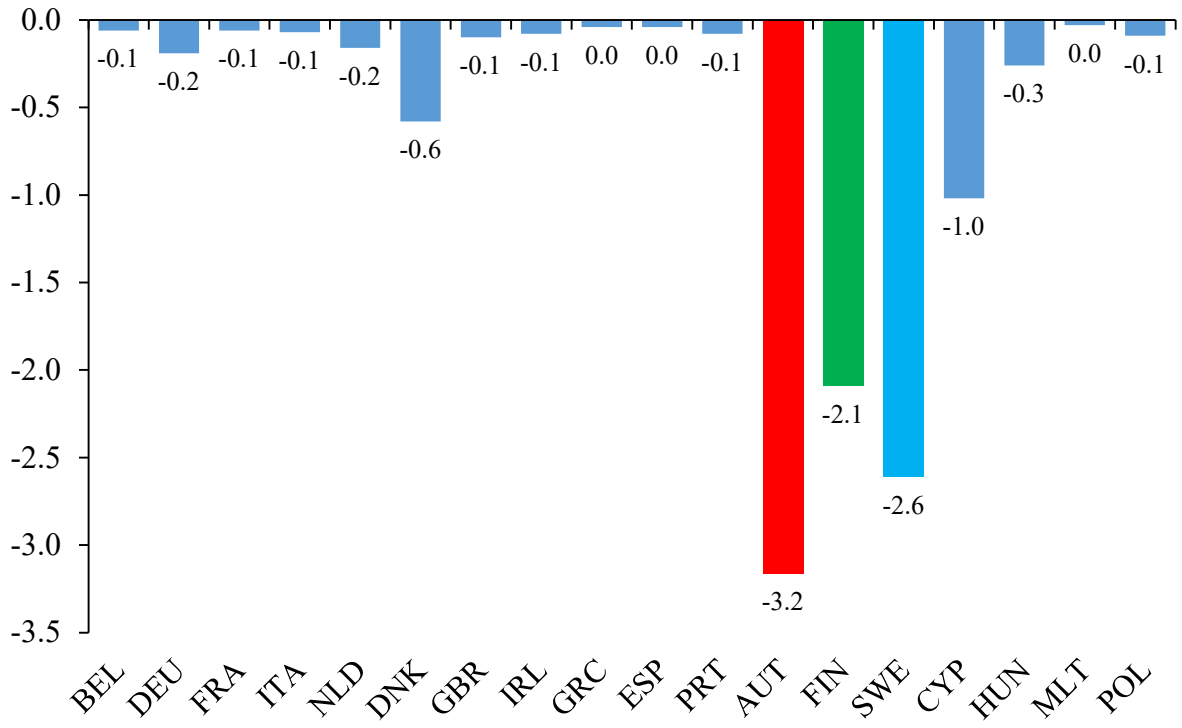
acceded the EU in 2004 like Hungary (-8.2% to -19.2%) and the others in the range of around -11%. Germany (-3.6% to -5.0%) would lose less than the EU on average.

From the three EU newcomers in 1995, Austria (6.2% to 7.9%) would suffer from the end of the EU more than Finland (3.8% to 5.6%) and Sweden (4.2% to 5.8%; in Table 12.2, we have changed the sign to indicate how much the EU member states have profited from EU membership.

In the published paper (Felbermayr et al, 2022) the results are given in changes of real consumption instead of real income (GDP) per capita in Felbermayr et al (2018). The results are quite similar. The effects for the three countries are practically identical (see Table 12.2).

The impact of a dissolution of the EU on trade is most pronounced in the SM scenario. Accordingly, Felbermayr et al. (2022A, p. 12) find that the collapse of trade within Europe would reduce Intra-EU trade by 25% to 27%, of which more than halve are due to the dissolution of the SM.

Figure 12.2: Structural gravity general equilibrium estimation: Austria, Finland, and Sweden leave the EU (GDP, real %; database 2006)



Source: Own simulation with the Stata program of Yotov et al. (2016).

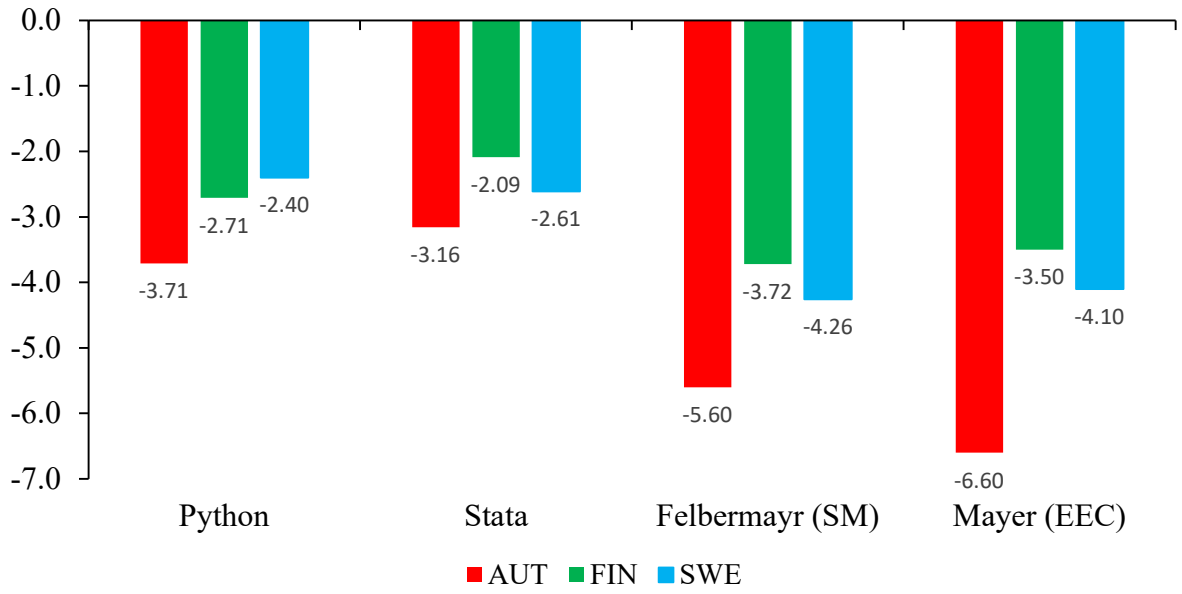
The following observation is important when interpreting the results for the three countries. The results of Felbermayr et al. (2018, 2022A) but also those of Mayer et al. (2019) refer to a total collapse of the EU, whereas we are interested only in changes of economic performance

in the case if three countries entered in an existing EU. To demonstrate this, we made a comparable general equilibrium gravity analysis with 2006 data.

The first experiment is executed with the general equilibrium (GE) gravity program published in Yotov et al. (2016) for the data base 2006, however with not all EU member states. The estimation is made in Stata with a PPML estimator. The gravity equation only includes the variables RTA, NAFTA, and EU. The results if only the three countries would leave the EU (or positively interpreted the integration effects of the three countries) are the following (see Figure 12.2): Austria would have lost the most (-3.2% real GDP), followed by Sweden (-2.6%), and Finland (-2.1%). The other EU member states would hardly be affected, most Cyprus, Denmark, and Hungary, but with income losses below one percentage points.

For comparison purposes we confront our GE gravity estimations for the year 2006 with the results of Felbermayr et al. (2022A) and Mayer et al (2019) for the SM scenario. We execute the comparison with GE gravity estimations with the Stata program of Yotov et al. (2016)[392] and the gegravity program in Python by Herman (2021), in all cases estimating the gravity equations with PPML.

Figure 12.3: Austria, Finland, and Sweden leave the EU (a comparison of general equilibrium gravity simulations; real GDP or real consumption, % changes)



Python = simulation with gegravity program by Herman (2021) with 2006 data; Stata = simulation with the Stata program by Yotov et al. (2016) with 2006 data; Felbermayr (SM) = Felbermayr et al. (2022A), p. 15; Mayer (EEC) = Mayer et al. (2019), p. 174 with intermeditates and EU; scenario EEC means remove the SM and return to the Customs Union of the EEC.

[392] I want to thank Mario Larch who adapted the GE gravity Stata-Program, which was designed to estimate the NAFTA case, so that I could use it to estimate the impact of Austria, Finland, and Sweden, leaving the EU.

The results in Figure 12.3 show the followings:

1) The results for the three countries are larger in the estimations of "undoing Europe" of Felbermayr et al. (2018, 2022) and Mayer et al. (2019) than our own estimations. This may be due to the fact that a) our estimates only use one year (2006) and that the other authors simulate a complete break-up of the EU, while we only focus on the three countries.
2) The ranking of the impact of the three countries is the same when estimated with Stata (Austria loses the most, followed by Sweden and Finland; the ranking is the same as in Felbermayr et al. and Mayer et al). When estimated in Python the ranking is: Austria, Finland, and Sweden.

The implications for total and bilateral trade of the own gravity equations experiments (see Figure 12.2 and Figure 12.3) are the following: In the Python simulations (2006 database) trade with the remaining EU partners would decline by 31% to 33%, those with non-EU partners (ROW) would increase by 7% to 9%. The intra-trade between the three countries would shrink a little bit less, by 25% to 27%. In the Stata estimations (2006 database) trade with the EU-partners (inclusive the three countries) would decline by 30.5% (reverse of trade creation), those with the ROW would increase by 8% to 10% (new trade creation).

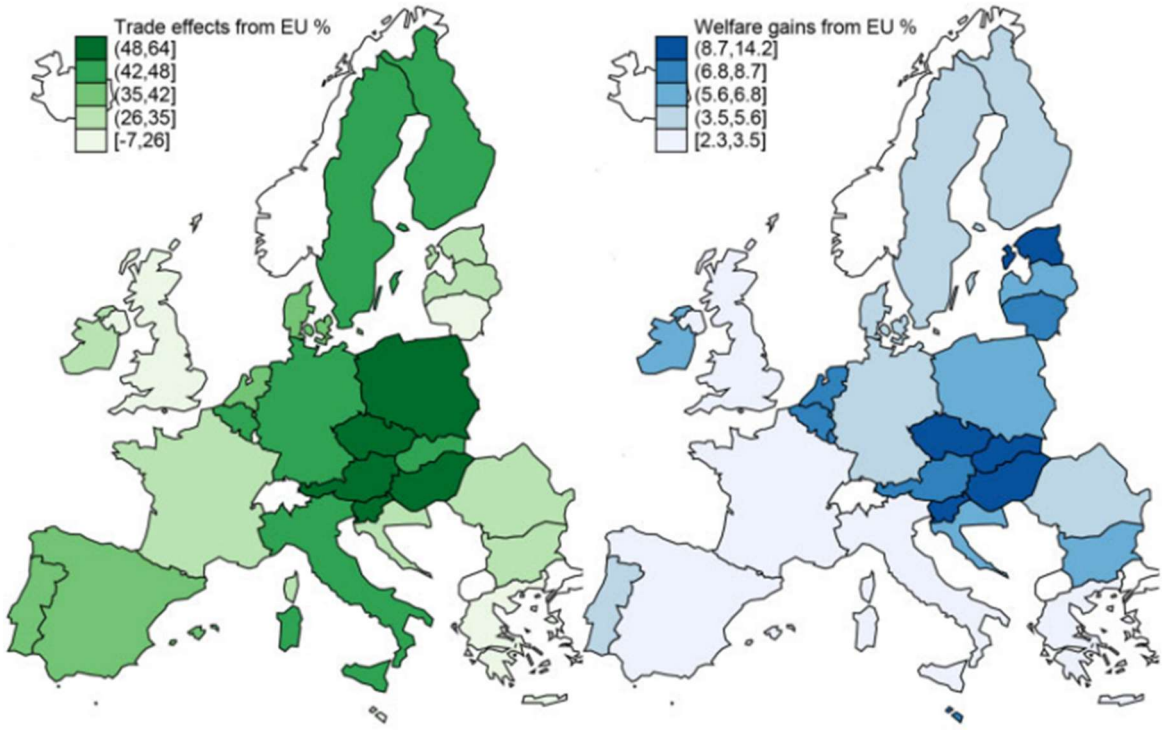
12.2.1.2 The cost of non-Europe, revisited

Using a similar methodology as Felbermayr et al. (2018, 2022A), Mayer et al. (2019) quantify the "Cost of Non-Europe", that is, the trade-related welfare gains each country member has reaped from the European Union (EU). Thirty years after the terminology of Non-Europe was used to give estimates of the gains from further integration, Mayer et al. (2019) use modern versions of the gravity model to estimate the trade creation implied by the EU, and apply those to counterfactual exercises where for instance the EU returns to a "normal," shallow-type regional agreement, or reverts to WTO rules. Those scenarios are envisioned with or without the exit of the United Kingdom from the EU (Brexit) happening, which points to interesting cross-country differences and potential cascade effects in doing and undoing of trade agreements.

The estimation of the theoretical gravity equation is carried out in two parts, the first – covering goods – uses a large-scale bilateral dataset that covers all country pairs from 1950 to 2012. It is primarily based on IMF DOTS trade flows data combined with CEPII gravity datasets, updated notably on the relevant policy variables.

The gravity equation for trade in goods measures different dimensions of European free trade integration, by using the following dummy variables: EEC, EU SM, Euro area, Schengen, EEA, EU-Switzerland, EU-Turkey, and regional trade agreements (RTA). The authors also make comparisons of estimations with OLS and PPML. Of course, the significance of the estimated parameters changes. The authors found no (or even a negative) effect of the euro on trade in goods between euro area members.

Figure 12.4: The effect of European integration on trade and welfare



The left panel presents the percentage increase in total trade in goods due to EU membership. The right panel shows welfare changes due to EU membership.
Source: Mayer et al. (2019), p. 150.

The second type of bilateral trade flow estimation is done with services trade data. Trade in services is available for a much-reduced sample, which starts in the beginning of the 1990s, and covers a drastically smaller number of countries. Similar dummy variables as in the case of trade in goods are used. Again, the euro area dummy is not significant.

Mayer et al. (2019) consider counterfactual scenarios where the current EU is replaced by a

1) reverts to WTO rules (NTM tariffs),

2) a "normal," shallow-type, regional agreement (RTA), or

3) EEC (i.e., remove Single Market and return to the Customs Union).

The first insight is that the EU in its current state promotes trade strongly (see Figure 12.4). Total imports of goods (services) by EU members increase by 36% (29%) on average in the RTA scenario, with a particularly large impact on small open economies (Austria trade +52%, services +32%; Finland +43% and +16%; Sweden +43% and +24%) and on Central and Eastern European countries (e.g. Hungary +52% and 33%).

The main conclusion of the welfare analysis is very clear: all member countries unambiguously obtain sizable welfare gains from the EU as it is. The average gain across countries ranges from 2.0% (compared to return to EEC without intermediates) to 8.2% (compared to returning to WTO NTM tariffs). There is an exact correspondence between welfare and real GDP. Hence, the EU on average has generated a permanent real GDP increase that is far from negligible. Those are comparative statics results and reflect long-term changes in the level of GDP. The magnitude of the estimated gains from trade (GFT) however depends on the specific modelling assumptions regarding intermediate goods: whatever the scenario, GFT integration is substantially larger with intermediate goods estimations.

Taking only the benchmark case with intermediates, the three scenarios for the three countries give the following results (see also Table 12.2):

a) *Austria:* in the MFN scenario the benefits of EU membership is a long-run increase of real GDP of 9.6%, in the RTA scenario +7.7%, and in the EEC scenario +6.6%.
b) *Finland:* the income gains range from +5.0% (MFN), to +4.1% (RTA) and +3.5% (EEC).
c) *Sweden:* the income gains range from +5.90% (MFN), to +4.8% (RTA) and +4.1% (EEC).

Again, in Austria the welfare effects of GFT of EU membership since 1995 are highest in all scenarios. The effects for Finland and Sweden are quite similar, with slightly higher values in Sweden.

12.2.1.3 Gravity cum Input-Output

Oberhofer (2019) also uses a structured gravity model to initially calculate the trade gains generated by the EU membership of Austria, Finland, and Sweden. These trade data are then fed into the input-output (plus macro) model of the Austrian Institute of Economic Research (WIFO), called ADAGIO, which estimates the macroeconomic effects of the EU membership of the three countries over the period 1995 to 2014.

As shown in other gravity estimates, Austria could increase its trade faster through EU membership than the Scandinavian countries. Over the 20 years period 1995-2014, Austria's total trade increased cumulatively by 46% (or 1.9% per annum), those of Finland by 12.7%

(+0.6%), and those of Sweden by 6.2% (+0.3%). As in the gravity study by Mayer et al. (2019), also Oberhofer (2019) did not find a positive significant effect of the euro on bilateral trade of the three countries with the EU.

Austrian foreign trade thus benefited significantly from Austria's accession to the EU from 1995 onwards. The increase in bilateral foreign trade with the other EU member states contributed to growth and employment trends and dampened consumer price trends. The Austrian economy benefited above all and more than that of the other countries from the EU's eastward enlargement. The overall effects from 2004 onwards are likely to be primarily attributable to the expansion of trade with these economies.

The macroeconomic outcome (see Table 12.2) shows that, again, Austria is the winner of EU membership in comparison with the Scandinavian countries. This of course depends how Oberhofer (2019) estimates the integration effects. They are trade related, derived from a gravity approach estimating bilateral trade relations. Over the period 1995 to 2014, Austria could cumulatively increase real GDP by 15.6 ppts, Finland by 7.1 ppts, and Sweden by 4.3 ppts. This translates into annual real GDP growth gains of 0.7% in Austria, 0.3% in Finland, and 0.2% in Sweden.

12.2.2 CGE models

In the overview of estimated integration effects (see Table 12.3), two authors work with Computable General Equilibrium (CGE) models. One is the study by Mion and Ponattu (2019) the other two studies are own calculations. The results in Table 12.3 are presented with a positive sign.

Table 12.3: Ex post estimations of EU integration effects: CGE models

Authors	Method	Scale	Austria	Finland	Sweden
			Annual % changes in 2016		
Mion-Ponattu (2019, p. 12)	Gravity plus CGE trade model	GDP, real per capita (Welfare)	3.92	2.52	2.80
			% change relative to baseline 2014		
Breuss (2023*)	GTAP10 CGE model	GDP, real NTM effects	0.59 to 4.44	0.29 to 1.69	0.44 to 2.40
			% change relative to baseline 2017		
Breuss (2023*)	GTAP11 CGE model	GDP, real NTM effects	1.10 to 8.36	0.37 to 3.74	0.70 to 3,92

The from-to values (Breuss.) relate to the scenarios Armington (low value) and Melitz (high value). Breuss (2023*) not published.

Mion and Ponattu (2019) apply a computable general equilibrium (CGE) trade model to evaluate the economic benefits of the EU's Single Market (SM) for countries and regions across Europe. The authors simulate a total undoing of the EU. The model captures the impact of the trade boosting effects of the SM on productivity, markups, product variety, welfare, and the distribution of population across European countries and regions. The CGE model includes ingredients such as costly trade, love of variety, heterogeneous firms, labour mobility as well as endogenous markups and productivity. The authors use data on trade in goods (services) coming from the COMTRADE (ITS) database provided by the United Nations (Eurostat) for the period 2010-2016. The simulations are conducted for EU countries and European regions (283 NUTS2 regions), and for 14 other countries of the Organisation for Economic Co-operation and Development (OECD) and BRIC (Brazil, Russia, India, and China) trading partners.

The long-run country results (Mion and Ponattu, 2019, p. 12) show that the SM provides higher welfare, higher productivity, and lower markups to all its members while at the same time countries outside the SM are actually (slightly) worse off because of the existence of the common market. The country results show a considerable heterogeneity. Overall, the long-run (in the period 2010-2016) welfare (income per capita) gains due to EU's Single Market, are highest in Belgium (+4.4%) and Luxembourg (+4.3%), followed by the Czech Republic (+4.0%), Austria and Slovenia (each +3.9%). Finland (+2.5%) and Sweden (+2.8%) could profit less from EU accession (see Table 12.3). The large incumbent EU Member States, like France (+3.1%), Italy (+2.8%) and Germany (+2.7%) rank in the middle of welfare benefits of the EU.

Own simulations do not analyse the complete "Undoing the EU" but only the case when Austria, Finland, and Sweden would leave the EU27; or positively interpreted as in Table 12.3, our simulations evaluate the benefits of the EU membership of the three countries. The simulations with a computable general equilibrium (CGE) model are executed with the CGEBox of Britz (2019) and Britz and Van der Mensbrugghe (2018). We use GTAP[393] data of two version: version 10 with data for the year 2014 and version 11 with data for the year 2017. Only one scenario is evaluated, namely the re-introduction of 50% of the estimated non-tariff measures (NTMs).

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[393] The GTAP is the abbreviation of Global Trade Analysis Project (see: https://www.gtap.agecon.purdue.edu/). This is a global network of researchers and policy makers conducting quantitative analysis of international policy issues. GTAP is coordinated by the Center for Global Trade Analysis in Purdue University's Department of Agricultural Economics.

Our CGE model consists of twelve sectors and twelve countries. The elimination of NTMs constitutes the core of EU's Single Market, starting in 1993. The problem with the implementation of NTMs is that they are only rough estimates. The most recent estimated NTMs stem from Arriola et al. (2020). It is plausible not to shock the model with the full level of NTMs because a non-EU membership of the three countries would probably lead to a return to the EFTA, of which they were members for many years before joining the EU. Also, a reintroduction of import tariffs is not plausible because an EU exit would mean that the three countries would again become members of EFTA which had no tariff barriers in trade with the EU due, on the one hand to the FTT of 1973 and on the other hand because of the trade relations within the European Economic Area (EEA).

Generally, the results of the simulations with the GTAP10 (2014 data) version are lower than those with the GTAP11 (2017 data) version (see summary Table 12.3).

The re-introduction of (50% of the estimated) NTMs leads to a reduction in trade and economic growth. With 2014 data, (see Table 12.4) intra-EU trade would shrink in Austria by 15% (Armington version) to 21% (Melitz version)[394]. In Finland by 16% and 19%, and in Sweden by 16% and 18%. This translates into a medium run reduction of real GDP in EU23 (EU27 minus Austria, Finland, Sweden, Germany) by 0.01% (Armington) to -0.03% (Melitz). Austria would lose disproportionally (-0.6% to -4.4%); Finland (-0.3% to -1.7%) and Sweden (-0.4% to -2.40%).

Table 12.4: Austria, Finland, and Sweden leave the EU27 (Database 2014)

	GDP, real change in %		Welfare (CV) change in % of GDP		Intra-EU exports MS to EU27 change in %		ROW exports change in %		Total exports change in %		Total CO_2 emissions change in %	
	Armington	Melitz	Armington	Melitz	Armington	Melitz	Armington	Melitz	Armington	Melitz	Armington	Melitz
Austria	-0.59	-4.44	-1.95	-3.34	-14.65	-20.77	15.13	2.90	-2.87	-11.41	-4.91	-8.62
Finland	-0.29	-1.69	-0.86	-1.43	-16.11	-18.60	9.96	4.04	-1.86	-6.23	-1.12	-3.89
Sweden	-0.44	-2.40	-1.24	-1.95	-15.54	-17.94	12.53	5.20	-0.57	-5.60	0.59	-1.72
EU23	-0.01	-0.03	0.00	-0.04	-0.75	-1.27	0.34	0.39	-0.24	-0.50	-0.02	-0.11

CV = Compensating Variation; ROW exports = total exports minus Intra-EU exports
Source: Own simulations with GTAP 10A (database 2014)

With 2017 data, (see Table 12.5) intra-EU trade would shrink in Austria only by 7% (Armington version) to 11% (Melitz version). In Finland intra-EU trade declines by 16% to

[394] The CGEBox allows to simulate the GTAP model in an Armington and in a Melitz version (see Melitz, 2003). The Armington model is based on the premise that each country produces a different good and consumers would like to consume at least one of each country's goods. The Melitz version considers firm heterogeneity, firm entry and exits in the industry as a whole and on specific trade linkages, and love-of-variety effects by different agents, resulting in monopolistic competition.

18%, in Sweden from 13% to 16%. This translates into a medium run reduction of real GDP in EU23 by 0.01% (Armington) to 0.08% (Melitz). Again Austria (-1.1% to -8.4%) would lose much more than Finland (-0.4% to -2.2%) and Sweden (-0.7% to -3.9%).

Table 12.5: Austria, Finland, and Sweden leave the EU27 (Database 2017)

	GDP, real change in %		Welfare (CV) change in % of GDP		Intra-EU exports MS to EU27 change in %		ROW exports change in %		Total exports change in %		Total CO_2 emissions change in %	
	Armington	Melitz	Armington	Melitz	Armington	Melitz	Armington	Melitz	Armington	Melitz	Armington	Melitz
Austria	-1.10	-8.36	-3.21	-6.93	-7.69	-10.67	24.27	15.16	3.10	-1.94	-3.59	-7.70
Finland	-0.37	-2.24	-0.84	-1.74	-15.62	-18.08	10.93	4.99	-1.67	-5.96	-0.68	-3.03
Sweden	-0.70	-3.92	-1.75	-3.08	-13.26	-15.88	17.33	9.88	2.54	-2.57	1.79	0.50
EU23	-0.01	-0.08	-0.01	-0.08	-0.90	-1.62	0.81	1.28	-0.15	-0.35	-0.04	-0.16

CV = Compensating Variation; ROW exports = total exports minus Intra-EU exports
Source: Own simulations with GTAP 11B (database 2017)

The CGEBox simulations allow also to evaluate the impact of production changes on *CO_2 emissions*. As Austria would suffer a higher loss of output if it left the EU, the savings of CO_2 emission would also be higher (see Tables 12.4 and 12.5).

In both cases the integration effects estimated with a CGE model are solely based on trade effects, namely the possible outcome of a reintroduction of 50% of the existing NTMs. The fact that Austria is stronger integrated via intra-EU trade with the EU explains the ranking of the integration effects (GDP, welfare measures in compensating variations (CV) and/or in equivalent variations (EV)): Austria comes first, followed by Sweden and Finland.

The results in the Tables 12.4 and 12.5 must be interpreted as changes in the medium to long-run not as effects in only one year. Again, we see the usual picture with Austria as the biggest loser – measured by the decline of real GDP or welfare loss - from an exit of the EU (or if positively interpreted as integration effects of the EU membership since 1995). Sweden would suffer the second most if she would leave the EU. Finland would lose the least.

In the CGEBox simulation model with 12 sectors and 12 countries, the effects are always bigger in the Melitz scenario compared to the Armington scenario[395]. The Armington model which played a central role in the gravity literature assumes that goods are "differentiated by country of origin": no two countries can produce the same goods and each good enters preferences in a Dixit-Stiglitz fashion. The Armington specification of trade, assuming country-level product differentiation, has also been central to CGE modelling for 40 years. Starting in the 1980s with Krugman (1980) and more recently Melitz (2003), trade theorists have preferred

[395] Under very restrictive assumptions, Arkolakis et al. (2012) derived theoretically a formula for the change in welfare, which implies that Armington and Melitz models would lead to the same change in welfare after a trade cost shock.

specifications with firm-level product differentiation (see Dixon et al., 2016). So, the old trade theory turned to a "new trade theory" (Krugman) and finally to a "new new trade theory" (Melitz).

Table 12.6a: Austria, Finland, and Sweden leave the EU: impact on exports by sectors (Change in % compared to baseline in 2017)

No	Sectors	NTM	Export share %	Total change in %	Intra-EU change in %	ROW change in %	Export share %	Total change in %	Intra-EU change in %	ROW change in %	Export share %	Total change in %	Intra-EU change in %	ROW change in %
			Austria				**Finland**				**Sweden**			
1	Livestock and Meat Products	10	1.05	-11.59	-16.97	16.33	0.79	-4.41	-25.58	4.83	0.20	-10.63	-18.44	13.58
2	Grains and Crops	15	0.55	1.11	-18.68	9.16	0.19	0.17	-19.56	-4.33	0.27	0.55	-20.67	0.80
3	Crude Oil*)	5	-	-	-	-	-	-	-	-	0.00	-28.57	-40.00	0
4	Mining and Extraction	5	0.27	-23.47	-29.70	12.73	0.70	-8.67	-16.32	19.1	2.42	2.74	-15.62	33.97
5	Processed Food	7	4.49	5.63	1.11	15.95	1.49	-1.96	-6.71	6.79	2.80	1.59	-4.69	9.27
6	Textiles and Wearings	15	2.25	-5.27	-23.67	29.98	0.62	-18.08	-33.28	11.09	1.19	-7.03	-23.83	23.84
7	Light Manufacturing	8	14.75	4.18	-6.19	25.33	22.12	-0.77	-14.19	14.20	13.97	3.73	-11.17	17.90
8	Heavy Manufacturing	7	42.91	5.55	-4.66	22.30	45.10	-0.91	-13.58	9.56	40.83	4.48	-8.85	15.82
9	Motor vehicles	27	8.60	-27.71	-44.67	9.40	4.39	-10.94	-39.89	10.78	11.34	-15.07	-39.66	14.77
10	Utilities and Construction	10	1.07	46.17	36.39	73.24	0.61	4.77	-12.81	21.13	1.32	16.53	7.44	43.55
11	Transport and Communication	20	15.30	2.89	-8.58	31.12	14.95	-3.09	-22.59	10.34	14.04	2.63	-17.33	17.28
12	Other Services	10	8.76	19.44	11.59	35.56	9.04	1.08	-8.96	12.65	11.62	11.73	0.20	21.79
	Total		100.00	3.10	-7.69	24.27	100.00	-1.67	-15.62	10.93	100.00	2.54	-13.26	17.33

*) Crude oil exports have a very low level in Austria and Finland.
Intra-EU trade = trade with EU23 plus Austria, Finland, Sweden, and Germany.
NTM = tariff-equivalent in %; 50% of these tariffs are used in the simulation.
Source: Own simulations with GTAP 11B (database 2017), Armington case.

Table 12.6b: Austria, Finland, and Sweden leave the EU: impact on imports by sectors (Change in % compared to baseline in 2017)

No	Sectors	NTM	Import share %	Total change in %	Intra-EU change in %	ROW change in %	Import share %	Total change in %	Intra-EU change in %	ROW change in %	Import share %	Total change in %	Intra-EU change in %	ROW change in %
			Austria				**Finland**				**Sweden**			
1	Livestock and Meat Products	10	1.05	-14.32	-15.92	16.88	0.58	-10.74	-15.39	14.12	0.78	-19.31	-22.67	11.80
2	Grains and Crops	15	1.46	-5.13	-9.63	25.49	1.16	-3.54	-14.65	19.3	1.35	0.03	-9.84	25.47
3	Crude Oil	5	1.35	5.92	-33.33	5.92	5.01	1.44	-19.86	1.73	3.71	5.28	-15.72	6.63
4	Mining and Extraction	5	1.90	-6.72	-32.00	8.54	4.45	-3.75	-13.65	0.70	1.04	-3.16	-12.19	1.97
5	Processed Food	7	4.13	-8.75	-10.07	2.93	3.97	-5.27	-7.00	3.68	4.41	-5.82	-8.54	3.44
6	Textiles and Wearings	15	3.83	-13.27	-27.48	20.91	2.90	-8.30	-25.60	18.02	3.51	-8.39	-32.42	12.84
7	Light Manufacturing	8	13.02	-16.38	-20.29	4.11	8.46	-11.75	-17.52	4.48	9.86	-14.46	-21.08	2.15
8	Heavy Manufacturing	7	43.14	-11.21	-16.96	4.85	36.37	-5.99	-12.40	7.03	34.55	-9.23	-15.26	5.82
9	Motor vehicles	27	9.64	-22.92	-30.69	38.60	6.86	-8.15	-15.37	57.24	9.72	-15.59	-29.87	40.05
10	Utilities and Construction	10	1.26	-35.46	-36.85	-21.02	2.44	-9.78	-8.66	-12.81	1.16	-28.02	-31.24	-17.99
11	Transport and Communication	20	11.11	-19.50	-27.17	2.70	15.57	-12.36	-22.11	6.28	15.86	-14.88	-26.89	2.19
12	Other Services	10	8.11	-17.30	-21.59	-7.80	12.23	-7.48	-11.71	-1.99	14.05	-13.23	-20.12	-6.87
	Total		100.00	-14.34	-20.80	5.74	100.00	-7.46	-15.11	5.67	100.00	-11.21	-20.18	4.53

Intra-EU trade = trade with EU23 plus Austria, Finland, Sweden, and Germany.
NTM = tariff-equivalent in %; 50% of these tariffs are used in the simulation.
Source: Own simulations with GTAP 11B (database 2017), Armington case.

The simulation of an introduction of 50% of existing NTMs vis á vis the EU when leaving the EU has heterogeneous trade impacts on the sectors in Austria, Finland, and Sweden leaving the EU (see Tables 12.6a for exports and 12.6b for imports with GTAP11 data base of 2017; Armington case). This is of course due to the different weights of the sectors in the three countries. In all three countries, the sector Heavy Manufacturing (Paper, chemicals, iron, and steel etc.) has the greatest weight - both in terms of exports and imports, it is followed by the

sector Light Manufacturing (Metal products, electronic devices, computers etc.). Then comes the service sector Transport and Communication. Undoing EU membership of the three countries would of course have dramatic consequences for Intra-EU trade, more so on the import than on the export side. The trade creation effect after EU accession would be reversed, leading to shrinking trade with the EU and new trade creation with the non-EU countries, the countries in the rest of the world.

In our CGE simulations (see the Tables 12.6a and Table 12.6b) we use the same NTMs (tariff-equivalents) in the three countries. The highest hurdles would occur in the sector Motor vehicles, followed by Transport and Communication. Similar hurdles would have the sectors Textiles and Wearings and Grains and Crops after leaving the EU. On average over the 12 sectors, the NTMs amount to 11 ½%, of which only 50% are applied in our simulations.

Table 12.7: Austria, Finland, and Sweden leave EU27: a comparison of real GDP effects of a 5% tariff increases on all goods (change of real GDP in %): 2017 data

				CGEBox		
	Real GDP	**Real wage**	**Total exports**	**Total imports**	**Exports to EU27**	**Imports from EU27**
Austria	-0.91	-2.97	1.78	-13.32	-8.61	-19.92
Finland	-0.32	-0.02	-2.16	-7.62	-17.06	-15.23
Sweden	-0.55	-5.54	1.85	-10.16	-13.51	-18.32
				RunGTAP		
	Real GDP	**Real household income**	**Total exports**	**Total imports**	**Exports to EU27**	**Imports from EU27**
Austria	-0.89	-2.22	0.50	-15.88	-10.00	-23.47
Finland	-0.34	-0.62	-3.14	-9.55	-19.61	-18.64
Sweden	-0.66	-1.31	0.57	-12.48	-15.42	-22.07
				METRO		
	Real GDP	**Real household income**	**Total exports**	**Total imports**	**Exports to EU27*)**	**Imports from EU27*)**
Austria	-0.21	-0.44	-10.53	-6.17	-16.22	-11.60
Finland	-0.16	-0.31	-6.40	-3.43	-13.99	-11.96
Sweden	-0.22	-0.40	-6.18	-3.25	-13.96	-11.26
				KITE		
	Welfare	**Real wage**	**Total exports**	**Total imports**	**Exports to EU27**	**Imports from EU27**
Austria	-0.23	-1.82	-10.91	-11.31	-17.12	-15.38
Finland	-0.01	-1.01	-9.33	-8.50	-19.21	-14.46
Sweden	-0.09	-1.12	-8.64	-8.49	-18.31	-14.65

The models CGEBox and RunGTAP aggregate the GTAP11 database of 65 sectors and 141 countries to models of 12 sectors and 12 countries (12x12 model). The METRO model is a 13x12 model. The KITE model uses the GTAP database without aggregation.
Welfare in the KITE model is defined as real income (nominal income divided by the consumption price index), where income is the sum of labour income, tariff revenues, and trade deficit.

In the following we make a comparable simulation with a fictive re-introduction of import tariffs on all goods and services of 5% between the three countries and EU23 and Germany. 5% tariffs are comparable to an average of 50% NTMs. The results in Table 12.7 show that the

simulated results are on a macro level nearly equivalent the 50% NTM simulations in the previous tables.

Additionally, to the CGE simulation with the CGEBox we did – for comparison reasons - the same exercise with other CGE models. One model is the RunGTAP model (a visual interface to various GEMPACK programs using GTAP data[396]), the other is the OECD model METRO (ModElling Trade at the OECD[397]) and the last one, KITE (Kiel Institute Trade Policy Evaluation[398]) is the model of the ifW (Kiel Institut für Weltwirtschaft[399]). All four models use the same database of GTAP11 for the year 2017.

The models CGEBox and RunGTAP give similar results, at least concerning real GDP (see Table 12.7). This is no surprise because CGEBox implemented the structure of the RunGTAP model in an own simulation environment. The two other CGE models, METRO and KITE deliver smaller values concerning welfare or real GDP. The results concerning intra-EU trade are similar in all four models.

We have used different kinds of CGE models to estimate the trade and welfare effects of leaving the EU in the case of Austria, Finland, and Sweden. On the one hand we used the GTAP CGE model (see Tables 12.4 to 12.6), on the other hand we made a comparison with other CGE models (see Table 12.7). By 'other models' we mean the OECD's METRO model and the ifW's KITE model. The latter is based on the theory of Eaton and Kortum (2002) which then was quantified by Caliendo and Parro (2015) in MATLAB to study the implications of NAFTA. The Caliendo-Parro model has been transported into R by Julian Hinz, Hendrik Mahlkow, Joschka Wanner of ifW Kiel[400] and is called KITE (Kiel Institute Trade Policy Evaluation.

Concerning welfare (or GDP) effects, in all four models, Austria has the strongest effects. Finland, and Sweden are in some models first in others second. In almost all simulations of a 5% increase of tariffs on all imported goods the effects of trade with the EU are double digits.

The interesting question is now whether there are fundamental differences between the GTAP version of a CGE model with Armington specification and a CGE model with Eaton-Kortum trade structure. Exactly this exercise has done Bekkers et al. (2023). Structural gravity models and models in the spirit of Eaton and Kortum (2002) have been called new quantitative trade (NQT) models in the literature. Eaton-Kortum models are CGE models with a Ricardian

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[396] See: https://www.gtap.agecon.purdue.edu/products/rungtap/default.asp
[397] See: https://www.oecd.org/trade/topics/metro-trade-model/
[398] See: https://www.ifw-kiel.de/de/institut/forschungszentren/handelspolitik/kite-kiel-institute-trade-policy-evaluation/
[399] I want to thank Hendrik Mahlkow who introduce me to the handling of the KITE model.
[400] See: https://www.ifw-kiel.de/de/institut/forschungszentren/handelspolitik/kite-kiel-institute-trade-policy-evaluation/

trade structure. Firstly, Bekkers et al. (2023) develop an Eaton-Kortum based calibrated CGE model, incorporating basic structure of the GTAP version 7 model. Then they compare the simulation results derived from GTAP models with Armington and Eaton-Kortum specifications. The GTAP data base, version 10 (data of 2014), is aggregated to 10 regions, 10 sectors, and 5 factors of production. The models are calibrated to the same trade elasticities.

Four experiments are conducted: (i) global tariff liberalization: elimination of tariffs in all regions (e.g., set tariffs to zero); (ii) global iceberg trade costs reduction: 5 % decrease in iceberg trade costs in all regions; (iii) global export tax liberalization: elimination of export taxes and subsidies (i.e., set them to zero); (iv) unilateral tariff increases: ten experiments with each region increasing (the power of) tariffs by 10% vis-a-vis other regions.

Interestingly, the difference in the welfare effects (change in real income of the 10 regions) is very small, as expected from the theory. Similarly, the difference in changes in trade volumes are small; however, the changes are somewhat smaller in the Eaton-Kortum model than in the Armington model. The reason is that the elasticity of trade volumes with respect to trade costs is smaller in the Eaton-Kortum model. The change in real GDP differs more (but not very much) between the two models across the different regions, because the change in real exports and real imports differs between the two models. The picture concerning the terms of trade (TOT) is not uniform. In some regions the TOT improvement in the Armington model is larger, such as in South Asia, North America, and Latin America, whereas in other regions the TOT improvement is larger in the Eaton-Kortum model, such as Oceania, East Asia, and South-East Asia.

In the following we made *simulations* with the data base of *Caliendo and Parro* (2015; in the following abbreviated with CP) which they applied to evaluate the economic consequences of NAFTA. CP use a data base with tariffs of 1993 and of 2005.

Since Uruguay Round came into force in 1995 with global trade liberalization under the newly created World Trade Organization (WTO), CP also simulate global trade liberalization, i.e. a complete world tariff reduction. The largest winner according to this simulation is China with an increase of welfare of 13.9%, followed by Portugal (+12.6%), and India (+3.6%). Austria would increase its welfare by 2%, Finland and Sweden, each by 0.8%.

For the *scenario of Austria, Finland, and Sweden leaving the EU*, we proceed like CP in their NAFTA experiment. The tariffs in 2005 are set to those of the year 1993 in bilateral trade of the three countries with the EU member states (in the CP world the EU consists only of 13 countries). The results are interpreted as positive effects, namely as effects of EU membership. As a result, Austria would increase its welfare by 1.61%, Finland by 0.75%, and Sweden by

0.73%. If the welfare results of the leave-EU scenario are subtracted from those of the Uruguay-round scenario, the following effects arise. Austria's welfare would increase by 0.41%, those of Finland by 0.03%, and those of Sweden by 0.11%. The country ranking of the effects is like earlier estimations in Tables 12.4 and 12.5. Austria wins more from EU membership (or would lose more from leaving the EU) than Finland and Sweden.

12.2.3 DSGE models

In't Veld (2019) evaluates the macro-economic benefits of EU's Single Market by applying the European Commission's QUEST dynamic stochastic general equilibrium (DSGE) model. The model used in this simulation exercise is a multi-country version of the QUEST model with 28 EU MS as well as the United States and an aggregated block representing the rest of the world. QUEST is a structural macroeconomic model, derived from micro-principals of dynamic intertemporal optimization. It distinguishes between a tradable and non-tradable sector, both importing inter-mediate goods, and models bilateral trade flows of traded goods. In't Veld only reports long-run effects, more precisely the model reports steady state effects, reached after 20 years.

Table 12.8: Ex post estimations of EU integration effects: DSCGE models

Authors	Method	Scale	Austria	Finland	Sweden
			% change relative to baseline in the long run		
in 't Veld (2019, p. 814)	QUEST DSGE model	GDP, real	11.8	7.70	7.70
			Cumulative increase 1995 to 2020 in ppts		
Breuss (2020D, p.12)	DSGE 2 ctry model Austria-Eurozone	GDP, real	10.3 to 17.8 *(0.39) to (0.68)*		

The from-to values (Breuss.) relate to SM (low value) and SM plus endogenous growth via R&D (high value). The values in brackets (Breuss) are annual percent changes.

In't Veld (2019) simulates two counterfactual scenarios, which should capture the non-SM effects:

1) Effects of trade barriers: in the SM simulation the author adds most-favoured nations (MFN) tariffs and non-tariff barriers (NTB). However, although at the start of the SM the EU has already eliminated the MFN tariffs in intra-EU trade. The increase in trade costs of around 13% reduces intra-EU trade (intra-EU imports) by 20-30%, while total imports fall by about 20%. The fall in imports is larger than that in exports. The increase in trade costs not only affects trade flows but has a direct impact on domestic demand and hence on GDP (in the

long run -6.6% for EU28). In the QUEST model, lower GDP is mostly a productivity effect, which is the result of lower investment.

2) *Effects of lower competition:* Greater trade openness of the SM has increased competition and lowered prices, and the re-establishment of trade barriers (as in scenario (1) above) is likely to reduce competitive pressures. If one assumes that the undoing of the SM would lead to an increase of mark-ups in manufacturing by 26% (no effect in the services sectors), real GDP of EU28 would be lower by 2.1%.

Summing up the results of the two above mentioned scenarios gives the total long-run effects of the counterfactual non-Single Market (In't Veld, 2019, p. 814). Real GDP in EU28 would be lower by 8.7%. The effects differ from country to country. The biggest losses would occur in Luxembourg (-20.5%), followed by Slovakia (-19.3%), Czech Republic (-18.5%), Belgium (-18%) and Hungary (-16.5%). Austria (-11.8%; per annum -0.6%) would suffer more than Finland and Sweden (both -7.7%; per annum -0.4%; see Table 12.8). The large incumbent Member States France (-7.1%), Germany (-7.9%) and Italy (-6.8%) would lose less than the EU on average.

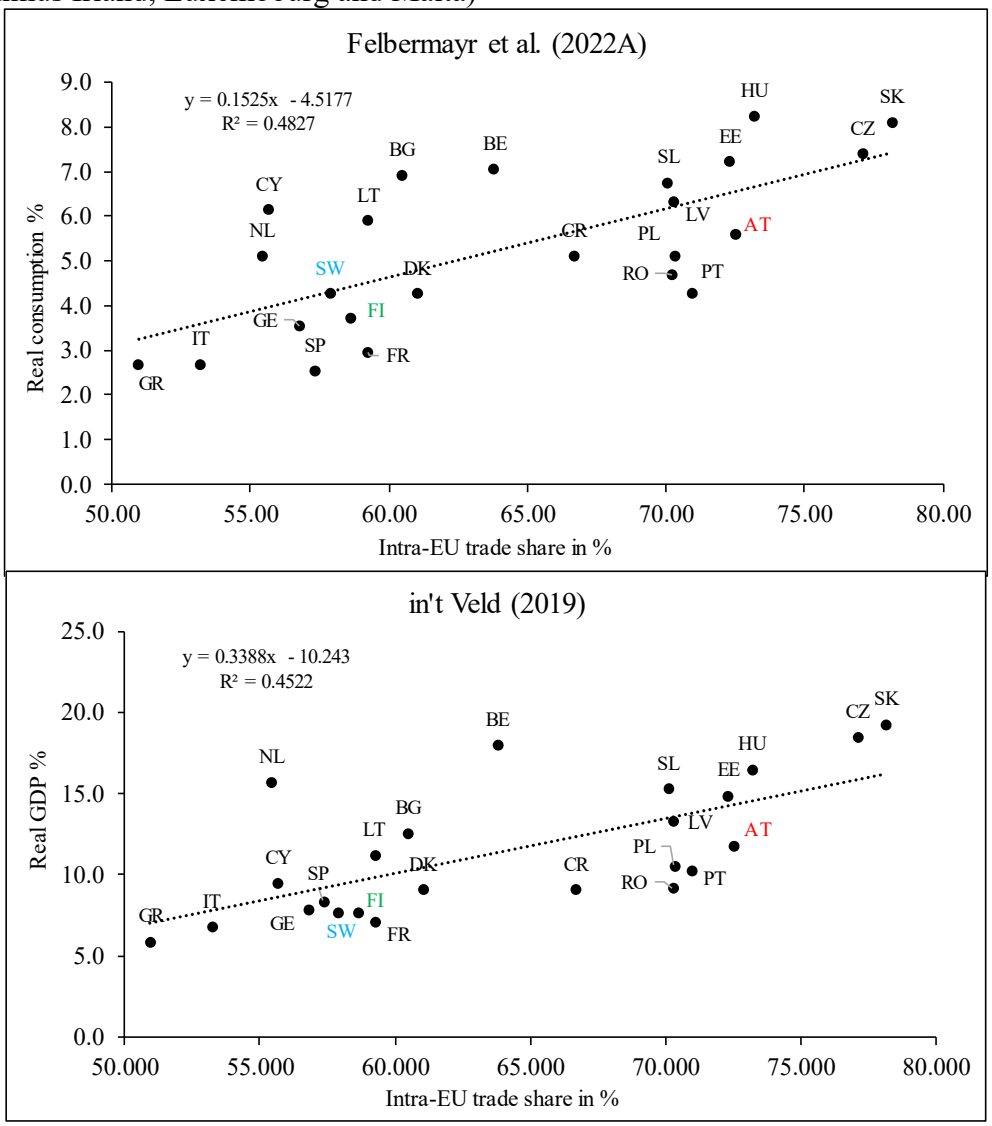
In't Veld's (2019) estimates are comparable to those of Mayer et al. (2019) and Felbermayr et al. (2018), who use gravity trade models to estimate the trade and welfare effects from European integration. Mayer et al. (2019) report large trade effects and welfare losses for the EU of up to 5½%. Felbermayr et al. (2018) report income per capita effects for their Single Market disintegration scenario that are on average around 6.4% for EU28. While the country ranking in these two studies show strong similarities to those of In't Veld, their welfare or income per capita effects appear lower than In't Veld's GDP effects. Part of this difference are due to the competition effects included in the results of In't Veld, but not in that of the two other studies.

Following in't Veld's (2019) approach with a DSGE model for the EU, we adapt an earlier version of the two-country DSGE model for Austria to evaluate the benefits of Austria's EU membership (Breuss, 2020D). However, the DSGE analysis is less ambitious to quantify the many possible integration effects than was done in the macro-economic approach in Breuss (2020B). Here the complexity of EU integration is reduced to a simulation of three counterfactuals of the most important determinants of integrating into EU's Single Market:

- Elimination of trade barriers, captured by a NTB shock,
- More competition, simulated by a mark-up shock, and,
- TFP stimulating R&D investments, a R&D shock.

The counterfactual simulations are executed in Dynare/Matlab with the deterministic simulation option. That means the integration shocks (NTB, markup, and R&D) are implemented in the first period. The simulation runs over 25 periods which are interpreted here as the period of Austria's EU membership from 1995 to 2020.

Figure 12.5: Relationship between Intra-EU trade and welfare gains
(EU27 minus Irland, Luxembourg and Malta)



Intra-EU trade share in % = the sum of exports to and imports from EU in % of the sum of total exports plus imports (average of 2005-2023).
Welfare gains are %-changes in real consumption (Felbermayr et al., 2022A), and %-changes in real GDP (in't Veld, 2019).

If one compares the same shocks (NTB plus mark-up) the results of Breuss (2020D) (+10.3% cumulative increase of real GDP over 25 years) are quite similar to those which in't Veld (2019) found for Austria (+11.8%). In the complete version with all three shocks (NTB, mark-up and R&D) the DSGE model for Austria results in a cumulative increase of real GDP of 17.8% (or +0.7% per annum; see Table 12.8). This is only a little bit less than the latest macro-economic

results of Breuss (2020B) which lead to a cumulative increase of real GDP of 20.4% (or +0.8% per annum).

Relationship of Intra-EU trade and welfare gains

There is a robust positive relationship between intra-EU trade shares and welfare gains (see Figure 12.5). In the case of the study by Felbermayr er al. (2022A) welfare is measured by changes of real consumption in %. In the study by in't Veld (2019), welfare is measured by changes of real GDP in %. The positive relationship is quite similar ($R^2 = 0.5$) in both cases, although the marginal change is larger in the case of in't Veld than in Felbermayr er al., simply because the former estimated much higher welfare changes than the latter.

In the Felbermayr et al. setting an increase of the share of intra-EU trade in total trade of an EU Member State by one ppt leads to an increase in welfare (real consumption) by 0.15 ppts. In the in't Veld setting an increase of the intra-EU trade share by one ppt increases welfare (real GDP) of an EU MS by 0.34 ppts (see Figure 12.5).

12.2.4 Macro-economic models

While most models which estimate economic integration effects (gravity models, CGE models, DSGE models) practically only use one or two of the four fundamental freedoms of EU's Single Market as the basis for the integration effects, macroeconomic model approaches attempt to take all four internal market freedoms into account. Breuss (2003, 2005, 2007A, 2020B) has made several attempts in this direction. Another weakness of most empirical integration studies is the lack of theoretical justification.

In Breuss (2003), the economic effects of the EU membership of Austria, Finland, and Sweden are estimated with a specifically designed macro models, based on the theory of regional integration by Baldwin and Venables (1995).

Baldwin and Venables (1995, p. 1601) derive a prototype equation incorporating all conceivable effects of regional integration (deduction of welfare effects from an indirect utility function). According to their equation, the change in welfare is theoretically dependent on three major influences:

1) *Traditional trade effects* under perfect competition: trade shifts towards the region, where trade costs (tariffs, NTMs) are eliminated. In our case the EU integration via the customs union in 1968 and the SM in 1993.

2) *Modern integration effects* under imperfect competition: production effect, economies of scale effect, and product variation effect. These effects are particularly evident in EU's Single Market.
1) *Accumulation or growth effects* via investments: The key question arising in the context of EU integration is whether it will boost economic growth. That is the case if integration leads to higher returns on investment in physical or human capital. A further question is whether the dynamic (or growth) effects will accrue only in the short run or permanently. In the former case, integration into a larger community will lead to a one-time level shift, e.g., of real GDP, with subsequent developments following a normal trend. In the latter case, growth rates of real GDP would stay permanently higher than before (higher steady state growth). Participation in EU's Single Market also gives rise to acquisition and diversion of (FDI) investment. In the long run, accession to the EU could raise the pace of growth via technical spillovers or stimulation of research and development.

Considering these theoretical foundations, Breuss (2003) translate the major points into his macro model to estimate the effects of the accession to the EU of Austria, Finland, and Sweden in 1995. Although these estimations already cover a wider range of the rather complex integration effects as most EU studies, it still considered only three of the four freedoms explicitly. The freedom of movement of people is still not treated in the model.

The three countries, as members of EFTA, participated already in 1994 in the EEA. Apart from the four freedoms postulated by the EEA agreement (which were, however, only partially implemented due to still existing border controls and no Schengen participation), it was notably competition policy that was harmonized. One can assume that this already gave rise to stronger price competition already ahead of EU membership.

The following integration effects are simulated:

• *More competition* is considered through an adjustment of the mark-up in the price equation, leading to a change in relative factor prices. The resulting decline in the domestic price level raises real disposable incomes and consumer welfare.

• *Trade effects* are considered by assuming a partial abolition of border controls (reduction in trade costs by 5%).

• *Endogenous growth* is generated by estimating a TFP equation which is determined by R&D and spillovers of R&D from EU member states.

• Inflow of *foreign direct investment* (FDI) from the EU: Accession to the EU markedly improved the attractiveness of the three new member states as investment target. Since 1995,

there has been a massive inflow of FDI. According to the underlying assumptions, the inflow of FDI stimulated capital formation and thereby boosted economic growth. The FDI inflow gave rise to substantial positive effects on GDP, particularly for Finland.

• *Net contributor position* vis-à-vis the EU budget: Net transfers from the EU budget are included in the GDP per capita in order to obtain net welfare measure. The latter are negative for the net contributors Austria, Finland, and Sweden (see chapter 5.1).

The simulation results for the period 1995-2001 (Breuss, 2003, p. 153) see Finland (+0.8% additional annual growth of real GDP) as the winner, ahead of Austria (+0.4%) and Sweden (+0.3%; see Table 12.9). The reported changes to the average growth rates are not permanent ones, but only temporary. Accordingly, accession to the EU therefore did not raise the "steady state" growth rate of GDP, but was confined to a level shift, causing a one-time jump of the new member states' real GDP after their accession. Since then, growth has reverted to its "normal" rate.

Table 12.9: Ex post estimations of EU integration effects: Macro-economic models

Authors	Method	Scale	Austria	Finland	Sweden
			Average annual % changes 1995 to 2001		
Breuss (2003, p. 153)	EU integration macro model	GDP, real	0.42	0.83	0.30
			Average annual % changes 1995 to 2005		
Breuss (2005, p. 36) (2007A, p. 264)	EU integration macro model	GDP, real	0.43	0.67	0.30
			Average annual % changes 1995 to 2020		
Breuss (2020B, p. 37)	Prototype model of EU integration	GDP, real	0.81		
			Cumulative increase 1995 to 2022 in ppts		
Breuss (2022B, p. 112)	Simple EU integration macro model	GDP, real	13.26 *(0.47)*	32.77 *(1.17)*	33.57 *(1.20)*
Breuss			Cumulative increase 1995 to 2019 in ppts		
(2023*: update and model change)	Simple EU integration macro model	GDP, real	12.51 *(0.50)*	8.58 *(0.34)*	3.75 *(0.15)*
Breuss			Cumulative increase 1995 to 2025 in ppts		
(2025*: udate and model change)	Simple EU integration macro model	GDP, real	16.71 *(0.54)*	15.15 *(0.49)*	3.91 *(0.13)*

The values in brackets (Breuss) are annual percent changes.
Breuss (2023*, 2025*) not published. The estimates up to 2025 include the data of AMECO database, autumn 2024.

An update of these macro model estimates (Breuss, 2005, p. 36; Breuss, 2007, p. 264) returns the following results: over the period 1995-2005, EU membership contributed to an annual increase of real GDP in Finland by 0.7%, in Austria by 0.4% and in Sweden by 0.3% (see Table 12.9).

12.2.4.1 A prototype model of European integration

The macro-economic approach of evaluating the accession effects of an EU newcomer, developed in Breuss (2003, 2005, 2007A) has then been completed to include all four freedoms of EU's SM. This newer version which Breuss (2016A) called a "prototype model of European integration" also includes the free movement of persons.

A refinement of this prototype model was used to estimate the economic effects of 25 years of Austria's EU membership (Breuss, 2020B, 2020C). This model approach is insofar complete, as it covers all features of EU's SM: trade effect, competition effects, the four freedoms of the SM, endogenous growth effects via R&D stimulating TFP growth.

In the German version (Breuss, 2020B), the model is described in detail. It includes several effects which can be expected from the deep integration into the EU:

1) *Trade and FDI* increased after the full participation in EU's SM and were enhanced through EU enlargement in 2004.
2) The *EMU* and the introduction of the *Euro* improved Austria's relative competitiveness against countries in the periphery which in the pre-euro area devaluated against the Deutsche Mark and against the Austrian schilling.
3) *Productivity* increased due to a better utilization of EU research programs.
4) More *competition* in the SM reduced price mark-ups in Austria.
5) Austria is a *net-contributor* to the EU budget.
6) The EU accession in 1995 caused little *net-immigration*; it increased, however, after the EU enlargement in 2004, although cushioned by the seven years transitional arrangements.

An assessment of 25 years of Austria's EU membership comprises three stages of EU integration:

1) Participation in *EU's Single Market*: The full integration into EU's SM led to an increase in real GDP of 0.4 percentage points per year. Inflation fell due to increased competition. 8,000 jobs were created each year.
2) Participation in *EMU* and introduction of the *Euro*: The participation in EMU and the introduction of the Euro contributed only 0.1 percentage points to real annual GDP growth.

3) *EU enlargement in 2004* and the following years: The EU enlargement supplemented the already existing advantage Austria had from the opening-up of Eastern Europe in 1989. EU enlargement contributed to Austria's real GDP an additional 0.3 percentage points per year. Most EU enlargement studies find a 1:10 rule. This means that the welfare gains of the new EU Member States are ten times higher than those of the old EU Member States.

The overall economic benefits of Austria's 25 years EU membership sum up to an additional annual increase of real GDP of 0.8% (see Table 12.9). A total of around 420,000 jobs were created. Inflation fell annually by around 1/10 percentage point. The current account improved significantly because of EU integration.

12.2.4.2 A simple model of European integration

Not only sophisticated models - as demonstrated before with gravity models, CGE models, and DSGE models – can deliver meaningful results about the complexity of EU integration. This has been demonstrated by Breuss (2022B). He showed that a simple 10-equation model can capture most of the integration effects of countries becoming members of EU's Single Market.

The 10 equations EU integration model has four blocks capturing the major effects of EU integration (Breuss, 2022B):

1) Trade effects: Intra-EU trade is represented by an equation for exports and imports which explains trade intra-EU trade flows by three dummies (in each period getting a one): for SM (since 1995), for Euro (since 1999), and for EU enlargement (since 2004). Total trade is derived from intra-EU trade.

2) Competition effects: The equation for the harmonized consumer price index is explained with a SM dummy to capture mark-up reductions due to a fiercer competition within the SM.

3) Net budget position: An equation defines GDP with and without net EU transfers out of the EU budget. As the three countries are net payers, this results in a dampening of GDP.

4) Growth effects: Total factor productivity (TFP) is explained by "globalization", measured by the total trade (exports plus imports). Real GDP depends on FTP and Prices. Welfare (GDP per capita) is derived from the GDP equation.

In the published version (Breuss, 2022B, p. 112), Sweden (+1.20%) and Finland (+1.17%) gained more annual real GDP growth from EU accession in 1995 than Austria (+0.47%; see Table 12.9).

Since the publication this simple small EU integration model (see Breuss, 2022B), several features of the model have been improved or changed.

A) Two equations have been renewed:
   1) An *equation for trade* with the rest of the world (ROW) for exports and imports is added. The equations no longer include a variable which captures intra-EU trade. The sum of intra-EU trade and ROW trade results in total trade.
   2) The *TFP equation* is newly specified. Instead of only total trade (exports plus imports) as the explanatory variable for globalization, two separate globalisation variables (Intra-EU trade and trade with the ROW) are used.

      This relativizes the results of 2022 because Austria is more "mini-globalized" with the EU (in particular in trade with the new EU members states in Eastern Europe), whereas Finland and more so Sweden is "maxi-globalized" with the Rest or the World.

B) Use of *updated AMECO data* (latest update autumn 2024).

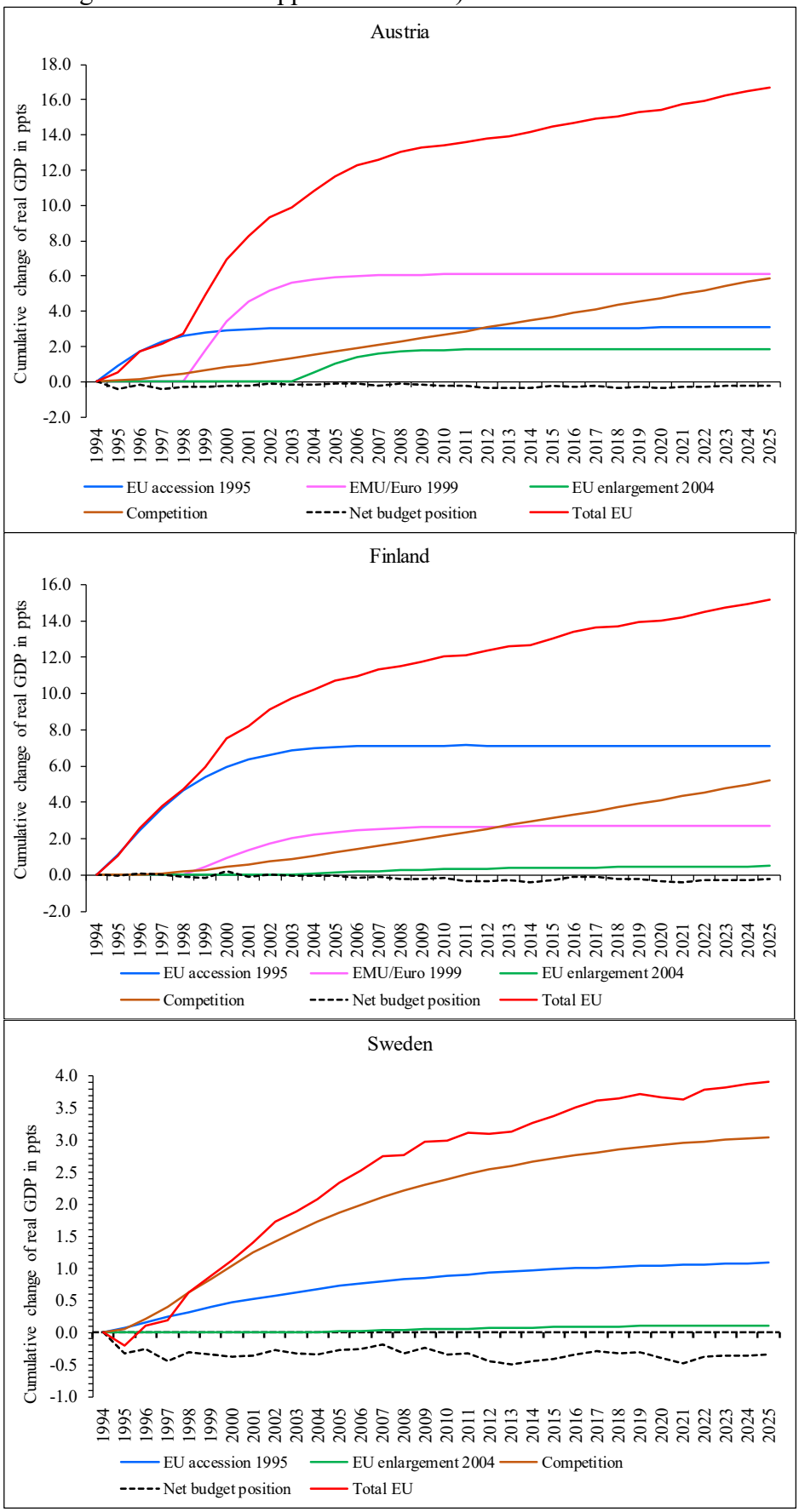
C) A further differentiation can be made, if one considers that the *COVID-19 shock* is a non-EU external shock. Two time periods are therefore used. One estimation up to 2019, and then one up to 2025. The results differ because Austria in 2020 was hit harder by the COVID-19 recession than Finland and Austria, the results differ (see Figure 2.19).

Looking at the simulation results of estimations up to before the COVID-19 crisis (1995 to 2019), Austria has profited the most from EU membership, measured by real GDP (0.5% per annum more GDP growth). Finland comes second (0.3%) before Sweden (0.2%; see Table 12.9). If one estimates and simulates the EU integration effects up to 2025, then Austria (+0.54%) is slightly ahead of Finland (0.49%). The last is again Sweden (0.13%, see Table 12.9). The reason of the change in the ranking of integration effects is – as already mentioned – the varying degrees of the 2020 recession due to the CORONA-19 shock (real GDP -6.3% in Austria, -2.5% in Finland, and -2.0% in Sweden). As a matter of facts, the CORONA shock had nothing to do with the EU.

The three countries have a different structures of EU effects in the latest updated version of the simple EU integration macro model (see Figure 12.6):

1) In *Austria*, the Euro effect (annual contribution to real GDP +0.23 ppts) dominates ahead of the effect of EU accession in 1995 (+0.10 ppts) and the EU enlargement effect (+0.08 ppts) over the EU period 1995-2025. The competition effect is increasing over time (average annual contribution to real GDP +0.19 ppts). The net contribution to the EU budget reduced real GDP on average by 0.01 ppts per years. The total trade effect of being a member of the Single Market is the sum of EU accession, the adoption of the Euro and EU enlargement, namely 0.41 ppts.

Figure 12.6: EU integration effects estimated with a simple EU integration macro model (Cumulative change in real GDP in ppts: 1995-2025)



Source: Own simulations with the small EU integration macromodel in EViews (AMECO data)

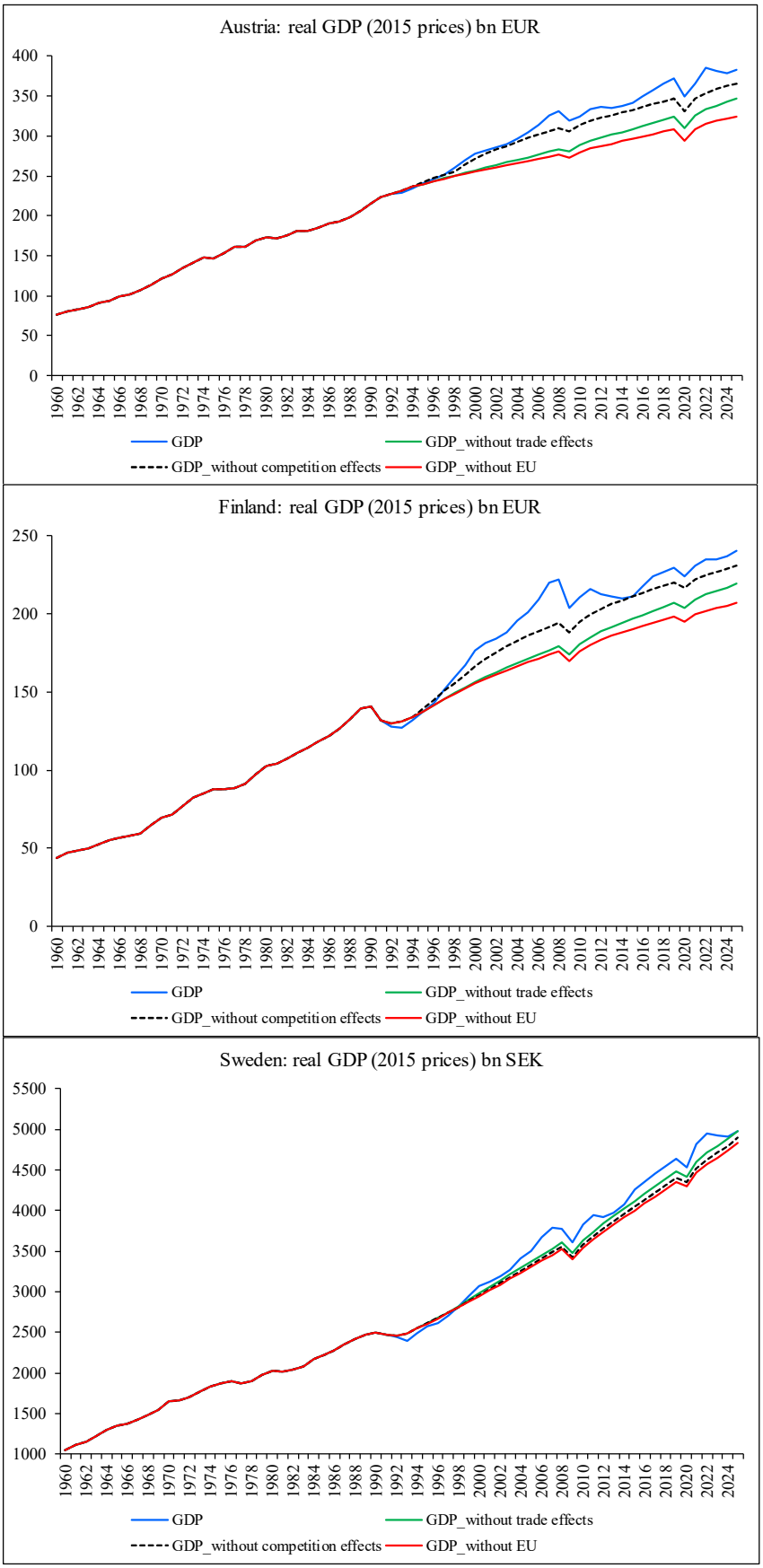
2) In *Finland*, the effect of EU accession in 1995 (+0.23 ppts) plays a dominant role, far ahead of the Euro effect (+0.10 ppts) and the enlargement effect (+0.02 ppts). This sums up to a total trade effect of 0.35 ppts more real GDP per year in the period 1995-2025. Similarly to Austria, the competition effect plays an increasing role with an annual contribution to real GDP growth of 0.17 ppts. The net contribution to the EU budget reduced real GDP on average by 0.01 ppts per years.
3) *Sweden* is a special case in many respects. First, it lacks the Euro effect. Then, the EU enlargement effect has a negative sign in the equation for intra-EU exports. Also on the import side, EU enlargement plays no significant role in Sweden. So, the weak integration effects for Sweden consists mainly of two components: the effect of EU accession in 1995 (Single Market and trade effect with an annual contribution to real GDP of 0.03 ppts) and the competition effect (+0.14 ppts). The competition effect is increasing faster than the Single Market effect.

The following clarification is important when interpreting the results of Figure 12.6. The studies mentioned above never addressed the important question whether EU integration leads only to a level or also to a growth rate effect of GDP. Representatives of the endogenous growth theory (e.g., Romer, 1990) postulate that economic integration via economies of scale leads to a permanent steady-state growth effect of GDP. Accordingly, larger countries grow faster than smaller ones. Doubling the size of an economy (or doubling the size of the domestic market or those of EU's SM) would therefore double the stead-state growth rate of GDP. Jones (1995) and others have sharply criticized this approach. In the evaluation of 25 years EU SM by estimating a growth equation, Breuss (2020A) rejected the idea of a permanent growth rate effect through EU integration[401].

Figure 12.6 represents the cumulative changes of real GDP or level effects of European integration of the three countries. The changes are deviations from the baseline with no EU membership. These impulse-response representations are the result of the simulation of the above-described economic integration effects with the simple EU model. After each integration step (EU accession in 1995, EMU participation in 1999 and EU enlargement in 2004) the used EU dummy variables (1 for participating in integration steps) lead to a jump in the levels of real GDP which then flattens out in the absence of further integration steps.

[401] In a similar approach, Badinger (2005) also rejected Romer's proposition.

Figure 12.7: Benefits of Austria's, Finland's, and Sweden's' EU membership (Real GDP)



Source: Own simulations with the small EU integration macromodel in EViews (AMECO data)

Due to the specific specification of the EU dummies, the overall picture of the cumulative increase of real GDP resembles a logistic function. Each of the three major new integration steps (EU accession, EMU/Euro, and EU enlargement) led only to a temporary increase of the growth rate of real GDP. Also, the sum of the growth rate performance of all integration steps reflects this pattern. After the initial integration impact the growth rate declines until another integration impulse might arise. Hence, the simple EU model does not confirm Romer's (1990) postulation of a steady-state or permanent growth-rate effect of economic integration.

The EU membership of the three countries since 1995 has led to a steady increase of the level of real GDP (Figure 12.7). This outcome has great similarity with the results, based on SCM calculations for GDP per capita (see chapter 12.2.5).

12.2.5 Synthetic Control Method

As already demonstrated in the previous section, the growth effect of EU membership is – if there is any effect – different in the three countries which joined the EU in 1995. Due to different methodological approaches, it is difficult to draw a clear picture. The difficulties are mostly driven by country heterogeneity. In the case of the 1995 EU enlargement the heterogeneity is not so large as Austria and the other two Scandinavian countries are quite similar in many aspects: small democratic countries, a similar history as EFTA members, similar in the degree of economic development. The heterogeneity was larger in the other EU enlargement episodes, particularly in the grand enlargement after 2004. Therefore, Campos et al. (2019) state rightly, that the literature on the growth effects of European integration remains inclusive.

To enrich the variety of methods of estimating the economic effects of EU membership we add the "Synthetic Control Method" (SCM) as pioneered by Abadie and Gardeazabal (2003). This method addresses the following question: What would be the level of real GDP per capita in Austria, Finland, and Sweden had they not joined the EU in 1995.

The SCM estimates the dynamic effect of an intervention or event (joining the EU) on a country by comparing the outcome (GDP per capita) of Austria, Finland, and Sweden after their joining the EU in 1995 had they not been affected by the intervention (joining the EU)[402]. Since one cannot observe the counterfactual (economic performance without EU membership) one must estimate the counterfactual for the three countries. The SCM differs from the difference-in-difference (DiD) method in that it not only uses a single control country or a simple average of control countries but instead uses a weighted average of the set of control countries. The

[402] For a mathematical explanation of the SCM, see Campos et al. (2019), p. 91.

estimates of the dynamic effects of EU membership on the three countries are then represented by the difference of the country joining the EU (Austria, Finland, and Sweden) with a weighted group of countries. The optimal weights should minimize the pre-event (pre-EU accession) differences between the country in question (Austria, Finland, and Sweden) and its synthetic (weighted) control groups. For this minimization process a set of predictors is chosen.

In our estimates we use as outcome the variable real GDP per capita from Penn World Tables (PWT 10.01[403]) for the period 1950-2019. The remaining years up to 2023 are estimated with the growth rates of the data of Oxford Economics data. As predictors for real GDP per capita we use the following variables: real interest rate on return, the sum of the share of exports and imports in GDP[404], human capital index (schooling), share of gross capital formation in GDP, average annual hours worked.

As control group we have chosen 10 countries which are not members of the EU: Australia, Canada, Switzerland, China, Japan, Mexico, Norway, New Zealand, Turkey, and the USA.

The SCM estimation is done with the Python programme by Oscar Engelbrektson[405]. He adds to the ordinary SCM also a Difference SCM. We use two event lines: a) a "placebo" line in 1973 when the FTT between EC and EFTA came into effect; and b) the real event line in 1995 when the three countries joined the EU.

Figure 12.8 shows the results for *Austria*. One sees that the real development of real GDP per capita increased faster since 1995 than the counterfactual synthetic income in Austria without EU membership. Both estimates, SCM and DSCM are quite similar.

The GDP per capita gap between actual GDP per capita (this is the development with EU membership) and synthetic GDP per capita (SCM, DSCM) is in *Finland* (Figure 12.9) smaller than that in *Austria* (Figure 12.8). Both estimates, SCM and DSCM give the same results for Finland. In the case of *Sweden* (Figure 12.10), SCM and DSCM differ. The latter shows similar effects as in Austria.

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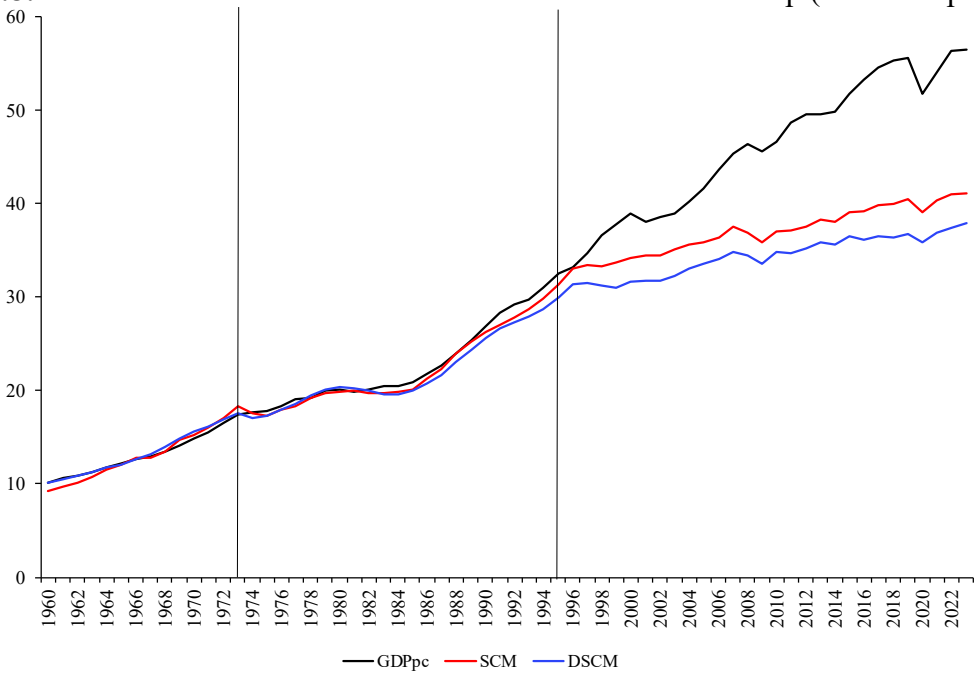
[403] See: https://www.rug.nl/ggdc/productivity/pwt/?lang=en

[404] Campos et al. (2019, p. 92) exclude deliberately variables which are directly affected by the event, such as trade, foreign direct investment, and financial integration variables.

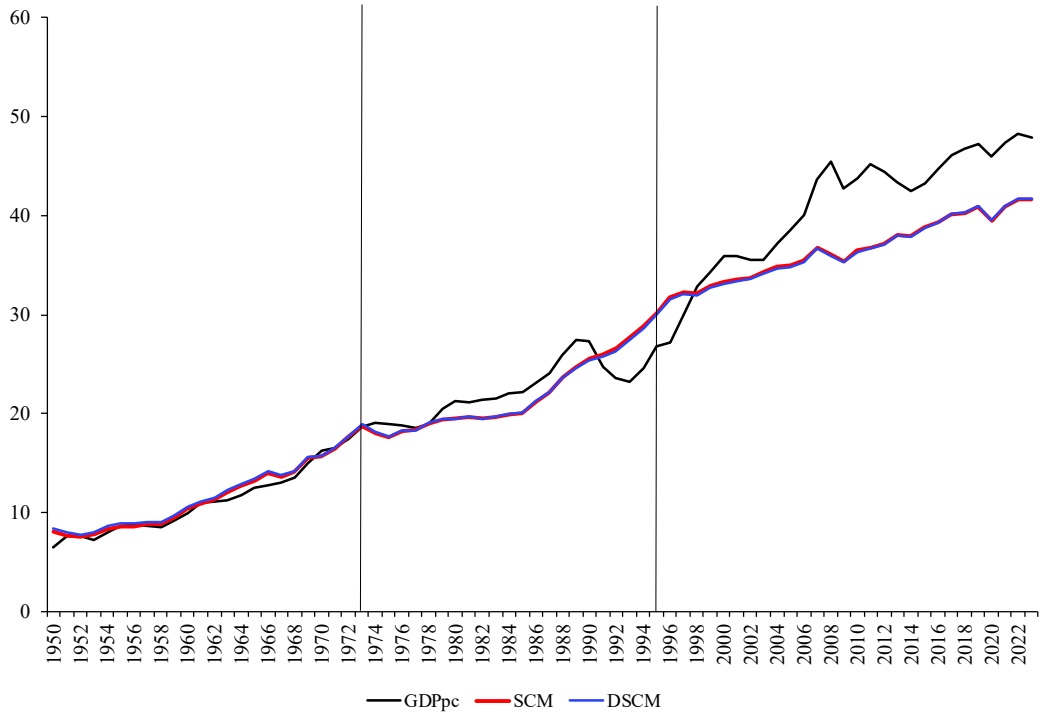
[405] See Engelbrektson (2021) and the Github website: https://github.com/OscarEngelbrektson/SyntheticControlMethods

Figure 12.8: SCM estimates of the benefits of Austria's EU membership (real GDP per capita)



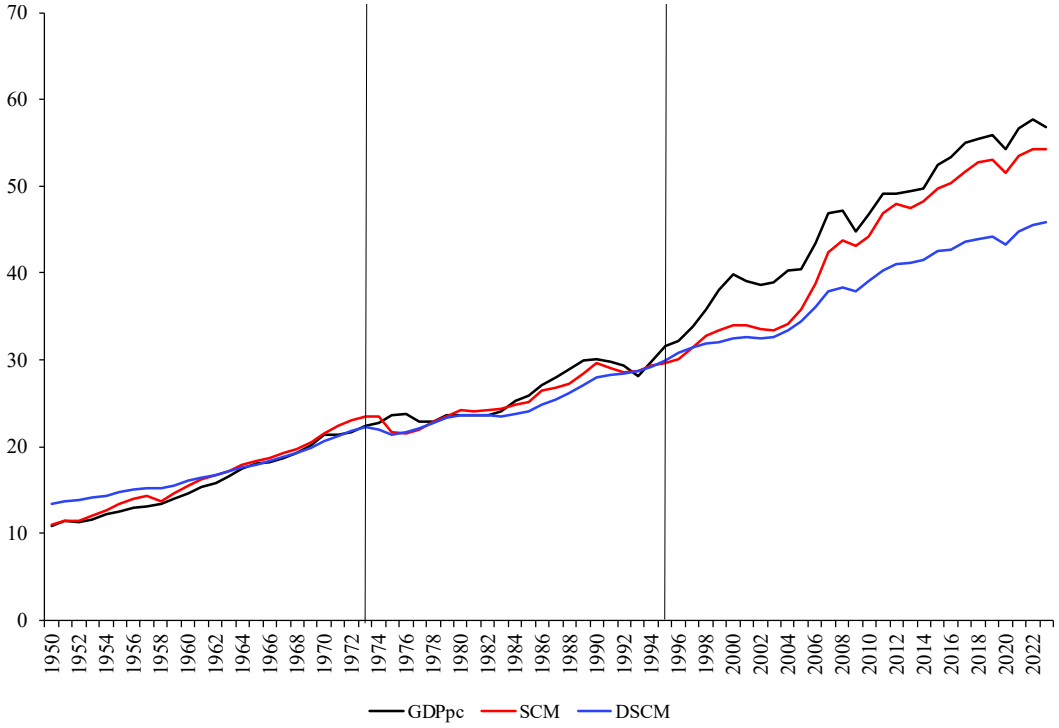
SCM = Synthetic Control Method; DSCM = Difference SCM; the first line is a "placebo" in 1973 when the tariff liberalization of the TFF between EC and EFTA started. The EU event line is drawn in 1995.
Source: Penn World Tables PWT 10.01: Real GDP per capita at chained PPPs in 2017 USD. The Penn World Table data end in 2019 and were extrapolated until 2023 with data from Oxford Economics (real GDP per capita, in 2015 USD); own calculations.

Figure 12.9: SCM estimates of the benefits of Finland's EU membership (real GDP per capita)



Sources: see Figure 12.8

Figure 12.10: SCM estimates of the benefits of Sweden's EU membership (real GDP per capita)



Sources: see Figure 12.8

Although we use different countries in the control group and other predictor variables, our results are comparable with those of Campos et al. (2019, p. 94) for the three countries. Austria is in the lead compared to Finland and Sweden. Our results suggest that EU membership generated positive dividends in terms of real GP per capita.

Table 12.10: Ex post estimations of EU integration effects: Synthetic Control Method

Authors	**Method**	**Scale**	**Austria**	**Finland**	**Sweden**
			GDPpc gap in 2023 in % (*annual % change*)		
Breuss (2023*)	SCM	GDP, real per capita	37.14 *(1.28)*	15.20 *(0.52)*	4.51 *(0.16)*
	DSCM		48.93 *(1.69)*	14.90 *(0.51)*	23.89 *(0.82)*
	(average SCM+DSCM)		43.04 *(1.48)*	15.05 *(0.52)*	14.20 *(0.49)*

SCM = Synthetic Control Method; DSCM = Difference Synthetic Control Method
Source: Own calculations; Breuss (2023*) not published.

Table 12.10 contains the values of the SCM calculations. As shown in Figure 12.8, *Austria* gained the most from EU membership since 1995. The GDP per capita gap in 2023 (the difference between actual GDP pc (with EU membership) and the synthetic GDP pc was 37.1% according SCM calculation and 48.9% according DSCM calculation. On average of both methods, the GDP pc gap was 43% in 2023, which translate in an annual growth rate of real GDP per capita between 1995 and 2023 of 1.5%. In absolute values EU membership led to a

gain of welfare (measured as cumulated real GDP per capita) until 2023 of 16.920 USD in 2017 prices.

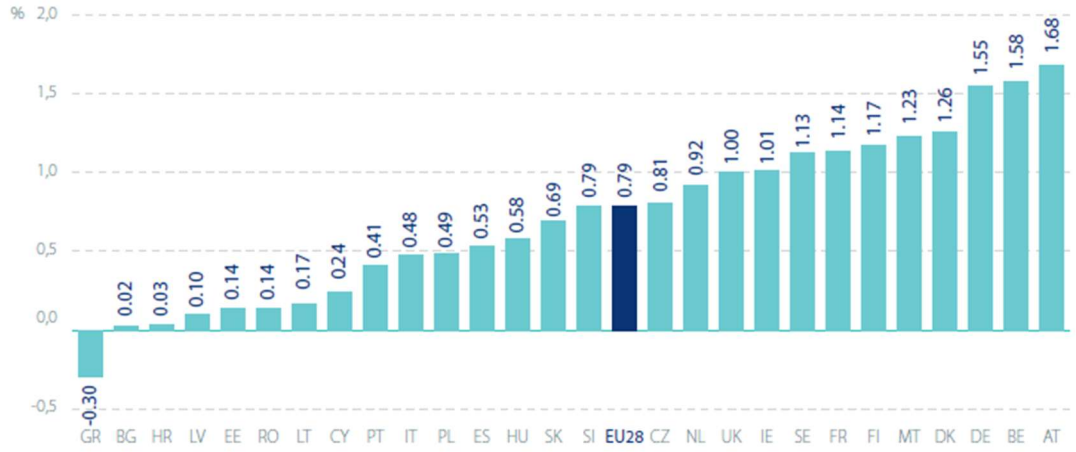
As already shown in Figures 12.9 and 12.10, the GDP pc gap was much lower in *Finland* and *Sweden* than in *Austria*. On average over SCM and DSCM, it was 15.1% in Finland and 14.2% in Sweden (see Table 12.10). This translates into an annual growth rate of real GDP due to EU membership of 0.5% in both countries. Accordingly, the cumulative welfare gain of EU membership was in Finland (6.272 USD) and Sweden (6.694 USD) less than halve of that in Austria (16.920 USD).

12.2.6 Estimation with SM indictors

London Economics (2017) uses an econometric model to measure the impact of EU's Single Market with SM indicators. It provides an estimate by relating five variables of interest to the summary *indicator of Single Market integration*, constructed by seventeen different indicators. The five variables of interest are: (1) Gross Domestic Product (GDP, measured by GDP per capita), (2) household consumption (measured by household consumption per capita), (3) employment (measured by employment rate), (4) productivity (measured by growth of total factor productivity), and (5) investment (measured by gross fixed capital formation). London Economics (2017) estimate its model for all EU Member States for the period 1995 to 2015 (except for Croatia, Malta, and Luxembourg). Overall, the results suggest that Single Market integration since the completion of the Single Market Plan (SMP) has had a direct, positive, and statistically significant impact on the growth of per capita GDP, per capita consumption and employment, and total factor productivity. Whilst the SM had no direct impact on investment, the growth of Single Market integration still had an indirect effect: the increase of GDP, in turn stimulates investment. The resulting estimates show that EU GDP per capita is 1.0% higher than it would have been without an increase in integration since 1995. Moreover, there are almost 1.9 million additional jobs. If the beginning of the Single Market would have started already in 1990 (i.e., pre-SM), then the impact of the Single Market would have been even greater. GDP per capita would then have been 1.7% higher.

The longer a country is a member of EU's Single Market, the higher are the growth effects. As a result (London Economics, 2017, p. 35 and 37) the impact of Single Market integration on GDP per capita in 2015 since the completion of the SMP (1993) or since the accession of new Member States (MS) was highest in Austria (+1,7%) and lowest in Greece (-0,3%; see Figure 12.11).

Figure 12.11: Impact of Single Market integration on GDP per capita in 2015 since the completion of the SMP or since the accession of new Member States



Source: London Economics.
Note: Luxembourg is excluded from the analysis because the country is a large outlier in terms of measurement of GDP due to its very sizeable financial sector and large non-resident workforce. The impact is the difference between the actual level of the outcome variables and the level which, according to the model, would have occurred in the absence of an increase in the Member State's Single Market integration relative to the base year.
EU-28 = unweighted average of Member States results»

Source: London Economics (2017), p. 35

Finland (+1.2%) and Sweden (+1.1%) were again less successful than Austria (see Table 12.11). The incumbent Germany increased its level of GDP per capita by 1,6%. The best performance of the new MS after the grand EU enlargement in 2004 was the Czech Republic (+0,8%). The countries which only entered the EU in 2007, like Bulgaria (+0.02%) and Romania (+0.1%) could not yet profit from EU accession.

Table 12.11: Ex post estimations of EU integration effects: Single Market Indicators

Authors	Method	Scale	Austria	Finland	Sweden
			Cumulative increase 1995 to 2015 in ppts		
London Economics (2017, p. 37)	Econometric estimations SM indicators	GDP, real per capita	1.68	1.17	1.13

Since 2001, the European Commission has published an "*Internal Market Index*" (IMI,), which was intended to express the functioning of the SM in a measure expressed in one value. In 2002, the index was revised and expanded (See Tarantola et al., 2002). It consists of a weighted average of 12 indicators which were compiled by the Commission's Internal Market Advisory Committee (IMAC) as representative of the functioning of the SM.

In the first phase of EU membership, the IMI in the three new EU countries rose much faster than the EU average. This applies above all to Finland: from 100 in 1992, it rose to 162 in 1995 and 225 in 2001 (there was a pause in 1999: 196). In Sweden, the index increased from 100 in

1992 to 155 in 1995 and 176 in 2001; it reached a high of 184 in 2000. In Austria, too, the realization of the internal market, measured by the IMI, was faster than the EU average: from 100 in 1992, the index rose to 121 in 1995 and 163 in 2001; in 2000 it was slightly higher at 165 in 2000.

Since the beginning of the 21st century, the IMI has been discontinued by the European Commission. Only private researchers (König and Ohr, 2013) or research groups (London Economics, 2017) have constructed their own SM indices (see chapter 7.3).

Instead of the old "Internal Market Index", captured in one figure, now the European Commission overviews the SM by a multi-dimensional *Single Market Scoreboard*[406]. The Scoreboard measures performance and outcomes of the single market in different policy areas and tools. By doing so, it provides an overview of how well the single market is functioning.

The single market consists of *31 countries' economies*. First, it includes *all 27 EU Member States*. Second, through the Agreement on the European Economic Area (EEA) and with certain exceptions, it includes Iceland, Liechtenstein, and Norway. Third, through bilateral treaties, Switzerland is also part of it.

The single market guarantees the free movement of goods, capital, services, and labour/people, known as the "four freedoms", enshrined in the EU treaties. A functioning single market stimulates competition and trade, improves market efficiency, raises the quality of products and services, and contributes to lowering prices.

A well-functioning single market requires effective enforcement of the rules in place by the European Commission and EU/EEA Member States, as well as effective implementation "on the ground".

As part of the single market strategy, the Single Market Scoreboard monitors the countries' performance in implementing the four freedoms. The Scoreboard provides detailed information on:

1) *Enforcement tools* (e.g. Internal Market Information System, Your Europe portal, Your Europe Advice service; SOLVIT[407]).
2) *Business framework conditions* (access to public procurement, market surveillance).
3) *Outcomes and competitiveness* (a set of indicators assessing the performance of the single market in relation to some of its specific policy objectives: a) growth, employment and social

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[406] See: https://single-market-scoreboard.ec.europa.eu/; about the history of the SM Scoreboard, see https://ec.europa.eu/internal_market/score/index_en.htm

[407] SOLVIT is a problem-solving network that helps people or businesses when their cross-border rights in the single market are breached by public authorities – be it at a local, regional or national level (see: https://single-market-scoreboard.ec.europa.eu/enforcement-tools/solvit_en).

indicators; b) integration of goods and services; c) economic resilience; d) digital transition; e) green transition.

12.2.7 Growth equation with positive effects

Using a similar growth equation as Andersen et al (2019), Breuss (2020A) – based on a similar approach by Badinger (2005) - came to a contrary conclusion. EU membership has stimulated prosperity.

Using smart EU indicators and regressing these to real GDP per capita results in a significant impact of EU integration on EU's economic growth Breuss (2020A, p. 329). However, in contrast to theoretical predictions – like those of Romer (1990), criticized by Jones (1995) – that EU integration could lead to a permanent increase of the steady state growth rate, EU membership does not lead to a permanent growth effect of real GDP.

Like in the estimation with the simple EU integration model (see chapter 12.2.4.2) there is a level but no (permanent) growth effect of EU integration. The integration step (EU accession in 1995) captured by the smart EU dummy variable leads to a jump in the levels of real GDP which then flatten out in the absence of further integration steps. integration. The growth effects are very short-lived. EU accession led only to a temporary increase of the growth rate of real GDP.

Overall, the growth estimation shows that EU28 could have increased real GDP per capita since 1993 by 0.5% per year, in the whole period of European integration (1958-2019) only by 0.3% per year.

Table 12.12: Ex post estimations of EU integration effects: Growth equation

Authors	Method	Scale	Austria	Finland	Sweden
			Annual rate in % relative to baseline 1995 to 2019		
Breuss (2020A, p. 329)	Growth equation	GDP, real per capita	0.41	0.41	0.33

A separate estimation of the three countries, leads to the following results (see Table 12.12): Austria and Finland could both increase real GDP between 1995 and 2019 annually by 0.4% due to EU membership. Sweden again lags a little bit behind by an annual increase of real GDP of 0.3%.

12.2.8 Growth equation with no effects

Whereas all model-based ex post evaluations of EU's Single Market discussed above find that the growth effects for trade and GDP are positive, one econometric study is an "outlier". Andersen et al. (2019) find no significant effect of European integration on economic growth.

Asking the question whether it has been worthwhile to join the EU to trigger prosperity, Andersen et al (2019) econometrically regress economic growth (annual growth rate of real GDP per capita) to a dummy variable for EU membership (taking the value of 1) with different data bases (OECD, Penn World Tables (PWT), World Development Indicators (WDI)) for periods since 1960 with and without the crises years (financial crisis 2009, Euro crisis 2010) and various econometric panel approaches (with and without considering convergences or catch-up effects). Lastly, Andersen et al. (2019, p. 233) conclude that *"this paper has been unable to reject the null hypothesis that 'EU membership has zero impact on economic growth"*.

12.2.9 Contributions of the Euro

At the start of the EMU project and the introduction of the Euro the aspiration was that a common currency would reinvigorate the Single Market program by reducing or eliminate transaction costs (exchange rate fluctuations) for the trade of goods and services (especially in tourism) and thus also facilitate factor migration within the EU single market. It makes it easier to compare prices within the eurozone and allows eurozone member states to issue government bonds in euros. Euro members were hoping for a significant rise in bilateral trade generating sizable welfare gains across the EMU. The fact that only 20 out of 27 EU member states have introduced the euro so far puts this ideal situation into perspective. Non-euro countries can gain competitive advantages by devaluing against the euro and thus disrupt the

Before the introduction of the euro, it was common practice (despite the European Monetary System EMS) for countries with current account deficits (mostly the southern states - the soft currency bloc - Greece, Italy, Portugal and Spain) to devalue their currencies against the hard currency bloc around the DM (German mark). With the introduction of the euro, this option was no longer available. This constellation is also called exchange rate "misalignment". This automatically gave the DM bloc the advantage of no longer being impaired in its competitiveness by devaluations of the soft currency bloc. As a result, the hard currency countries around the DM bloc became more competitive relative to the soft currency countries. This was also reflected in the increase in current account imbalances within the eurozone.

In some studies, reported above, the euro had either an insignificant or even a negative effect on bilateral trade within the EU. Only in the evaluations of integration effects with macro

models (see Table 12.9) plays the euro a significant and positive role. The same is true for the specific effect of the EU enlargements since 2004. Gravity and CGE models did not capture these separate integration steps.

The numerous studies available make divergent statements regarding the *trade effects* of the euro. Badinger (2012) finds - although the share of intra-eurozone trade has fallen since 1999 (in Austria from 80% to 75%, in Germany from 66% to 62%) - positive trade effects from the euro in the order of 10-15%. Berger-Nitsch (2005) tend to believe that the euro has not provided any significant impetus for intra-EU trade.

Hogrefe et al. (2010) test via estimation with gravity methods how much the “misalignment” after the introduction of the Euro influences trade in the Euro area countries. After fixing the bilateral exchange rates some counties in the Euro zone (especially the soft currency countries in the south) face problems in absorbing shocks, whereas the hard currency countries profit from stable exchange rates). This “misalignment” approach is comparable to those of Breuss (1997). Accordingly, the estimations of Hogrefe et al (2010, p. 24) show, that the DM block Germany and Austria benefit from the common nominal anchor in terms of higher export volumes (+6.3% and 5.1% respectively). In Finland and Belgium exports increase only by 1.5% each. France should have increased its exports by only 0.2% due to the euro. In all other Euro are countries led the introduction of the Euro to a decrease in exports: Italy –0.8%, Greece -1.5%, Netherlands -2.7%, Spain -2.8%, Ireland, -3.7%, Portugal -3.8%.

Similarly, the results on the impact of the euro on *income* (GDP or GDP per capita) vary greatly depending on which estimation method is used. Estimates by the "synthetic control method" (SCM) also are inconclusive. Puzzello-Gomis-Porqueras (2018) see only Ireland as a winner from the introduction of the euro out of the six euro countries examined. Belgium, Germany, France and Italy would have lost income; for the Netherlands, the situation is the same with and without the euro. Gasparotti-Kullas (2019), on the other hand, found that after 20 years of the euro, only Germany and the Netherlands were able to increase their GDP per capita significantly and Greece only slightly; Italy would therefore have lost a lot. Our own calculations using the SCM approach (see Breuss, 2019) show that in Austria, the effects of EU membership and the introduction of the euro overlap. Overall, EU membership plus the euro has resulted in around 1% more GDP per capita growth per year. Of this, 0.7% is attributable to EU membership (participation in EU’s Single Market) and 0.3% to the introduction of the euro. These results correspond relatively well with those estimated by Breuss (2020B) with a macro model (see Table 12.9). McKinsey Germany (2012) concludes that after 10 years in the euro, Austria has benefited the most from the euro in relative terms (+0.8% per year more GDP

growth), followed by Germany, Finland and the Netherlands (+0.6% each). The total Euro effects in the McKinsey study is the sum of the following partial effects: less trade costs, more intra-Eurozone trade, higher competitiveness (high in hard currency countries, low in soft currency countries), and interest rate convergence. The simulations were carried out with the Oxford Economics Global model.

The macro model evaluating the integration effects for Austria (Breuss, 2020B, p. 37; see also Table 12.9), results in an annual increase of real GDP of 0.81% after 25 years EU membership, an increase of annually 0.44% of this is due to full participation in the EU's Single Market, only 0.11% to the euro and 0.33% to the effects of EU enlargement. In the Simple EU integration macro model (Breuss, 2022B; see also Table 12.9) the Euro effect leads to an increase of real GDP by 0.2% per annum in Austria, in Finland by +0.3%) of a total EU integration effect of +0.47% more real GDP in Austria and +1.17% in Finland. In the updated version 1995-2019 the Euro effect amounts to 0.3% in Austria and in Finland +0.1%. In the updated version 1995-2023 the Euro effect on real GDP is +0.2% in Austria and +0.1% in Finland.

The future of the Euro

Historically speaking, the euro is a very young currency. Its introduction in 1999 - as part of the creation of the European Monetary Union (EMU) - initially as book money and from 2002 as legal tender was a major step towards deepening European integration. However, the project is incomplete and still a long way from the original goal of "one market, one money" (based on the US model). Initially, only 11 EU Member States took part in the introduction of the euro; currently, 20 out of 27 Member States pay with the euro.

As a result of the major global recession in 2009, there were distortions in the eurozone with a drifting apart of previously harmonized long-term interest rates. The resulting over-indebtedness in the peripheral countries of the eurozone almost led to the break-up of the euro project. Only the decisive rescue operations with the various EU aid programmes (see Table 3.14) and the ECB's steadfast position (ECB's president Mario Drahi's speech of 26 July 2012 "...*whaterver it takes*..." helped to stabilize the euro (see Breuss, 2016).

Shortly before the great recession, the European Commission had already drawn up a summary of 10 years of the euro (European Commission, 2008) and made proposals for improving the institutional regulations. It was only after the euro crisis from 2010 onwards that the EU institutions submitted reform proposals in several publications (see Juncker et al., 2015),

European Commission, 2017A, 2017B; and our chapter 3.3. on the New Economic Governance of the EMU).

Breuss (2019) provides an overview of the performance of 20 years of the euro and the implementation of the planned reforms.

12.2.10 Contributions of EU enlargement

The major enlargement round of the EU began in 2004. After the first five years, a generally positive assessment was made (see Keereman and Szekeley, 2009; for Austria, Breuss, 2007B; expectations for Bulgaria and Romania, see Breuss, 2009). After 20 years of EU membership, the picture is mixed (see European Commission, 2024C[408]; wiiw, 2024; Deuber and Strauch, 2024; Bernard, 2024).

First of all, EU enlargement after the crash of communism and the USSR after 1989 was more of a political than a poor economic project. The former members of Comecon were now free to choose its new political and economic orientation. The first preference was security and therefore the wish to become members of NATO as soon as possible. EU membership ranked only on the second place. The EU acted quickly with an enlargement strategy to absorb the former CEEC countries.

After the opening-up of the EU to the East, the EU began to bind the potential new member states to the internal market, first by means of Europe Agreements, and then the enlargement process was initiated with the Strategy "Agenda 2000: for a stronger and wider Union". The old member states expected that the expansion of the internal market would create new growth opportunities through more foreign trade. In the new member states, whose per capita incomes were far below those of the old member states, catching up was the top priority.

Convergence: An analysis with AMECO data of the European Commission shows that "20 years together" led to a convergence of GDP per capita towards the level of EU average, and on the other side a divergence of per capita income in the old EU member states. GDP per capital (in PPS) of 11 new EU MS in Eastern Europe (excluded are Cyprus and Malta) caught up towards EU average from 2004 to 2025 by 24.6 percentage points. The per capital income of the old 12 EU MS (excluded are Ireland and Luxembourg), however, decreased relative to the EU average by 11 ppts. In Finland (-13.9 ppts) and Sweden (14.8 ppts) this divergence effect was stronger than in Austria (-8.7 ppts).

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[408] See also: https://neighbourhood-enlargement.ec.europa.eu/news/20-years-together-eu-celebrates-2004-enlargement-2024-04-30_en

Growth performance: Due to the necessity to catch-up, average annual real GDP growth in the new EU MS was higher in the last 20 years (New EU11 +3.2 ppts) than in the old 12 EU MS (excluded are Ireland and Luxembourg; +1.10 ppts; EU25 +1.17 ppts)). The annual average growth rates of real GDP in EU27 amounted to +1.36 ppts. That means that the united EU27 profited from the largest-ever EU enlargement since 2004, measured by growth of real GDP. However, even the enlarged EU27 did not reach average growth rates of the USA (+2.1 ppts) in the last 20 years.

Trade performance: The enlarged EU Single Market from 15 to 27 member states should have increased intra-EU trade. The share of total exports of the new 11 EU MS relative to EU27 total exports increased from 2004 to 2025 by 8.2 ppts. In the same period the trade share of the old EU15 decreased by the same amount. The new EU MS could expand total exports of the new EU MS grew on average in the last 20 years by 18.3% per annum and surpassed the growth of the old EU15 member states (9%). Due to the better performance of the new EU MS, EU27 could increase its total exports by 10.1% in the same period.

In alle three countries – Austria, Finland, and Sweden – EU enlargement since 2004 helped to stop the downward trend in the trade share with EU15. This trade stabilizing effect was strongest in Austria (see Figure 3.2). In Finland (Figure 3.4) and Sweden (Figure 3.6) this trade stimulating effect of EU enlargement was less pronounced.

FDI: The opening up of Eastern Europe and above all the accession of the Eastern European states to the EU brought new opportunities for FDIs. As in foreign trade, Austria was a pioneer in this field. According to UNCTAD data the FDI inflows into the new EU MS (on average by 5.1% per annum) grew much faster than those into the old EU MS (+3.3%). However, in some countries, like Slovakia, the FDI inflows decreased by 13.1%.

The macro model evaluating the integration effects for Austria (Breuss, 2020B, p. 37; see also Table 12.9), results in an annual increase of real GDP of 0.81% after 25 years EU membership. The effect of EU enlargement amounts to 0.33% more annual real GDP.

In the Simple EU integration micromodel (Breuss, 2022B; see also Table 12.9) the EU enlargements since 2004 led to an increase of real GDP by 0.25% per annum in Austria and by 0.52% in Finland. In the updated version 1995-2019 the effect of EU enlargement amounts to 0.15% in Austria and in Finland +0.07%. In the updated version 1995-2023 the enlargement effect on real GDP is +0.09% in Austria and +0.06% in Finland.

Where does EU enlargement end?

Since the largest-ever enlargement in 2004, after the world-historic event of the breakdown of the communist world, there is an ongoing debate in EU circles about the question of the "limits of the EU". How long will the EU continue to expand and by how many states. Actually, the EU has granted nine countries (Albania, Bosnia and Herzegovina, Georgia, Moldova, Montenegro, North Macedonia, Serbia, Türkiye, Ukraine) candidate status, and one, Kosovo, potential candidate status[409].

Legally speaking gives the TEU in Article 49 the answer. It says that *"Any European State which respects the values referred to in Article 2 and is committed to promoting them may apply to become a member of the Union."* Then one must only decide which country is a European State. After the collapse of the USSR, Russia even raised the question of whether it could also join the EU. In view of its geographical size, however, the question would arise as to who would join whom. In the case of Turkey, too, it is not entirely clear whether it is a "genuine" European state.

As a protective measure to ensure that the EU does not have to deal with all potential applicants, there are two solutions. 1) The *Copenhagen criteria*[410]: three of them (market economy, democracy and acquis communautaire) must be fulfilled by the candidate countries, the fourth criterion is decided by the EU, namely whether it has the "capacity to absorb new members"[411]. 2) The second defensive measure was proposed by the former President of the European Commission, Romano Prodi[412] in 2003 with the *European Neighborhood Policy (ENP)*. It was conceived as an alternative to the enlargement policy. In 2009, additionally, the Eastern Partnership (EaP) was launched. It is a specific Eastern dimension to the ENP covering Armenia, Azerbaijan, Belarus, Georgia, Moldova, Ukraine.

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[409] See: https://european-union.europa.eu/principles-countries-history/eu-enlargement_en

[410] The Copenhagen criteria were established by the Copenhagen European Council in 1993(European Council, 1993, p 13) and strengthened by the Madrid European Council in 1995 (European Council, 1995, p. 18).

[411] Some economists miss a precise definition of the 4th Copenhagen criterion. The EU should make a clearer cost-benefit analysis (economic benefits of size and the costs of heterogeneity of population's preferences; or economic benefits versus burden on the EU budget, e.g. in the case of the Ukraine) and not just interpret this criterion politically (see: Emerson et al., 2006; Gabrisch, 2024).

[412] Romano Prodi, former President of the European Commission, proposed in a speech in Brussels on 5 December 2002 the project of "A Ring of Friends", 2003 transformed officially into the "European Neighbourhood Policy" (ENP). This Ring of Friends spanned 16 countries, the neighbouring states in Eastern Europe and the states in North Africa and the eastern Mediterranean. At that time, also a partnership and cooperation agreement with 4 common spaces was also concluded with Russia. Additionally, the EU launched already in 1995 the Euro-Mediterranean Partnership at the Barcelona Conference. The EU cooperation with the Southern Neighbourhood takes place in the framework of the ENP (see: https://neighbourhood-enlargement.ec.europa.eu/european-neighbourhood-policy/southern-neighbourhood_en). The legal basis of the ENP are Article 8 of the TEU, Title V of the TEU, Articles 2006-2007 (trade) and 216-2019 (international agreement) of the TFEU (see: https://www.europarl.europa.eu/factsheets/en/sheet/170/europaische-nachbarschaftspolitik).

The invasion of Russia in the Ukraine on 22 February 2022, changed the ENP and EaP. The EU introduced massive sanctions against Russia. The EU Belarus After the 2020 fraudulent elections in Belarus, the EU sanctions Belarus and it left EaP.

On 8 November 2003 the European Commission adopted its "Enlargement Package 2023", providing a detailed assessment of the state of play and the progress made by the Western Balkans, Türkiye, Georgia, Moldova and Ukraine on their respective paths towards the European Union[413].

In the meantime, following a decision by the European Council on 14-15 December 2023 the EU opened accession negotiations (first intergovernmental conference) with Moldova and the Ukraine on 25 June 2024[414]. Georgia was granted the candidate status in December 2023.

The candidate countries still waiting in the pipeline are o all poor and, in the case of Georgia, Moldova and Ukraine, politically sensitive. The remaining accession candidates in the Western Balkans must also be viewed critically, although without EU accession they would become "victims" of China's and Russia's expansionist ambitions. The European Commission's latest enlargement report (European Commission, 2024D) deals with 10 candidate countries: Georgia (accession process suspended), Moldova, Turkey, Ukraine and the Western Balkan states of Albania, Bosnia and Herzegovina, Kosovo, Montenegro, North Macedonia and Serbia.

12.3 "Brexit" – a political life experiment

It has been almost two and a half years since the United Kingdom signed its post-Brexit trade deal with the European Union (EU), which was expected to have multifaceted impacts on the UK economy. The *EU-UK Trade and Cooperation Agreement (TCA)* was signed on 30 December 2020 and came into effect provisionally on 1 January 2021[415].

Leaving the EU's Single Market and the EU Customs Union represented a profound change in the economic relationship. This change was expected to have an impact on trade flows between the EU and the United Kingdom, but also on migration flows, foreign direct investment, regulation, the financial sector, science and education, and other areas of the UK economy.

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[413] The European Neighbourhood Policy and Enlargement Negotiations are run by DG NEAR of the European Commission. See: https://neighbourhood-enlargement.ec.europa.eu/index_en).

[414] For details, see: https://european-union.europa.eu/principles-countries-history/eu-enlargement_en

[415] See European Commission: https://trade.ec.europa.eu/access-to-markets/en/content/eu-uk-trade-and-cooperation-agreement#:~:text=The%20EU-UK%20Trade%20and%20Cooperation%20Agreement%20%28TCA%29%20provides,development%20services%2C%20most%20transport%20services%20and%20environmental%20services.

Most of the Brexit studies came to rather pessimistic views of the future economic consequences for the UK concerning trade and GDP (for an overview, see Breuss, 2021, p. 14). While it will take some time for all the effects to emerge, the development since the Brexit vote on 24 June 2016 and specifically, since the entry into force of the TCA in 2021, is not as bad as expected.

The evaluation is of course overshadowed by two crises, the coronavirus (COVID-19) pandemic in 2020/21 and the war in the Ukraine (since the Russian invasion on 24 February 2022) with the following price hikes on energy and consumer prices in all European countries. A first stocktake of the effects of Brexit results in the following outcome concerning GDP growth and trade[416]. While significant uncertainties regarding the precise magnitudes remain, the available evidence suggests that Brexit has been a drag on UK trade and has contributed to a fall in labour supply, both of which are likely to weigh on the United Kingdom's long-run growth potential.

Ex-ante estimates

To get a feeling of the possible effects of Brexit, the results of gravity estimates are shown in Figure 12.12. The general equilibrium gravity estimations all assume that the UK falls back to WTO standards after the Brexit. In this "0-1" economy analysis each EU Member States gets a dummy variable 1 and a non-member 0.

A common result (whether only with 2006 data - Python and Sata estimations) or with data up to 2014 (Felbermayr et al., 2022A; Mayer et al, 2019) is that the UK and Ireland would lose the most. In the estimations by Felbermayr and Mayer, even Ireland would lose more GDP than the UK. GDP losses for the UK would amount from around one to three percent of real GDP.

The GDP estimations of the gravity models are all based on trade effects. In the case of the Python and Stata estimations total trade of the UK would decline by around 20%. Bilateral trade with the EU could shrink by around 35%.

However, the Brexit was concluded by a *Trade and Cooperation Agreement (TCA)* which did not re-introduce new tariffs, the only barriers in bilateral UK-EU trade are non-tariff barriers (NTMs) in form of border controls. Given, this situation, all ex-ante estimations of the economic impact of the Brexit are exaggerated.

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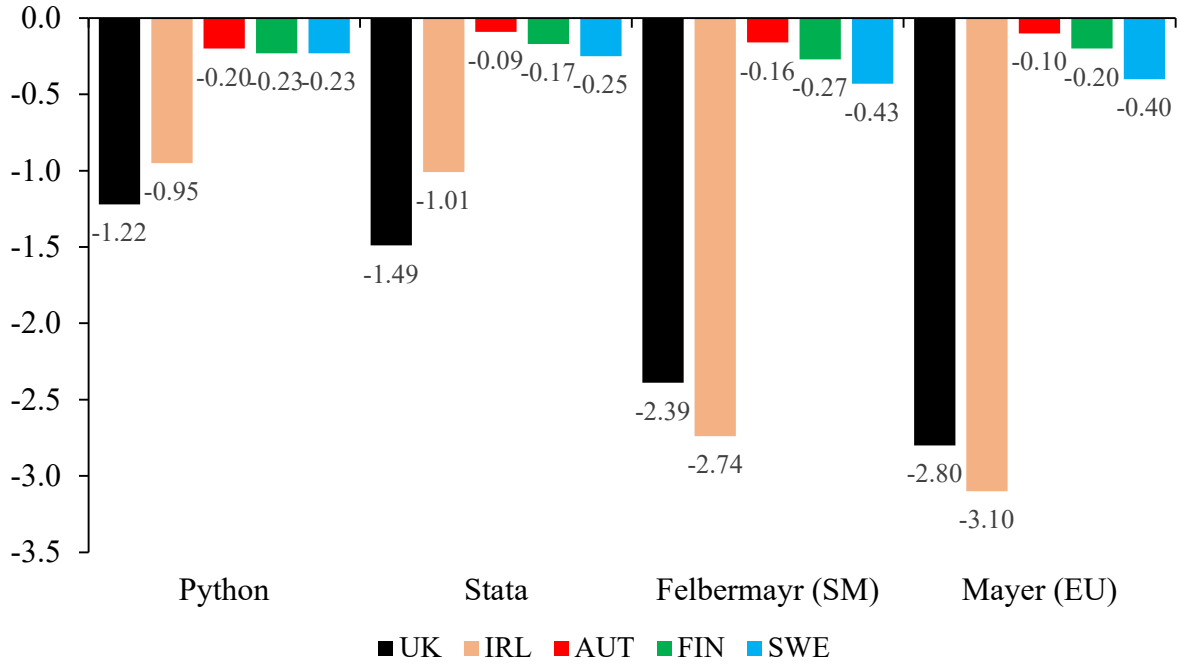
[416] Forster-van Aerssen and Spital (2023) make a first Brexit stocktaking concerning trade and labour markets.

Figure 12.12: The economic losses of the Brexit (real GDP losses in %)



Python = simulation with gegravity program by Herman (2021) with 2006 data; Stata = simulation with the Stata program by Yotov et al. (2016) with 2006 data; Felbermayr (SM) = Felbermayr et al. (2022A), p. 27; Mayer (EU) = Mayer et al. (2019), p. 182 with intermediates, and Brexit with WTO rules.

Post-Brexit development

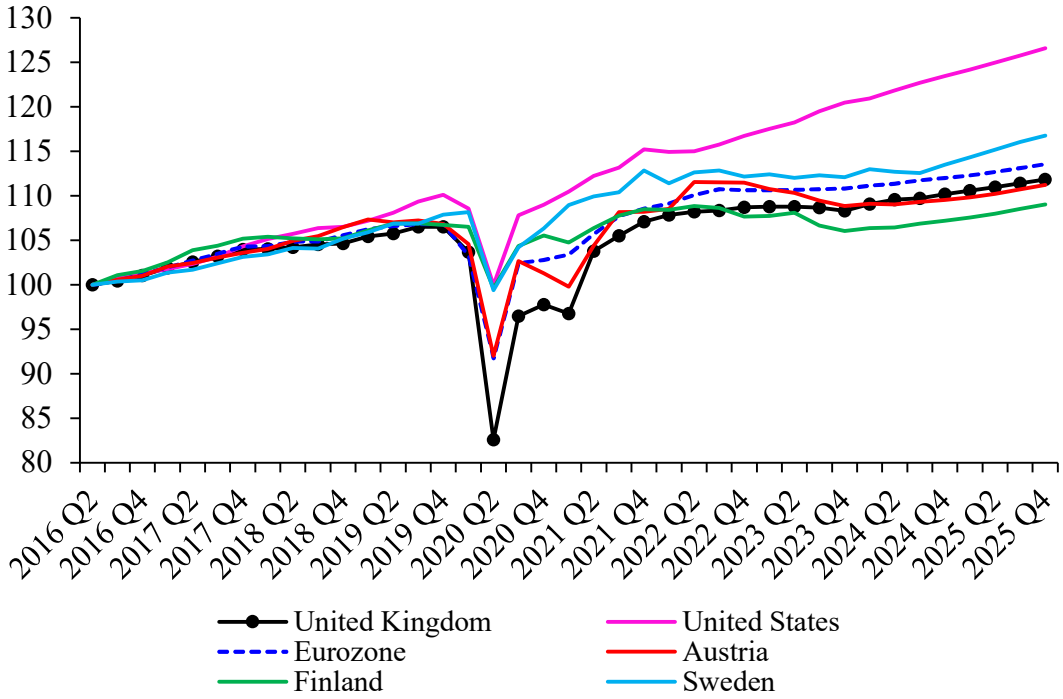
Since January 2021, EU-UK trade has been governed by the EU-UK TCA, which formalised the trade and regulatory relations. The TCA ensures zero tariffs and zero quotas on goods traded between the EU and the United Kingdom. To qualify for tariff-free access, however, UK goods need to meet rule-of-origin requirements, which are set out in detailed annexes to the TCA. Thus, unlike in the Single Market, companies face additional administrative burdens and delays at the border owing to customs and regulatory checks. The United Kingdom and the EU have implemented the agreement at different speeds. While EU countries immediately applied full customs requirements and checks on imports from the United Kingdom, the United Kingdom delayed the introduction of full customs requirements on UK imports from the EU until January 2022, with additional health, safety and security checks delayed until the end of 2023.

GDP development

Figure 12.13 shows that the downturn of UK's economy (measured by the level of real GDP) after the Brexit vote in 2016 is primarily determined by the deeper COVID-19 recession in 2020. The United States had the smallest drop of real GDP in 2020, comparable to that in Finland and Sweden. Austria followed the path of the Eurozone. The economic recovery from the coronavirus crisis was slower in the UK than in comparable countries. Despite the

realization of the Brexit in 2021, the development of real GDP since 2021 has been like that of the Eurozone or the EU. In comparison, the US economy (measured in terms of real GDP) has far outperformed its peer countries.

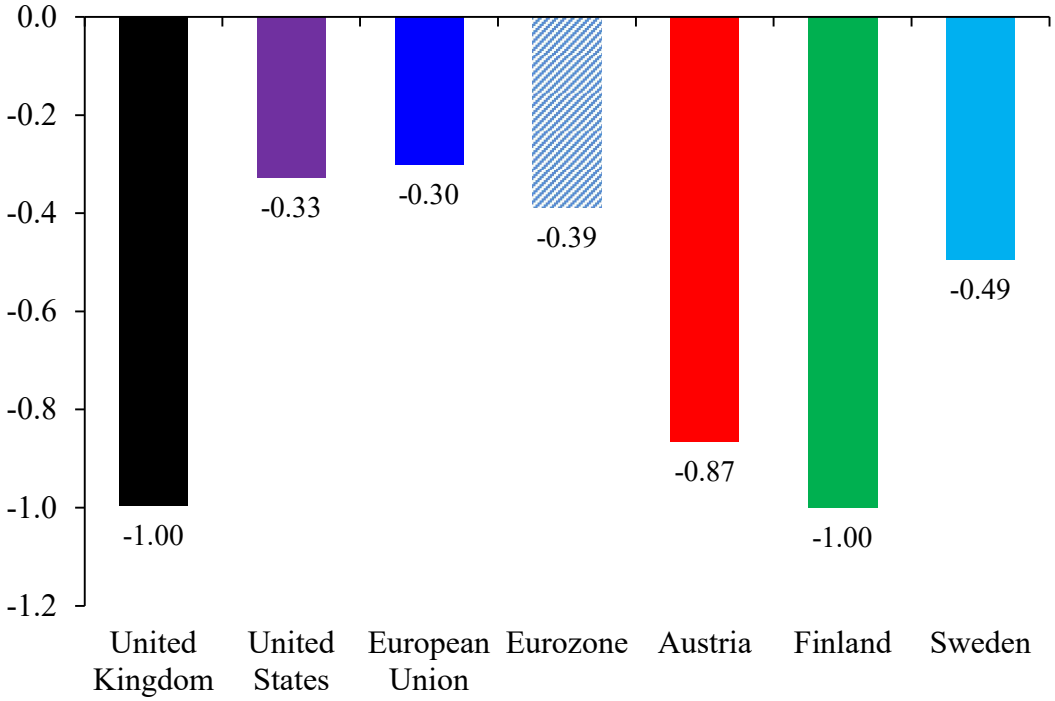
Figure 12.13: Development of real GDP in UK since the Brexit vote
(Index: 2016Q2=100)



Source: Oxford Economics

A comparison of the growth dynamics of real GDP after the Brexit vote with those before (see Figure 12.14) shows that indeed the UK (and Finland) had the biggest losses compared to USA, the EU (Eurozone), Austria, and Sweden. As already mentioned, however, the strongest negative impact came from the COVID-19 crisis which affected the UK the most. Even if one takes into account the COVID-19 effect, the decline in real GDP growth in the UK compared to the pre-Brexit period was only 0.7 percentage points larger than in the USA. This is far below the large estimated negative GDP losses in the Brexit studies before the Brexit took place. The growth gap between UK's real GDP and those of the EU or the Eurozone are similar to those vis à vis the USA (around 0.6-0.7 ppts). But Austria is also not far away from the negative performance of the UK after 2016.

Figure 12.14: Comparison of the pre-Brexit period (1980-2015) with the period after the Brexit vote (2016-2025) (Average annual change in real GDP in ppts



Source: Oxford Economics

Foreign Trade

Trade in general was heavily affected by the lockdowns during the COVID-19 crisis in 2020/21. However, on average, growth of UK's nominal total exports (goods and services) with the EU even grew faster than trade with the rest of the world (ROW = non-EU trade) after the Brexit vote in 2016 compared to the pre-Brexit period (see Table 12.13). Only the UK imports from the EU grew slower than those from the ROW. But in both cases, there was not – as forecast by all Brexit studies – a decline in UK trade with the EU.

Because nominal trade figures are blown-up since the inflation crisis in 2022, the comparison with periods before with low inflation may be misleading. However, the price hike was not only in trade with the EU but also with non-EU countries. Therefore, a comparison of relative growth performance is acceptable.

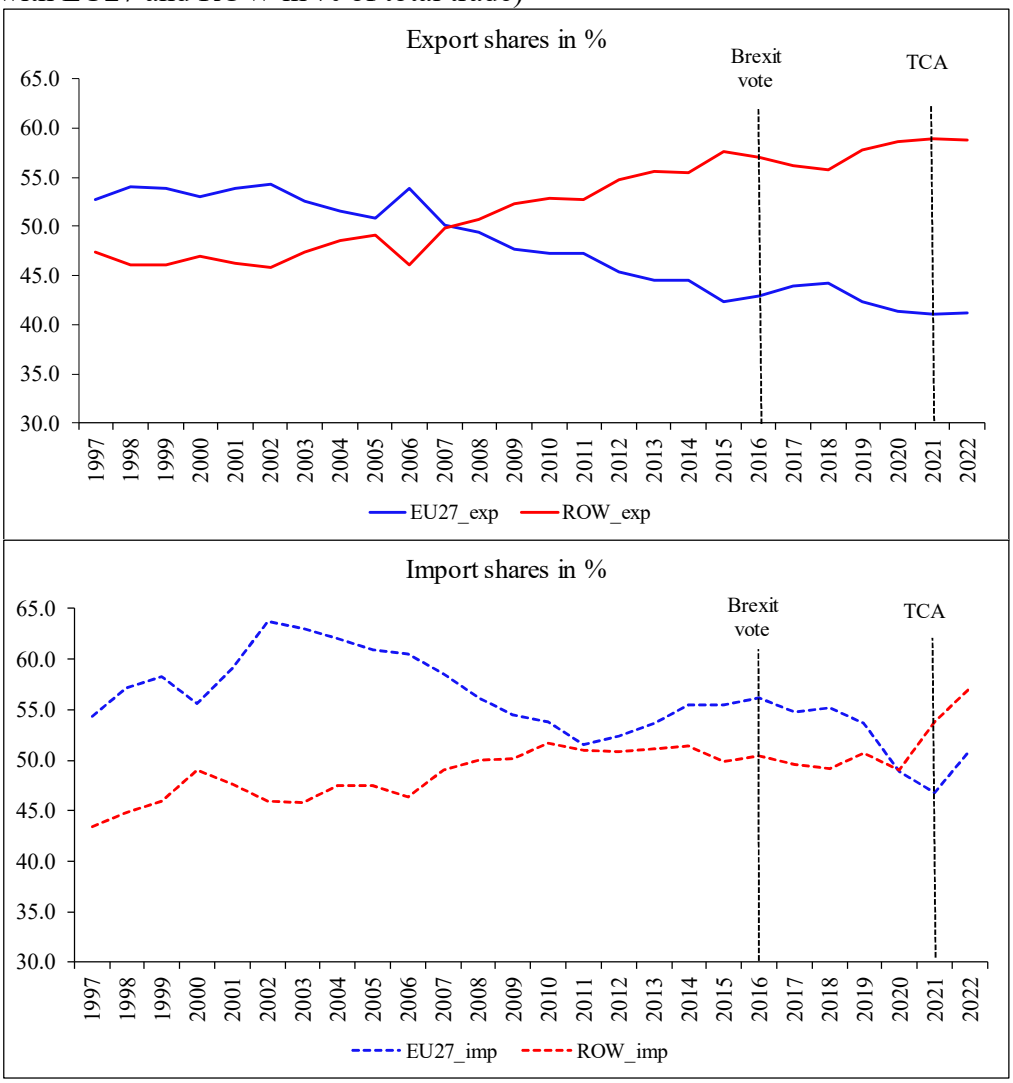
If one measures the performance of UK's trade before and after the Brexit vote and the TCA with the shares of the trade with EU27 and those with the rest of the world (ROW = non-EU countries), the inflation bias of the trade data is cancelled out.

Table 12.13: UK nominal trade before and after the Brexit vote
(Average growth rates in %)

	1997/2022	1997/2015	2016/2022	ppts change	ppts change
	A	B	C	A-B	C-B
			Exports total: goods&services		
EU27	3.99	2.98	6.19	1.01	3.20
ROW	5.92	5.25	6.87	0.67	1.62
Total	5.01	4.17	6.58	0.84	2.42
			Imports total: goods&services		
EU27	4.74	4.28	5.30	0.46	1.02
ROW	6.17	4.93	8.66	1.23	3.73
Total	5.43	4.58	6.97	0.85	2.39

Source: United Kingdom: Office for National Statistics (ONS)

Figure 12.15: Reallocation of UK's total trade (goods & services) from EU to ROW
(Trade with EU27 and ROW in % of total trade)



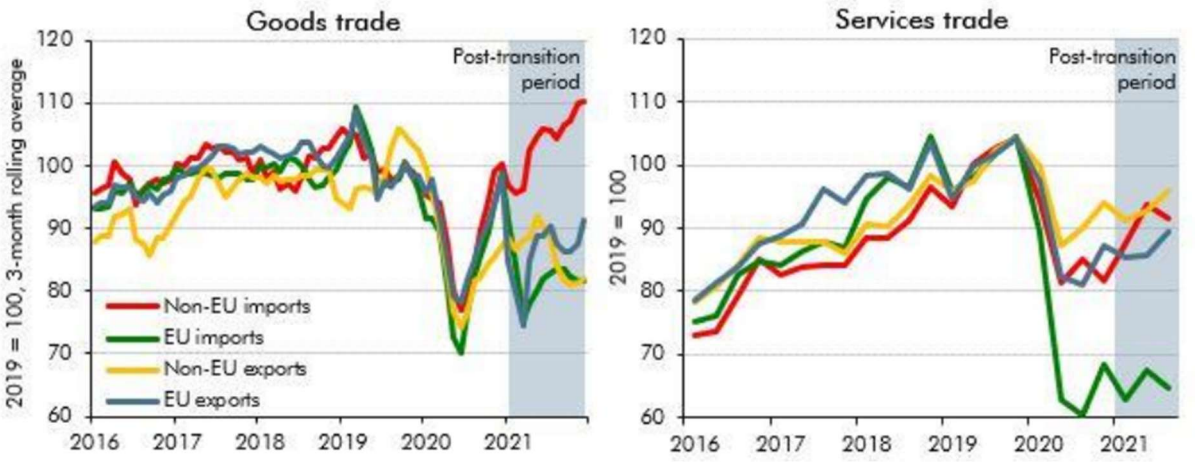
Source: United Kingdom: Office for National Statistics (ONS)

Figure 12.15 gives a general picture of the development of the allocation of UK's trade with the EU27 and with the ROW. Interestingly, already far before the Brexit, the share of UK trade

with the EU27 in % of total trade declined – stronger concerning the exports than the imports. As a result, the trade shares with the ROW increased.

Figure 12.16 shows clear substitution effects from EU to non-EU imports of goods and services. The UK constitutes a small market for the rest of the EU, meaning EU firms are much more likely to conduct business as usual without needing to complete additional new paperwork or comply with new regulations to sell to the UK. Goods exports to EU have somewhat recovered in comparison to non-EU exports, but this is not the case for services exports.

Figure 12.16: Goods and services trade in post-Brexit UK



Source: Bui et al. (2024), p. 10, based on the Office for Budget Responsibility (OBR) Economic and fiscal outlook as of March 2022.

Table 12.14: UK trade with the EU27 before and after the Brexit vote
(Shares in % of total)

	1997 A	2015 B	2022 C	ppts change B-A	ppts change C-B
			Exports		
Goods	57.93	47.48	46.53	-10.45	-0.95
Services	39.61	30.15	28.79	-9.46	-1.36
Total trade	52.63	42.37	41.27	-10.26	-1.10
			Imports		
Goods	61.02	78.33	72.63	17.31	-5.70
Services	39.61	30.15	28.79	-9.46	-1.36
Total trade	54.38	55.51	51.01	1.13	-4.50

Source: United Kingdom: Office for National Statistics (ONS)

This development becomes even clearer when analysing the trade shares in Table 12.14. On the export side, the export shares with the EU declined by around 10 ppts between 1997 and

2015. After the Brexit vote the decline in EU shares – on both sides (exports and imports of goods and services) continued, but with less momentum. An exception are only the shares of total imports; they declined after the Brexit vote, whereas there was an increase before.

In a study by Cambridge Econometrics (see Bui et al., 2024) the impact of the Brexit is analysed for the United Kingdom as a whole and for London over the period 2023 to 2035. The study was commissioned by the Greater London Authority (GLA) as a follow-up to Cambridge Econometrics' (CE) 2018 "Preparing for Brexit" study. It uses CE's macro-sector model E3ME to model two scenarios:

Table 12.15: Summary of the differences between the Central and Counterfactual scenarios by variable and over time

Scenario	Central			Counterfactual (CF)			Diff. from CF
Year/Range	2023	2035	growth p.a.	2023	2035	growth p.a.	2035
GVA (£2019bn)	2,207.0	2,771.2	1.9%	2,346.9	3,082.7	2.3%	-10.1%
Employment (millions)	35.3	37.2	0.4%	37.1	40.2	0.7%	-7.4%
Productivity (£2019k / job)	62.5	74.5	1.5%	63.2	76.8	1.6%	-3.0%
Investment (£2019bn)	520.9	620.0	1.5%	635.3	917.3	3.1%	-32.4%
Exports (£2019bn)	648.2	691.8	0.5%	683.9	725.2	0.5%	-4.6%
Imports (£2019bn)	708.8	673.6	-0.4%	773.5	800.3	0.3%	-15.8%

Source: Bui et al. (2024), p. 5

- *Central:* a scenario that projects the trajectory of the UK economy based on economic and demographic forecasts already published at the time of the Office for Budget Responsibility (OBR)'s March 2023 economic forecast.
- *Counterfactual (CF)*: a scenario that estimates what would have happened had the UK not left the EU.

The key findings are (see Table 12.15)

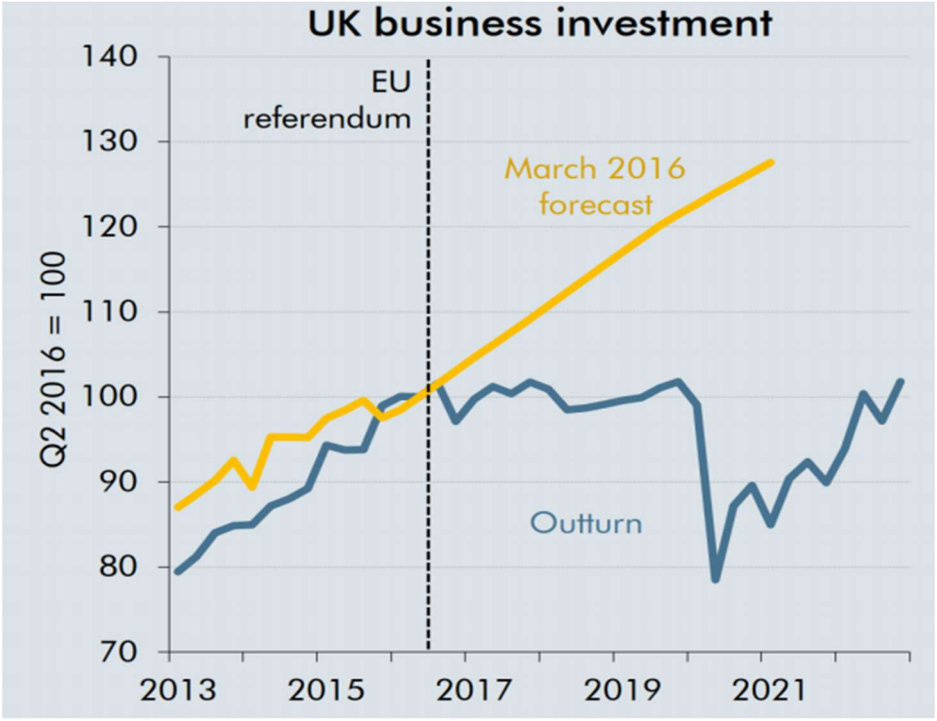
1) Overall, by 2035, UK *output,* investment, exports, imports, employment, and productivity are all expected to be lower than if the UK remained in the EU (Difference Central scenario from CF scenario; last column in Table 12.15). Annual Gross Value Added (GVA)[417] growth

[417] GVA and GDP are quite similar, exactly speaking: GVA= GDP + subsidies on products – taxes on products (see Wikipedia: https://en.wikipedia.org/wiki/Gross_value_added).

over 2023-35 is expected to be 0.4 percentage points (pp) slower in the UK and 0.3 pp slower in London than if the UK remained in the EU. As a result, GVA is projected to be 10.1% and 7.5% lower by 2035 in the UK and London respectively, than in a scenario in which Brexit had not occurred.

2) *Employment* is also expected to be lower, as growth is impacted by lower investment and trade volumes. Slower output growth leads to fewer jobs. The UK is projected to have nearly 3 million fewer jobs post-Brexit by 2035, approximately 500,000 of which would have been in London.
3) Brexit has contributed to slow *investment* growth. By 2035, investment in the UK is projected to be more than 32% lower than it otherwise would have been, which will lead to lower output. The impacts of weak investment would considerably affect London's economy as well.
4) New *trade* barriers are reducing EU businesses' desire and ability to trade with the UK, while import costs are increasing. This lowers business confidence in the UK and, in turn, will negatively impact investment and GVA. By 2035, UK imports are projected to be 15.8% lower and exports 4.6% lower than if the UK remained in the EU. Net trade is set to become positive, but only because the volume of imports falls more than that of exports.

Figure 12.17: UK business investment, OBR 2016 forecast versus outturn



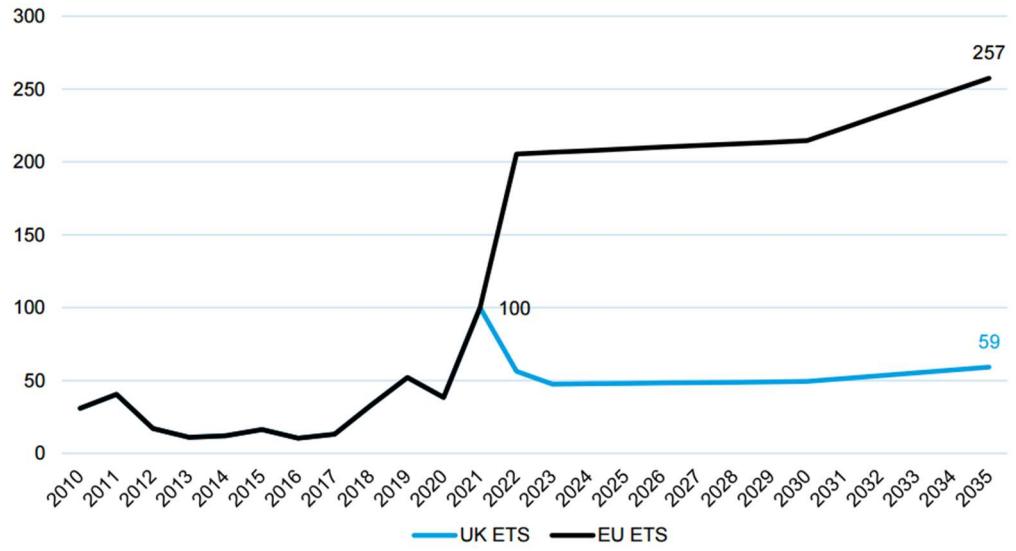
Source: Bui et al. (2024), p. 11, based on the Office for Budget Responsibility (OBR) Economic and fiscal outlook as of March 2023.

There is a consensus that Brexit has had a negative impact on UK *investment* levels since 2016, supported by both observed data and survey evidence. Figure 12.17 shows that there widened the gap between the forecast by the Office for National Statistics (ONS) in the middle of 2016 onwards (i.e., from the point of the Brexit referendum) and the outturn since then.

The OBR assumes that Brexit has affected levels of *investment* in two ways: first due to uncertainty about the future of the UK's trading relationships, and second due to resources being diverted from more productive investment towards Brexit preparations. Relative to the OBR's last forecast before the Brexit referendum (in March 2016), business investment in November 2019 was 16.2% lower than previously forecasted, just before the COVID-19 pandemic (see Figure 12.17). This difference between forecasted investment and observed investment over 2016-19 likely reflects the short-term effect Brexit had on investment growth.

Carbon prices in the Counterfactual scenario (for both the UK and other EU countries) are assumed to follow the EU PRIMES 2020 Reference Scenario projections for the EU ETS (European Commission, 2021E, p. 42). This Reference Scenario was designed to accommodate Phase IV of the EU ETS (2021-30), which focused on meeting the EU's 2030 emission reduction targets and the commitments made in the Paris Agreement. The prices are derived endogenously with model iterations, accounting for factors such as emission reductions in ETS sectors as a response to changing prices, risk-averse behaviour of market agents, and other price assumptions and policy drivers, while also meeting the cumulative ETS cap and respecting the terms of the Market Stability Reserve.

Figure 12.18: Projections of carbon prices under EU ETS and UK EITS (Index 2021=100)



Source: Bui et al. (2024), p. 16.

The EU carbon price is the same in the two scenarios. The carbon price for the UK in the Central scenario, however, takes account of the UK switching to the UK ETS in 2021. The historical data for the UK ETS were taken from the World Bank and forecasted using the growth rate p projected for the EU ETS in the PRIMES Reference Scenario, maintaining consistency across scenarios.

Figure 12.18 illustrates the disparity between the two scenarios. Despite both growing at the same rate, the UK's prices are considerably suppressed due to their lower chosen prices in the early years of its ETS.

Summary

Brexit is a good example of the fact that many citizens of EU member states do not necessarily see the economic benefits as a reason for their approval of EU membership. On 24 June 2016, the people of Great Britain voted against EU membership by a narrow margin (51.9% for leave the EU), even though they knew from all the studies available at the time that they would suffer economic disadvantages as a result. The British population no longer wanted the current steady centralization of the EU and the expected future of an "ever closer union" up to the United States of Europe. They wanted to be able to determine their own national destiny again.

EU membership is - and this was also evident in the election campaigns for the European elections to the European Parliament on June 6-9, 2024 - an increasing decision about more or less Europe. The strong growth of the right-wing parties running in the EP elections clearly prefer less Europe, more self-determination at national level (renationalization) and, above all, a strict anti-foreigner stance. This is opposed by the conservative and progressive parties, but also by many intellectuals (such as Robert Menasse[418]), who want a *"post-national Europe"* while at the same time reducing the power of the EU nation states.

13. The EU integration puzzles

There are two integration puzzles. One concerns the fact that despite a permanent deepening of economic integration – especially since the EU created the Single Market -, the EU does not develop faster than the USA ("The EU-US puzzle"). The second puzzle concerns a misperception ("The misperception puzzle"). The assessment of the population (Eurobarometer; see chapter 8) of some EU Member States (particularly pronounced in Austria)

[418] See: https://www.ndr.de/kultur/Erleben-Renationalisierung-so-gut-wie-aller-EU-Mitgliedsstaaten,menasse158.html; Robert Menasse (2024) propagates this idea of a post-national Europe.

does not match the welfare effects of European integration estimated by experts (see chapter 12).

13.1 The EU-US puzzle

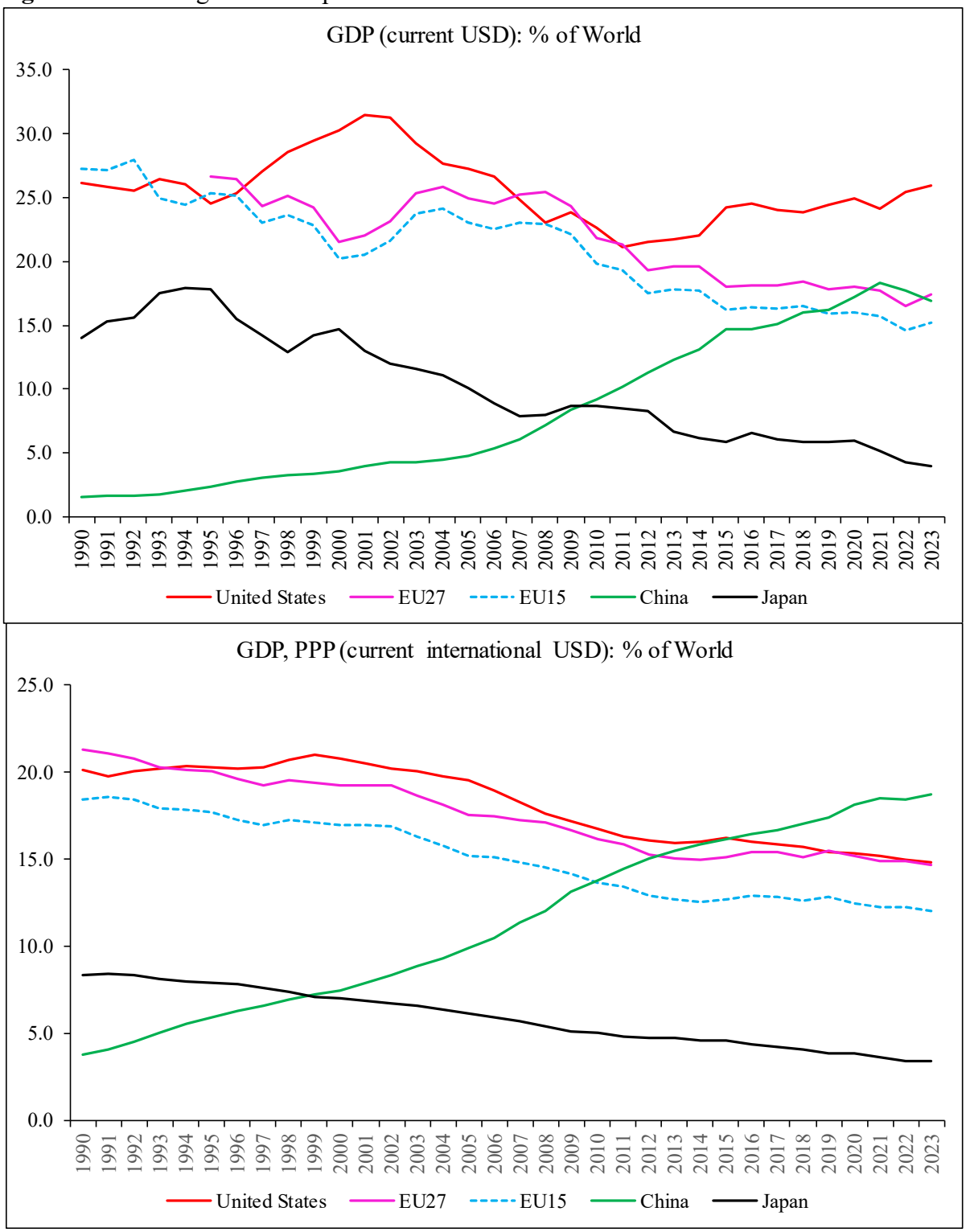
The European integration project is historically unique. Never before has an attempt been made over such a long period of time to unite voluntarily individual nation states economically and, more recently, increasingly politically by removing trade barriers and other obstacles. The position of the EU as a peace community was first shaken by Russia's invasion of Ukraine. The creation of the single market and the introduction of a single currency have unleashed economic forces that have created prosperity. Although the welfare gains achieved are undisputed, there are still contradictions. On the one hand, the succession of "integration shocks" should have accelerated the dynamics of the European economy (especially that of the EU) more than those of economic areas without these extra stimuli like the United States.

In its own way the study by Andersen et al. (2019), according to which the *"EU membership has zero impact on economic growth"* reinforces the message of the so-called "EU integration puzzle" (see Breuss, 2014, 2017). It states that it is difficult to explain why the EU – despite a steady deepening of integration since World War II – could not achieve higher economic growth than the United States. The actual economic development of the EU contradicts all predictions of the various integration theories and most studies evaluating the growth-enhancing effect of EU integration, especially those of EU's Single Market (see chapter 12).

Losing power in the world

On the one hand, Europe (and partly also the USA) has lost ground as an economic power in the world. The diminishing importance of Europe is due to the growing power of China. This is documented in the dwindling shares of GDP of the EU – more than that of the USA (see Figure 13.1). Measured in Purchasing Power Parity (PPP) this effect of losing power is more drastic (second part of Figure 13.1) than measured in current USD (first part of Figure 13.1). The beak-even point, i.e. the year when China surpassed EU's level of GDP in PPP was already in 2012, whereas it happens only recently (in 2021), when measuring GDP in current USD.

Figure 13.1: Losing economic power: GDP as a share of world GDP in %: 1990-2023

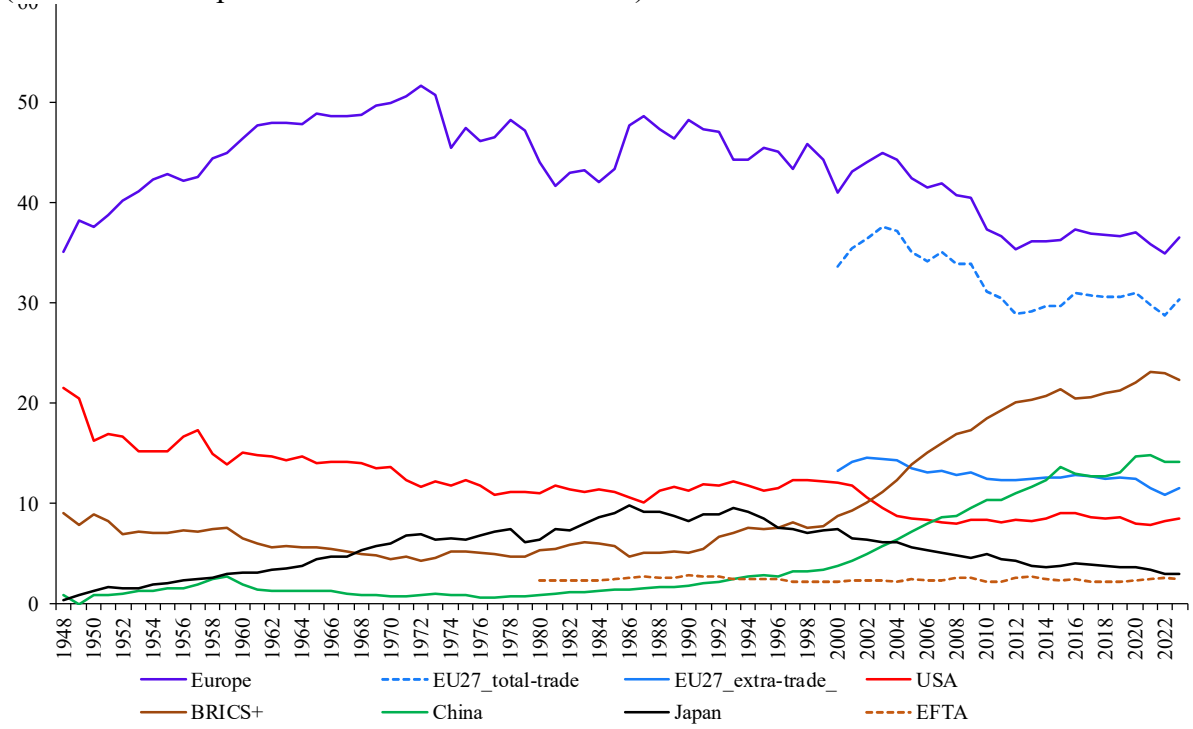


Source: World Bank Group: World Development Indicators

Complaints about EU's loss of economic weight in the world have been voiced in various studies (see Breuss, 2017; Darvas, 2023), most prominently recently in the Draghi report (Draghi, 2024A)[419].

The position in global trade paints a somewhat more favourable picture for the EU. Although the ranking of the major players in world trade underwent changes, Europe and the EU are still dominant. This situation is reminiscent of the famous quote by former Belgian Foreign Minister Mark Eyskens in 1991. He stated that Europe's response to the Gulf War showed that the European Union in the global system added up to little more than an *"economic giant, political dwarf and military worm"*[420]. Well, measured in GDP, the EU is no longer an economic giant, but in terms of a player in world trade, that's still true.

Figure 13.2: Change in the weightings of world trade but the EU still dominates world trade (Merchandise exports: shares in % of world trade)



Source: World Trade Organization

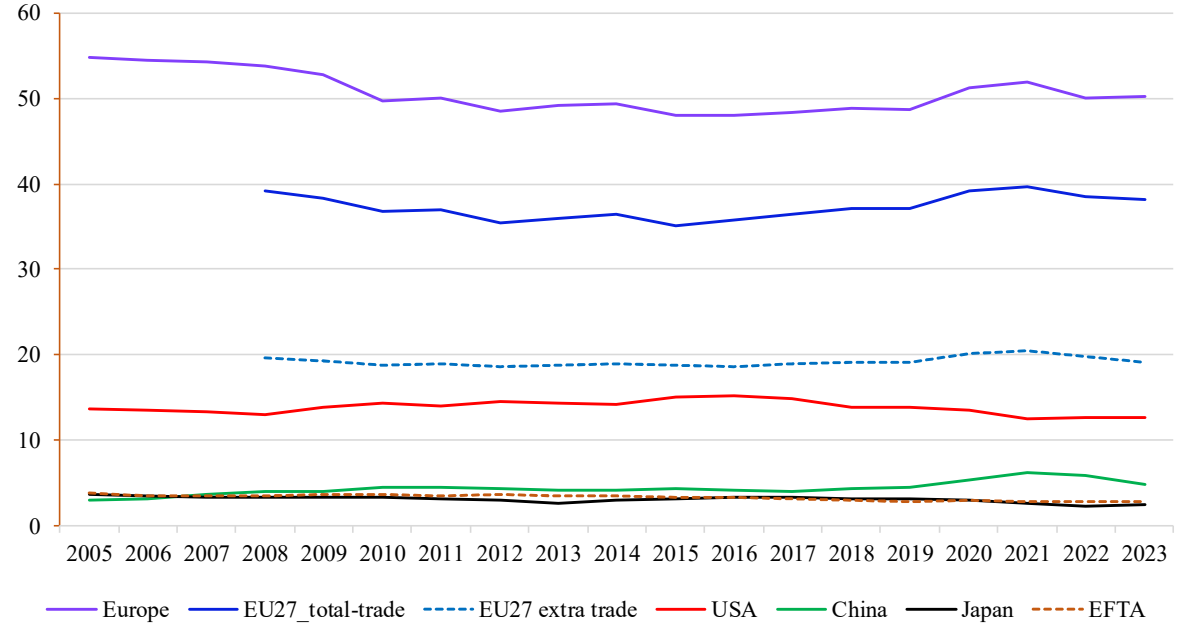
[419] In contrast to the critical assessment in the Draghi report, Darvas (2023) paints a rosy picture of EU's economic performance compared to that of the US. He admits that the European Union suffers from numerous weaknesses compared to the United States, including the lack of European tech giants, weaker university rankings and limited private capital availability. But one frequently cited claim is wrong: in terms of output growth, the EU has not fallen significantly behind the US. In fact, it has converged to the US in terms of per-capita output, per-worker output and, especially, output per hours worked.

[420] Quoted in Bossuyt (2007), p. 2.

In merchandise trade the EU defends a global market share of 30% (see Figure 13.2). Most of EU's trade takes place within the EU. This means that intra-EU trade accounts for 19% of world trade and extra-EU trade for 11%. This distinction is important when comparing EU's total trade with those of the USA. A fair comparison is only permissible if, in the case of the EU, extra-EU trade is compared with US trade. The latter had a share in world trade of only 8%. China surpassed EU's extra-trade share with 14% in 2015. With the BRICS+[421] group of countries, a new powerful (although very heterogeneous) trading force is emerging. Their global market share amounts already to 22%. An interesting example of the rise and fall of world trade powers, is Japan. It continuously increased its global trade share from 1% in the early 1950ies to a peak of 9% in 1988. Since then, it has been displaced by the rising power of China.

In terms of services trade, the dominant position of Europe and the EU is even stronger (see Figure 13.3). Even the extra-EU trade in (commercial) services has a higher weight of 19% than that of the USA (13%). China is with a global share of roughly 5% still a dwarf in services trade. Japan and the EFTA group have the same world market share of nearly 3%.

Figure 13.3: Europe the United States still dominate trade in services
(Commercial services exports, share in % of world trade)



Source: World Trade Organization

[421] BRICS plus currently comprises nine countries: Brazil, Russia, India, China, South Africa (since 2010) and since 2024 Egypt, Ethiopia, Iran, and the United Arabic Emirates (see: https://en.wikipedia.org/wiki/BRICS).

The United States-EU income gap

The dense sequence of integration steps in the EU since 1993 (Single Market, EU enlargements) and in the Eurozone (introduction of the Euro) should – theoretically and supported by numerous studies (see chapter 12) - have led to a massive increase in welfare (measured by GDP per capita) relative to the benchmark country United States. A closer inspection of the data reveals that this did not happen.

Using data from Penn World Table (version 10.01), one can follow the development of the EU in its numerous compositions (from EU6 in 1958 to EU28 in 2019). Although there have been numerous changes in the size of countries in post-war European history (just to mention the split of Czechoslovakia into Czech Republic and Slovak Republic in 1993, and the German unification in 1990), the Penn World Table data project attempts to calculate back to 1948 based on today's composition. Other data sources (e.g. AMECO database of the European Commission) supply data for Germany only back to 1992.

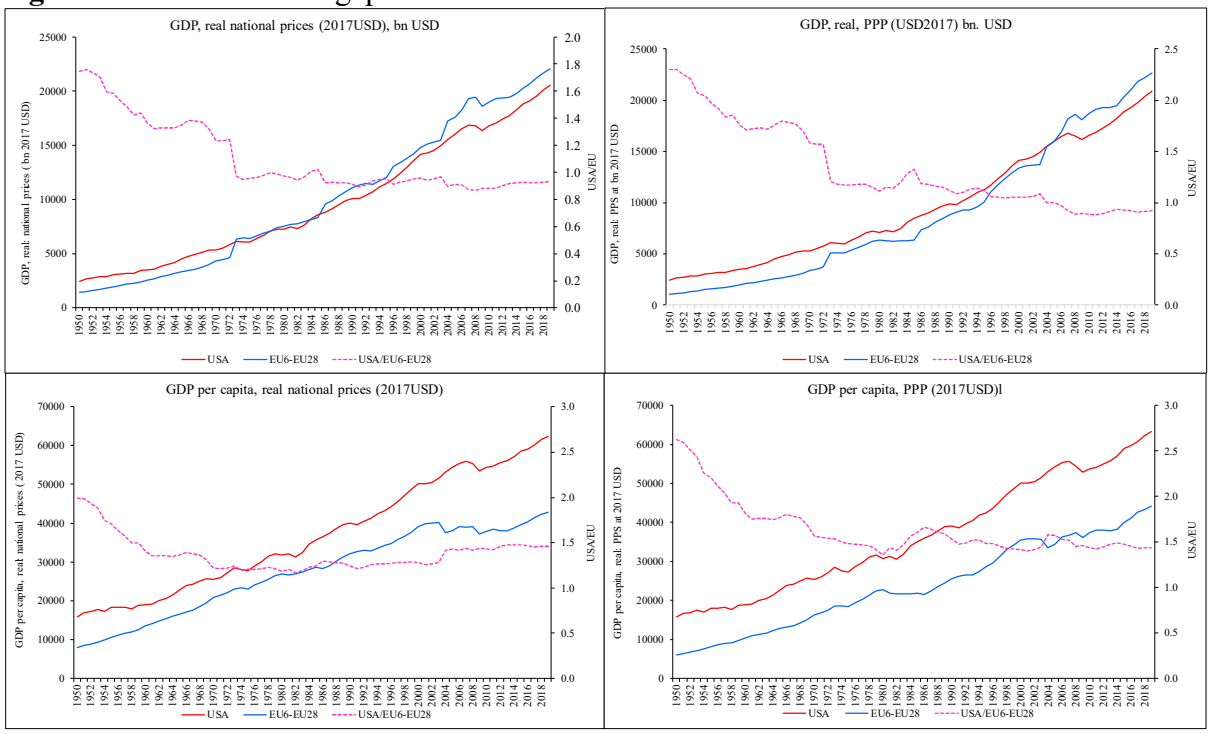
Figure 13.4 demonstrates two things. In the upper part, the growth of the EU from EU6 to EU28 is measured by the level of real GDP. The left upper panel shows real GDP in national prices at 2017 USD, in the right upper panel the same is measured in PPPs. Both panels show that the level of GDP was below that of the USA in the early phase of the EU6 until its first enlargement in 1973. The next step ahead happened with the membership of Portugal and Spain in 1986. The EU made, however, the largest jump in economic power relative to the United States after the grand enlargement since 2004, expanding to EU28 (after the Brexit to EU27). After World War II, the USA was 80% larger than the EU6, measured in real GDP. In 2019, the EU28 was 10% larger than the USA. This GDP relationship (USA/EU) is documented by the dotted pink line in Figure 13.4.

The lower part of Figure 13.4 documents the history of the welfare gap between the USA and the EU since World War II. The European integration started with a huge GDP gap of around 100% in national prices and 160% in PPPs (dotted pink line). In the first phase of European integration, until the first EU enlargement in 1973, there was a drastic convergence in per capita income between the USA and the EU. The gap declined to 20% at national prices, and 35% in PPPs (in 1980). Since then – and this is the puzzle – the gap remained rather constant. Interestingly, the process of convergence was stronger in the 1960ies when the degree of economic integration was lowest (the then six member states comprising the European Economic Community (EEC) made only two significant steps of economic integration: in 1962 it united the agricultural policies of its member states to the Common Commercial Policy (CCP) in 1962, and in 1968 it completed the customs, which freed intra-EU trade from

obstacles). That means that the catching-up process shortly after World War II fuelled by the global liberalization of trade via several GATT Rounds[422] (Dillon Round 1960 to 1961; Kennedy Round 1963 to 1967; and the Tokio Round 1973-1979) dominated the acceleration of growth of per capita income in EU6. EU integration as such did not play a major role in that period.

One of the main reasons for the decline of the level of per capita GDP in the EU from 2003 to 2004 by six (at PPPs) or seven percentage points (at national prices) is the grand EU enlargements starting in 2004 (see Figure 13.4, lower panel). Since then, the EU has accepted (relative to the old EU MS) only poor countries. On the other hand, the new EU Member States contributed to higher economic growth in the EU28, as the new Member States have contributed to the increase in real GDP growth, mainly due to the necessary catch-up process towards the richer member states of the old EU. But this development is slowly coming to an end.

Figure 13.4: The welfare gap between the United States and the EU



Source: Penn World Table, version 10.01

The phenomenon that deeper EU integration has not led to a reduction in the US-EU income gap since 1993 can also be demonstrated by the average annual growth rates of real GDP and real GDP per capita, using data from Penn World Table. These data range from 1948 to 2019. Additionally, in Table 13.1 (last column) data from the European Commission (AMECO

[422] See: https://en.wikipedia.org/wiki/General_Agreement_on_Tariffs_and_Trade

database) are used to demonstrate the development after the COVID-19 crisis in 2020. As demonstrated in the Figures 13.4 the average annual growth rates of real GDP and real GDP per capita (at national prices in 2017 USD) confirm the catching-up process in the 1960ies. Average annual growth of EU6 was significantly higher than those of the USA for both variables (1958-1972). This picture changed after the first EU enlargement in 1973. In the period 1973-1994 average annual growth of all EU compositions were below those in the USA for real GDP. In was, however, higher for real GDP per capita. In the period 1995-2003, and in 1995-2019, only the EU in the composition of EU27 and EU28 showed higher growth rates in real GDP per capita. Later, only after the grand EU enlargement, EU27 and EU28 exhibited a slightly higher annual average growth of real GDP per capita. The EU in the older composition (up to EU15), not only grow slower than the USA in real GDP but also in real GDP per capita.

Only the new EU member states and only two countries from the old EU15 (Ireland and Luxembourg - mainly for technical and statistical reasons) contributed to the higher growth in real GDP per capita compared with the USA. The other countries of the old EU15 have each grown more slowly than the USA since 1973.

Table 13.1: Growth performance USA versus EU since the foundation of the EEC
(Average annual growth rates in %)

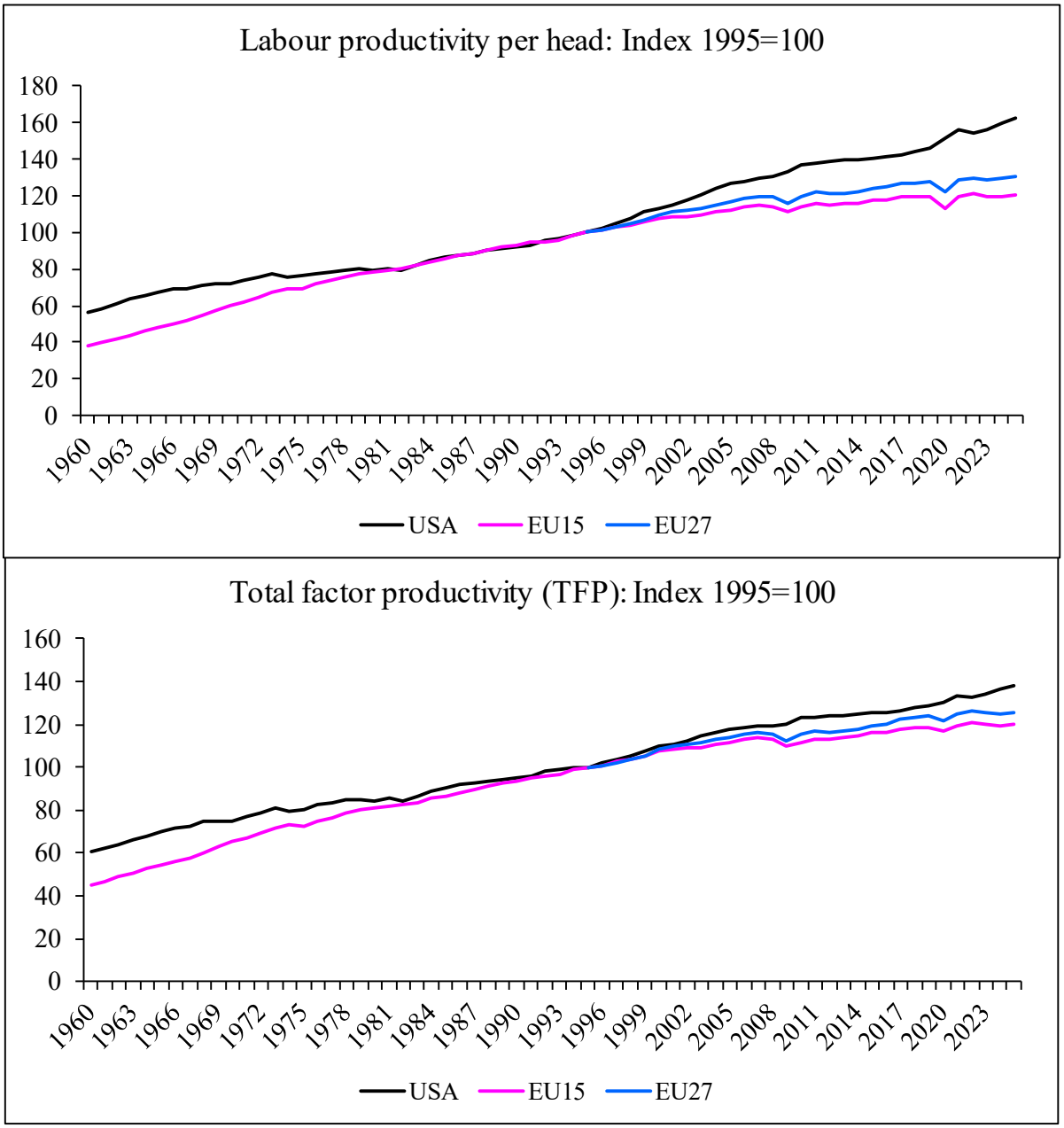
	Founded	1958-1972	1973-1994	1995-2003	2004/2019	1958-2019	1995-2019	2020-2025[+)]
				GDP, real national prices (2017USD)				
USA		4.33	2.89	3.39	1.89	3.10	2.47	2.36
EU6	1958	5.34	2.37	1.80	1.04	2.68	1.33	
EU9	1973	4.85	2.31	2.16	1.21	2.65	1.56	
EU10	1981	4.91	2.28	2.21	1.16	2.65	1.55	
EU12	1986	5.10	2.30	2.37	1.16	2.73	1.60	
EU15	1995	5.07	2.29	2.41	1.19	2.73	1.64	1.05
EU25	2004			2.51	1.39		1.81	
EU27	2007			2.48	1.45		1.84	
EU28[*)]	2013			2.49	1.45		1.84	
EU27[#)]	2021			2.37	1.48		1.83	1.26
				GDP per capita, real national prices (2017USD)				
USA		3.02	1.93	2.25	1.09	2.07	1.55	1.85
EU6	1958	4.52	2.08	1.54	0.72	2.27	1.02	
EU9	1973	4.08	2.04	1.87	0.77	2.22	1.17	
EU10	1981	4.15	2.00	1.91	0.75	2.22	1.17	
EU12	1986	4.32	1.97	2.00	0.75	2.26	1.20	
EU15	1995	4.31	1.96	2.04	0.77	2.27	1.23	0.63
EU25	2004			2.23	1.06		1.49	
EU27	2007			2.26	1.17		1.58	
EU28[*)]	2013			2.28	1.18		1.59	
EU27[#)]	2021			2.20	1.28		1.63	1.00

*) In 2019, the EU28 and all aggregations since 1973 (EU9 to EU28) include the UK.
[+)] AMECO database.
[#)] EU27 after Brexit; AMECO database.
Sources: Penn World Table, version 10.01; AMECO database.

The United States-EU productivity gap

As the Draghi Report (Draghi, 2024A, p. 01) asserts, the income gap between the EU and the US is largely explained by the productivity gap, and the latter mainly by the tech sector.

Figure 13.5: Productivity gaps between the United States and Europe (Index 1995=100)



Source: AMECO database of the European Commission

As Figure 13.5 shows, the productivity gap between the United States and Europe is greater in the EU in terms of labour productivity per head than in terms of total factor productivity (TFP). Between 1995 and 2025 labour productivity per head increased by 63% in the USA, but only by 21% in EU15 or 30% in EU27[423]. Therefore, the US-EU gap in the cases of EU15 was 42 ppts and in EU27 32 ppts. Total factor productivity (TFP) which

[423] Data on labour productivity per hour give a similar picture.

measures the productivity of labour and capital grew more slowly: in the USA by 38% in the EU15 by 20% and in EU27 by 26%. Therefore, the gap was only 18 ppts in EU15 and 13 ppts in EU27.

The higher absolute gap in labour productivity than in TFP vis à vis the EU (see Figure in 13.5) mirrors also in the growth rates (see Table 13.2). Except for labour productivity in the case of the USA, the growth of all variables in Table 13.2 (TFP growth and real GDP growth) declined in the period 1995-2025 compared to those of 1970-1994. The US-EU growth gap in labour productivity per head in the period 1995-2025 amounted to 0.95 ppts vis à vis EU15 and 0.73 ppts in EU27. The TFP growth gap was only half of that of labour productivity, namely 0.42 ppts in EU15 and 0.29 ppts in EU27. The growth gap of real GDP in this period was 0.95 ppts in EU15 and 0.74 ppts in EU27.

Table 13.2: Productivity growth gap between the United States and Europe
(Average annual growth rates in %)

	1961-1969 A	1970-1994 B	1995-2025 C	Difference D=C_B
		Labour productivity per head, %		
EU15	4.69	2.18	0.68	-1.51
EU27			0.90	-
USA	2.67	1.30	1.63	0.33
		Total factor productivity (TFP), %		
EU15	3.77	1.82	0.64	-1.18
EU27			0.77	-
USA	2.36	1.16	1.06	-0.10
		Real GDP, %		
EU15	5.05	2.79	1.57	-1.22
EU27			1.73	-
USA	4.74	3.03	2.47	-0.56

Source: AMECO database of the European Commission

Despite the partial explanation in the special case of the grand EU enlargement since 2004, the economic puzzle remains unsolved for the general case of the contradiction between the estimated welfare effects of the grand deepening of economic and political integration since 1993 (creation of the Single Market, EMU with the Euro; see chapter 12) and the stagnation in the relative development of real per capita income (USA/EU) since then. The GDP per capita gap remains open. It seems as if there are yet undiscovered forces ("hidden" integration "variables") that are slowing the growth of prosperity to such an extent that the estimated prosperity effects of the continuous integrative deepening of the EU would be cancelled out. Explanations for such possible brakes on growth are discussed below.

13.1.1 “Hidden” integration “variable”

Ever since the successful theories of general relativity (Albert Einstein in 2015) for the large-scale phenomena of the cosmos and the final theoretical consensus of quantum theory in 2027 (Copenhagen interpretation by Niels Bohr and Werner Heisenberg[424]) for the subatomic phenomena, theoretical physicists were looking for the Grand Unified Theory (GUT) which encompasses both strands of physics into a single theory[425]. But GUT – which attempts to merge the electromagnetic, weak, and strong forces into a single force at high energies - is only an intermediate step towards a Theory of everything (TOE). The TOE aims at unifying also gravity with the electronuclear interaction.

A candidate for a theory of everything (TOE) is the String theory[426]. String theory is a theoretical framework in which the point-like particles of particle physics are replaced by one-dimensional objects called strings. String theory describes how these strings propagate through space and interact with each other. On distance scales larger than the string scale, a string looks just like an ordinary particle, with its mass, charge, and other properties determined by the vibrational state of the string. In string theory, one of the many vibrational states of the string corresponds to the graviton, a quantum mechanical particle that carries the gravitational force. Thus, string theory is a theory of quantum gravity. It is a candidate for a theory of everything, a self-contained mathematical model that describes all fundamental forces and forms of matter. Despite much work on these problems, it is not known to what extent string theory describes the real world or how much freedom the theory allows in the choice of its details. Five consistent versions of superstring theory were developed before it was conjectured in the mid-1990s that they were all different limiting cases of a single theory in *eleven dimensions* known as M-theory. As the real world exists only of four dimensions, the M-theory is not testable.

In order to make the connection to our topic, it must be pointed out once again that the theory of economic integration is far from being a GUT or TOE. As mentioned earlier (in chapter 12.2.4) Baldwin and Venables (1995) have undertaken the task to formulate a generalized theory of regional integration. But also, this theory lacks many aspects of modern – and more precisely – of EU integration, starting with the steps of deepening economic integration of Customs Union in 1968, creating the Single Market in 1993, followed by the EMU and introduction of a common currency (Euro in 1999/2002). On top of the deepening steps of EU

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[424] See: https://en.wikipedia.org/wiki/Copenhagen_interpretation
[425] See: https://en.wikipedia.org/wiki/Grand_Unified_Theory
[426] See: https://en.wikipedia.org/wiki/String_theory

integration comes the ongoing expansion (only interrupted by the Brexit). Enriched is the economic integration of the EU by its political integration from the EEC to EC and EU.

As criticized earlier, most of the evaluations of the effects of EU integration rest on trade integration. As extensively discussed in chapter 9, EU membership is more than just trade. If then one wants to capture all integration effects – the economic and political ones – it seems that – as Albert Einstein, Boris Podolksy and Nathan Rosen in their famous EPR paper of 1935 argued that quantum entanglement might indicate quantum mechanics is an incomplete description of reality and might miss a "hidden variable" - one is missing of at least "one variable" - if not many of them. John Stewart Bell in 1964, in his eponymous theorem (Bell's inequality) proved that correlations between particles under any local hidden variable theory must obey certain constraints. Bell test experiments have demonstrated broad violation of these constraints and proofed right quantum theoretically predicted "entanglements"[427].

The unresolved integration puzzle alone (contradiction between estimated integration effects and the reality of economic growth) is crying out for additional explanations. Such "hidden variables" should be able to explain the *retarding forces* of EU integration.

The Brexit gives a hint what the "hidden" integration "variable" could be. The approval of EU membership depends on economic benefits (more prosperity through more trade), but above all on the satisfaction of the population of an EU member state with the political development of the EU. There is likely to be a tipping or breakover point at which - as in the case of Brexit - the population can no longer go along with the further development of the EU with its continuous pressure for "more Europe" in ever more areas (Green Deal; migration, fiscal policy etc.). In the following some other possible factors are discussed.

13.1.2 Heterogeneity as a brake of growth

Some authors (e.g. Milanovic, 1996; Gabrisch, 2024) see a trade-off between economic benefits of size (in our case the size of EU's Single Market) and the cost of heterogeneity. Since the grand EU enlargement in 2004, the EU has become more heterogeneous.

On the one hand, the greater heterogeneity is reflected in the income differences between old and new EU member states; on the other hand, the initial euphoria of the new EU members is gradually waning. Some of the new members are increasingly drifting away from the EU's rule

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[427] For these pioneering experiments, the Physics Nobel prize has been awarded in 2022 to Alain Aspect (Institut d'Optique Graduate School – Université Paris-Saclay and École Polytechnique, Palaiseau, France), John F. Clauser (J.F. Clauser & Assoc., Walnut Creek, CA, USA), and Anton Zeilinger (University of Vienna, Austria); see: https://www.nobelprize.org/prizes/physics/2022/press-release/)

of law principles in the political process. This process of increasing heterogeneity may have had a braking effect, both politically and economically, and requires more flexible EU institutions, which was already assumed by Ahrens and Meurers (2003) at the beginning of the great enlargement.

The argument by Acemoglu and Robinson (2012) in their book "Why Nations Fail" that economic growth (mainly in comparison of successful and unsuccessful developing countries) requires political stability and efficient institutions does not hold to explain the "EU-US puzzle". Both, the United States, and the European Union have highly developed institutions. Perhaps the newly established institutions in the new EU member states after EU accession in 2004 are lagging those in the old EU member states in terms of their efficiency for a market economy. Previously, in the Eastern European countries, the institutions were primarily geared towards the planned economy.

13.1.3 Surrender of sovereignty

EU membership implies the voluntary surrender of sovereignty to the European Union. Depending on the degree of integration, the degree of surrender of sovereignty is smaller (only participation in the Single Market) or larger (member of the EMU with the Euro). Milanovic (1996) sees a trade-off between income and sovereignty. Countries choose a combination of income and sovereignty that allows them to maximize welfare. But the combination is not the same for all countries. Larger countries can choose more sovereignty per unit of income, simply because for them the domestic markets are more important than for small countries.

Is it negative or positive? Ultimately, it is an empirical question. Milanovic (1996) tested the hypothesis on the 1993-94 data for 165 countries. He finds a statistically strong impact of per capita wealth and democracy on international integration. The effect of country size is weaker.

Under the motto, "The union of the various" the Max-Planck-Gesellschaft (Dohmen, 2019) analysis the relationship between income and sovereignty. From one enlargement to the next, the differences between the member states became greater and, except for Ireland, did not diminish significantly over time. With the six founding members of the European Community (Germany, France, Italy, Belgium, the Netherlands and Luxembourg), there was initially a comparatively homogeneous group in terms of economic performance. This first changed with the accession of the southern countries (Spain, Portugal and Greece) from the beginning of the 1980s and significantly after the fall of the Berlin Wall with the wave of countries from Eastern and Central Europe joining the EU. A prosperity gap still exists today: in Luxembourg, the richest member state, the gross domestic product per capita is more than ten times as high as in

Bulgaria, which brings up the rear in the EU. The imbalance is also reflected in minimum wages: In Luxembourg, employees are entitled to 11.55 euros per hour, compared to just 1.57 euros in Bulgaria.

However, there is no clear threshold above which heterogeneity prevents integration. But there is a consensus in political economy research that the heterogeneity between EU member states is enormous.

The historical year 1989 with the breakup of the Soviet Union, the former members of the COMECON were happy to increase ("regain") their sovereignty. However, the new states' strong desire to join the European Union showed their intention to dissipate the very same newly acquired sovereignty. Although the new EU member states did this voluntarily, one asks the question: How can the two desires be reconciled? Why would someone go through the ordeal of secession to quickly get rid of the very sovereignty that justified the secession?

In the case of Austria, Breuss (2020E, p. 142-143) tested over 100 years of Austrian history since 1918, the relationship between negative surrender of sovereignty (time of the dictate of the Leage of Nations in the 1920ies and the Germany occupation during World War II) and positive (voluntary) surrender of sovereignty after World War II through the stepwise European integration (Neutrality status, EFTA, and EU membership). The percentage change of real GDP per capita is positively influenced by the growth of TFP and the change of the dummy for sovereignty. Accordingly, the voluntary surrender of political sovereignty by 40 percentage points since EU accession in 1995 led to an increase of real GDP per capital cumulatively by 2.5%.

13.1.4 If the EU was a State in the USA

Erixon et al. (2023) make a comparison of per capita incomes between the federal US states with the EU member states with data of GDP per capita in US dollars for the year 2021.

The comparison shows that US states are far more represented in the upper part of the ranking than the EU member states. This translates into EU and US average that differ considerably (by 44.4%), with the US average sitting in the 19th position and the EU average at a mere 60th place (when pulling together 50 US states and 26 EU MS). At the bottom of the list are all the new EU Member States of Eastern Europe and Spain and Greece.

Luxembourg and Ireland are ranked first and second respectively, before New York and Massachusetts. This can be partly explained because their GDP per capita overestimates their level of prosperity. In Ireland, GDP is boosted by large foreign pharmaceutical and IT

multinationals based in the country which, while producing goods and services in Ireland, record a significant proportion of their global profits within Ireland in order to save taxes.

For Luxembourg the story is slightly different. High GDP per capita is mainly due to the cross-border flows of workers in total employment, as they contribute to overall GDP but are not residents of the country. Therefore, in the GDP per capita expression the numerator is inflated. Instead of GDP, Gross National Income (GNI[428]) would be the better welfare indicator because it excludes the distortions from the base erosion and profit shifting ("BEPS") tax planning tools of U.S. multinationals. Since the early 1980ies when Ireland introduced a low capital tax to attract FDI, the GDP surpassed GNI steadily, reaching 130% in 2024.

According to the data of Erixon et al. (2023), it seems that in contrast to the EU, the United States are less heterogeneous - measured by the per capita income dispersion of its 50 federal states - than the EU with its 27 member states. The standard deviation of the GDP per capita in USD (2021) for the USA is 11.6, those of the EU (26 MS, no data for Malta) 21.0. However, this result for the EU is biased by the incorrect (overestimated) per capita GDP figures for Luxembourg and Ireland. If these two countries are excluded, the dispersion of per capita income in the EU (despite the new EU MS) is (with a value of 9.6) even slightly smaller than that for the USA (11.6).

13.1.5 Lessons from the Draghi Report

The Draghi Report (Draghi, 2024A) identifies the welfare gap (measured by GDP or GDP per capita) between the EU and the USA primarily in the growing gap in productivity. A similar assessment of the income gap EU-USA is also made by other authors, like Erixon et al. (2024).

Draghi's report mentions several reasons for that:

- *De-Globalisation and war:* Since World War II, the EU benefitted from a favourable global environment: world trade burgeoned under multilateral (GATT, later WTO) rules. The safety of the US security umbrella freed up defence budgets to spend on other priorities (a kind of peace dividend). In a world of stable geopolitics, the EU had no reason to be concerned about rising dependencies on countries we expected to remain Europe's friends. However, the previous global paradigm is fading. The era of rapid world trade growth looks to have passed, with EU companies facing both greater competition from abroad and lower access to overseas markets. Europe has abruptly lost its most important supplier of energy, Russia. All

[428] GNI = GDP plus factor incomes earned by foreign residents, minus income earned in the domestic economy by non-residents (see: https://en.wikipedia.org/wiki/Gross_national_income)

the while, geopolitical stability is waning, and Europe's dependencies have turned out to be vulnerabilities. Hence, energy in Europe has become much more expensive than in the USA.

In the chapter 1: *Energy*, the Draghi report (Draghi, 2024B, p. 4) states that "Energy is a key driver of the European Union's competitiveness gap vis-à-vis other world regions.". This has been the case since the early 2000s, but the gap has recently deteriorated as a result of the energy crisis, following the Russian invasion on Ukraine on 24 February 2022.

- *Technological regression:* Technological change is accelerating rapidly. Europe largely missed out on the digital revolution led by the internet and the productivity gains it brought; in fact, the productivity gap between the EU and the US is largely explained by the tech sector. The EU is weak in the emerging technologies that will drive future growth. Only four of the world's top 50 tech companies are European.
- *Demographic factor:* The EU is entering the first period in its recent history in which growth will not be supported by rising populations. By 2040, the workforce is projected to shrink by close to 2 million workers each year. The EU will have to lean more on productivity to drive growth. If the EU were to maintain its average productivity growth rate since 2015, it would only be enough to keep GDP constant until 2050 – at a time when the EU is facing a series of new investment needs that will have to be financed through higher growth.

  United Nation's latest World Population Prospects 2024[429] sees a clear winner concerning population growth. The USA will increase its population from 350 Mio to 420 Mio in 2100. The population of EU27 will shrink from 450 Mio to 350 Mio in 2100. Even if in the meantime the EU would grow by new MS (e.g. by the Ukraine), the decline of population would be even stronger. The third major competitor, China, however, will shrink its population size dramatically, from 1.4 bn to 600 Mio in 2100.
- *Simplifying rules:* The EU is proud of its so-called "Brussels effect", according to which (see chapter .9.5) the EU imposes strict rules to which global companies on EU's Single Market must then also obey. However, this action often degenerates - rightly or wrongly - into arrogance and lecturing others. Many have the impression that the other competitors (USA, China) are inventing, and the EU is regulating.

  Also, the Draghi report criticizes the overregulating behaviour of the EU. It states (Draghi, 2024B, p. 317) that "excessive regulatory and administrative burden can hinder competitiveness of EU companies compared to other blocks."

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[429] See: https://population.un.org/wpp/

13.1.6 The honest efforts of the EU

In theory, ever greater integration should also contribute to an ever-greater increase in welfare and economic growth. This prediction of integration theory is – as shown above - not fulfilled in the current EU for a number of reasons.

The EU has made several attempts to become the most competitive and fastest growing economy in the world. The first such attempt – shortly after launch of the Single Market in 1993 - was the so-called *"Lisbon strategy"* of 2000 (Lisbon European Council, 2000). There, the Union has set itself *"a new strategic goal for the next decade: to become the most competitive and dynamic knowledge-based economy in the world capable of sustainable economic growth with mor and better jobs and greater social cohesion"*. The Council formulated conditions under which this goal can be reached. An overall strategy should aim at: (i) a transition to a knowledge-based economy and society by better policies for the information society and R&D and by stepping up to structural reform for competitiveness and by completing the SM, (ii) modernising the European social model, (iii) sustaining the healthy economic outlook and favourable growth prospects by applying an appropriate macro-economic policy mix. Above all, full employment was an important goal. Unfortunately, this ambitious goal was not achieved, not least due to the Global Recession (2009) at the end of the 10-year timetable. In any case, this political target sounded more like one of a "planned economy" à la Soviet Union (see the Kok report: Kok, .2004).

In view of the failure of the Lisbon strategy, improvements were made with a new strategy - again for a 10-year period. The newly announced strategy to improve economic performance was called *"Europe 2020"* (European Commission, 2010A). This strategy should help that the EU reaches in 2020 a smart, sustainable, and inclusive economic growth. The already very complex objectives of the Lisbon strategy were further overloaded with soft objectives in the Europe 2020 strategy. However, again the COVID-19 pandemic crisis – with the deep recession in 2020 - prevented from achieving the ambitious goals.

The latest attempt was the announcement of the *"European Grean Deal"* by the European Commission under President Ursula von der Leyen, which took office in December 2019. This was shortly before the outbreak of the COVID-19 pandemic, followed by a severe recession in 2020. The Commission[430] stated that *"climate change and environmental degradation are an existential threat to Europe and the world. To overcome these challenges, the "European Green*

[430] See: https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal_en

Deal" should transform the EU into a modern, resource-efficient and competitive economy, ensuring:

- *no net emissions of greenhouse gases by 2050*
- *economic growth decoupled from resource use*
- *no person and no place left behind.*

*The European Green Deal is also our lifeline out of the COVID-19 pandemic. One third of the €1.8 trillion investments from the NextGenerationEU (NGEU) Recovery Plan, and the EU's seven-year budget (MFF 2021-2027) will finance the Eu*ropean Green Deal."

It is an open question whether the noble goals of the "European Green Deal", which the last European Commission's (2019-2024) have assigned highest priority will be pursued with the same ambition by the new Commission (2024-2029) or whether - due to fierce criticism from the European economy - they will be watered down in favour of a stronger emphasis on European competitiveness and the strengthening of Europe as a business location. President-elect Ursula von der Leyen, presented to the European Parliament her Political Guidelines for the next European Commission 2024-2029 on 18 July 2024[431].

All these plans have noble aims but are increasingly diverging from the original goal of European integration, which primarily was trade integration. Its aims were achieved long ago with the establishment of the customs union in 1968, the Free Trade Agreements with EFTA in 1973 as well as the European Economic Area (EEA) in 1994 and the creation of the Single Market in 1993 and lastly with the introduction of the Euro in 2002. These trade-related integration steps had – and this has been shown the numerous integration studies mentioned in chapter 12 – positive economic impact. All further integration steps had political character and should lead to an "ever closer union" (preamble to the TEU).

It seems that since the main goals of European (trade) integration have been achieved, the constant stream of new regulations has tended to slow down economic performance. The growth-inhibiting factors (excessive EU bureaucracy) appear to be paralyzing economic activity in the EU. This drive in the wrong direction has also led to Brexit.

In view of the rapidly increasing improving international competitiveness of China and the USA, the retarding development in the EU dampens - in complete contrast to the noble goals

[431] See: https://commission.europa.eu/about-european-commission/towards-new-commission-2024-2029/president-elect-ursula-von-der-leyen_en

of the numerous EU growth and competitiveness strategies – economic growth and welfare in the EU.

The EU is a unique political construct, a union of independent member states with a rich cultural and political diversity. The Treaty on European Union (TEU) in Title I: Common Provisions, Article 3(3) states: *"It shall respect its rich cultural and linguistic diversity and shall ensure that Europe's cultural heritage is safeguarded and enhanced."* The notion *"cultural and linguistic diversity"* is mentioned in several other contexts of the TFEU (e.g., Article 165: Education, Vocational Training, Youth and Sport; Article 207: Common Commercial Policy; 16. Declaration on Article 55(2) of the TEU: "… respecting the Union's rich cultural and linguistic diversity"). This is why the EU supports multilingualism in its programmes and in the work of its institutions[432]. Multilingualism is enshrined in the EU's Charter of Fundamental Rights[433]. The Council establishes the rules on the use of languages by the EU institutions, acting unanimously by means of regulations adopted in accordance with Article 342 of TFEU. The rules are laid down in Regulation No 1, which states that the institutions now have 24 official and working languages. In 1958, the EC started with four languages. The Babylonian confusion of languages or the multilingualism in the EU works surprisingly well. However, the costs of translation are immense and will increase if the EU enlarges further towards the Western Balkans or to Ukraine etc[434].

As much as the concept of diversity must be appreciated in the EU, it has to be said that as long as the EU only wants to be "United in diversity" (see: TFU, A. Declarations concerning provisions of the Treaties; 52. Declaration by Member States on the symbols of the European Union; except UK) and does not ultimately converges towards the United States of Europe (USE; see Breuss, 2013), Europe will never be the most competitive and fastest growing economic area in the world. In some cases, individual EU Member States can achieve this goal, but not the EU in its present political shape as a whole.

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[432] See. https://european-union.europa.eu/principles-countries-history/languages_en; the Council Regulation of 22 May 2019 on a comprehensive approach to the teaching and learning of languages (2019/C 189/03), OJ, C 189 of 5.6.2019, in view of the European Commission's vison of a European Education Area and referring to the conclusions, adopted in Barcelona on 15 and 16 March 2002, the European Council called for further action in the field of education, "… in particular by teaching at least two foreign languages from a very early age.": https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32019H0605(02)

[433] See: https://commission.europa.eu/aid-development-cooperation-fundamental-rights/your-rights-eu/eu-charter-fundamental-rights_en

[434] See the European Commission Directorate-General for Translation: https://cdt.europa.eu/en/european-commission-directorate-general-translation; see also Ringe (2022); see also: https://topos.orf.at/eu-wahl-sprachen-wirrwarr100

13.1.7 Budapest Declaration on the New European Competitiveness Deal

At the European Council meeting in Budapest on 8 November 2024, the EU heads of state and government issued a new economic policy goal for the EU that sounds just as ambitious as the Lisbon Strategy of 2000. Based on the analyses of the reports *"Much more than a market"* by Enrico Letta and *"The future of European competitiveness"* by Mario Draghi the Leaders of the European Union made the following statement[435]: *"Faced with new geopolitical realities, and economic and demographic challenges, we, the Leaders of the European Union, are determined to ensure our common economic prosperity, boost our competitiveness, making the EU the first climate-neutral continent in the world and ensuring the EU's sovereignty, security, resilience and global influence. We will make the Union more competitive, productive, innovative and sustainable, building on economic, social and territorial cohesion, and ensuring convergence and a level playing field both within the Union and globally."*

To boost EU's competitiveness, all instruments and policies must be harnessed in a comprehensive and coherent manner at both EU and Member State level. The Budapest Declaration formulated 12 competitive drivers:

1. Fully functioning Single Market.
2. Creating a Savings and Investment Union by 2026.
3. Ensuring industrial renewal and decarbonisation.
4. Launching a simplification of the regulatory framework.
5. Increase the defence readiness.
6. Europe at the forefront of research and innovation.
7. Energy sovereignty and climate neutrality ("Green Deal").
8. More circular and resource-efficient economy.
9. Accelerating digital transformation.
10. Harnessing Europe's talent and investing in skills.
11. Robust, open and sustainable trade policy with the WTO at its core.
12. Delivering a competitive, sustainable, and resilient agricultural sector.

To fulfil these goals the EU requires significant investment, mobilising both public and private financing. The Capital Markets Union should be realized urgently. However, no consensus was found on the basic idea in the Draghi Report (2024A), namely that the EU needs

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[435] See: https://www.consilium.europa.eu/en/press/press-releases/2024/11/08/the-budapest-declaration/

massive additional financial resources to fulfil EU's objectives. To achieve the above postulated objectives, Draghi demands a minimum annual additional investment of EUR 750 to 800 billion, corresponding to 4.4-4.7% of EU GDP.

In her inaugural speech after the European Parliament had approved the new College of Commissioners[436], the re-elected President of the European Commission, Ursula von der Leyen reiterated her *"Political Guidelines"* for the next European Commission 2024-2029[437] which she presented on 18 July 2024 after she was elected by the European Parliament as President of the European Commission. Additionally, after the "Budapest Declaration" as of 8 November 2024, she emphasized that increasing Europe's competitiveness (besides the new goal of building a true "European Defence Union" in the next five years) will be her top priority[438].

13.2 The misperception puzzle

13.2.1 The disbelief in integration effects

The increasing deepening of EU integration should have increased satisfaction with the EU which it did not do overall. In contrast one sees a large mismatch between perceived and estimated benefits of EU integration in the EU member states. Hence, the "misperception puzzle" relates to the contradiction between the measurable economic successes of EU integration (see chapter 12) and the approval (or disapproval) of the EU by the citizens of the member states in Eurobarometer surveys (see chapter 8).

To demonstrate this misperception, we analyse the relationship between model-based estimation of welfare and the evaluation of the benefits of EU membership in surveys. Welfare is measure as the percentage change in real consumption (according to Felbermayr et al., 2022A), evaluation of the benefits of EU membership stems from Eurobarometer (2023). In principle, the correlation between the two series is low (R^2=0.17; see Figure 8.6, upper left graph): However, when normalizing the values of both series to the average of EU27 (by subtracting the country values from those of EU27), the divergence between the assessment of the benefits of EU membership by the citizens of the three member states and the model-based estimates of the actual integration effects is clearly visible (see Figure 13.6).

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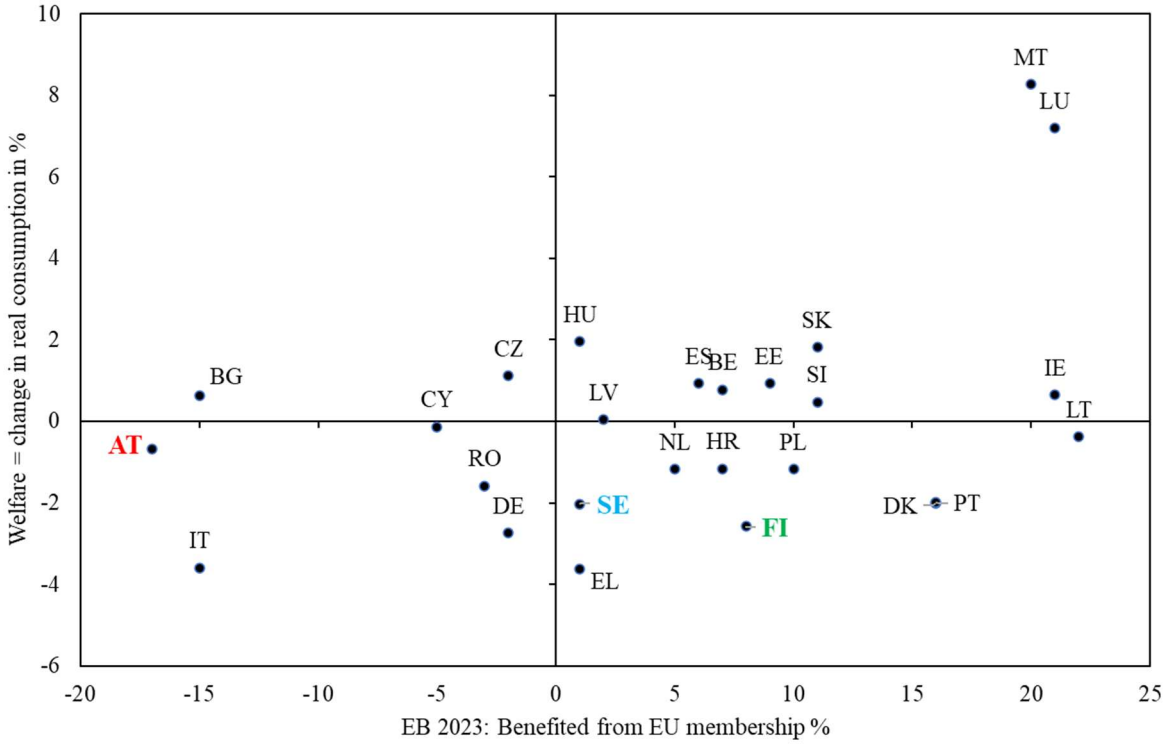
[436] The new College of Commissioners has taken office on 1 December 2024.

[437] See: https://commission.europa.eu/document/download/e6cd4328-673c-4e7a-8683-f63ffb2cf648_en?filename=Political%20Guidelines%202024-2029_EN.pdf; and: https://commission.europa.eu/about-european-commission/commission-2024-2029/president-elect-ursula-von-der-leyen_en

[438] See: https://commissioners.ec.europa.eu/ursula-von-der-leyen_de; and: https://ec.europa.eu/commission/presscorner/detail/en/speech_24_6084

Austria is a clear outlier with estimated integration effects (change in real consumption by participating in EU's Single Market: +5.6%) near EU-average (+6.3%), but with the lowest assessment of the benefits of the EU (only 55% of Austrian citizens see benefits in the EU membership; EU27 = 72%). Whereas Austrians clearly underestimated the value of EU membership, Finland and Sweden overestimate it somewhat. The citizens of Finland and Sweden rate the benefits of EU membership with 80% and 73% respectively. However, their estimated welfare effects from EU membership are below the EU average, namely +3.7% and +4.3% respectively.

Figure 13.6: Misperception of estimated and personally assessed advantages
(Country values minus average values of EU27)



Sources: Welfare = Felbermayr et al (2022A), the estimation of EU SM (Single Market) effects; EB 2023 = Eurobarometer (2023), benefit question QA9:"Would you say that our country has on balance benefited or not from being a member of the EU?".

13.2.2 Possible explanations

What can explain the paradoxical situation or the puzzle for the three countries, Austria, Finland, and Sweden? The Eurobarometer (2023) is used to try to understand and hopefully solve this puzzle. It contains many additional questions that can help.

- Question QA2: Would you say *you follow what's going on in European Union politics*. (%): Austria/Finland/Sweden: 20%/21%/17% most of the time, 41%/43%/42% from time to time,

25%/24%/28% rarely, 14%/11%/13% never. These structures of answers are comparable to those of the population of the EU27.

- Question QA12: Would you say the *actions of the EU have an impact on your daily life*? (%): Austria/Finland/Sweden: 74%/64%/70% total yes, 25%/35%/29% total no. In the EU27 the answers are 70% yes, and 29% no.
- Question D78: In general, does the *EU* conjure up *for you a very positive, fairly positive, neutral, fairly negative or very negative image?* (%): Austria/Finland/Sweden: 37%/55%/63% total positive, 37%/33%/23% neutral, 26%/11%/14% total negative. In EU27 45%/38%/12%. Concerning the image of the EU *Austria is an outlier* with the third worst positive opinion of the EU (only France and Czechia have an even worse opinion in this respect).
- Question AQ7: Generally speaking, do you think that *our country's membership of the EU* is ..? (%): Austria/Finland/Sweden: 42%/79%/77% a *good thing*, 35%/16%/14% neither a good thing nor a bad thing, 22%/4%/9% a bad thing. In EU27 61% good, 28% neither good nor bad, 10% bad. As already mentioned earlier *Austria is again an outlier*. Although all studies estimating the economic impact of EU membership say that Austria benefited economically far more from EU membership than Finland and Sweden. This is a difficult puzzle to solve.
- Question QA8: *How important* is it for you that (OUR COUNTRY) is a *Member State of the European Union*?: Austria/Finland/Sweden: 57%/81%/73%. EU27 67%. Here again, *Austria ranks at the end* only negatively surpassed by Bulgaria (51%), Cyprus (51%) and Czechia (48%). Croatia and Italy have the same impression as Austria.
- Question QA9: Taking everything into account, would you say that (OUR COUNTRY) has *on balance benefited or not from being a member of the EU*? (%): Austria/Finland/Sweden: 55%/80%/73% benefited, 38%/12%/20% not benefited, 7%/8%/7% don't know. In the EU27 the numbers are: 72%, 25%, 5%. Here *again Austria stands out as a country that believes it has not benefited much from the EU* - despite contrary facts.

Question QA10ab (Table 13.3) searches for *reasons why* people in the EU Member States believe that they have *profited* from EU membership. In *Austria*, people think that EU membership has primarily contributed to peace and security (34%), followed by the argument that the EU improved co-operation between other EU Member States (31%). *Only in third place Austria's people think that EU contributes to economic growth and gives people a strong say in the world (each 29%).* In *Finland* the co-operation argument (62%) dominates the other

answers: 42% for peace and stronger security. In third place the Finish population sees the importance of the EU as bringing new work opportunity (29%). In *Sweden* the preferences of the population are like those of the Finish population. 68% think that EU membership increased co-operation between and other EU member states. 45% believe that the EU contributes to maintaining peace and strengthening security. At third place the Swedish population thinks that the EU contributes to economic growth (30%).

Table 13.3: Main reasons why people think our country has *benefited* from EU membership
Question QA10ab: Regardless of whether you think (OUR COUNTRY) has benefited or not from being a member of the EU, which of the following are the main reasons why people think (OUR COUNTRY) has **benefited** from being a member of the EU? Firstly? And then?

	EU27	AT	FI	SE
The EU contributes to maintaining peace and strengthening security	34	34	42	45
Membership of the EU improves co-operation between (OUR COUNTRY) and the other countries of the EU	34	31	62	68
The EU contributes to economic growth in (OUR COUNTRY)	29	29	26	30
The EU brings (NATIONALITY) people new work opportunities	24	27	29	28
The EU gives (NATIONALITY) people a stronger say in the world	23	29	17	18
Membership of the EU improves co-operation between (OUR COUNTRY) and countries outside the EU	19	22	26	19
The EU improves (NATIONALITY) people's standard of living	18	22	13	4
The EU helps (OUR COUNTRY) to tackle climate change	16	22	16	19
The EU contributes to democracy in (OUR COUNTRY)	14	14	6	5
The EU helps (OUR COUNTRY) in the fight against terrorism	14	16	9	12
(NATIONALITY) people have a significant influence in decisions made at EU level	12	12	4	16
You are generally in favour of the EU	1	1	0	0
Other	2	3	2	1
Don't know	6	4	4	1

Dark blue (grey/light blue) = 1st (2nd/3rd) most frequently mentioned item.
Source: Eurobarometer (2023), p. 82.

Question QA11ab (Table 13.4) searches for reasons *why* people in the EU Member States believe that they have *not profited* from EU membership. In *Austria*, the migration problem is one of the most important reasons, because its population think that EU membership undermines the control of its external borders (33%).

Table 13.4: Main reasons why people think our country has *not benefited* from EU membership
Question QA11ab: Still regardless of whether you think (OUR COUNTRY) has benefited or not from being a member of the EU, which of the following are the main reasons why people think (OUR COUNTRY) has **not benefited** from being a member of the EU? Firstly? And then?

	EU27	AT	FI	SE
(NATIONALITY) people have very little influence on decisions made at EU level	32	32	50	52
Issues that are important for (NATIONALITY) people are best dealt with at the national level	30	33	49	55
(NATIONALITY) government has very little influence on decisions made at EU level	25	20	32	31
Being a member of the EU undermines the control of (OUR COUNTRY)'s external borders	24	33	9	21
(OUR COUNTRY)'s economy could do better if outside the EU	19	25	18	31
The EU puts (NATIONALITY) peoples' jobs in danger	18	28	8	17
The EU decreases (NATIONALITY) peoples' standard of living	17	22	9	9
Being a member of the EU makes (OUR COUNTRY) more vulnerable to the negative effects of globalisation	16	17	14	15
(OUR COUNTRY)'s voice in the world is diluted by being a member of the EU	14	13	4	4
Being a member of the EU puts (OUR COUNTRY) more at risk in terms of maintaining peace and security in (OUR COUNTRY)	12	19	3	7
Being a member of the EU is bad for democracy in (OUR COUNTRY)	8	12	4	10
You are generally against the EU	1	4	0	0
Other	3	2	1	1
Don't know	10	3	13	2

Dark blue (grey/light blue) = 1st (2nd/3rd) most frequently mentioned item.
Source: Eurobarometer (2023), p. 88.

A similar percentage of the Austrian people think that issues that are important for them are best dealt with at the national border (33%). Also negative is the impression, that Austrian people have very little influence on decisions made at EU level (32%). Absurdly, the Austrian people think that the EU puts people's jobs in danger (28%). In *Finland* 50% of the population think that they have little influence on EU decisions. 49% want to decide about important issues at national level. 32% think that the national government has very little influence on decisions made at EU level. In *Sweden,* the shrinking power to decide about national issues is a dominant reason for thinking that they did not benefit from EU membership (55%). A similar high share (52%) believe that they have little influence on decisions at EU level. In the third place with 31% each comes the meaning that government has very little influence on decisions at EU level, and that their own country could do better if outside the EU. This suggests that the Swedish population would not be averse to Sweden leaving the EU ("Swedix").

The answers of the Austrian population to the questions QA10ab (*benefited*) and QA11ab (*not benefited*) may explain (partly) why Austria's citizens are so reserved towards the EU, or

why they are not entirely happy with EU membership. This underlines the fact that there is no close correlation between economic benefits and happiness of EU member (see Figure 13.6).

This mismatch is also the result of the study by Katsanidou and Mayne (2024) who analyse the "Euroscepticism" from the viewpoint of geography. Using harmonised Eurobarometer data from almost 750,000 respondents spanning 2004–2019, combined with subnational economic data from 201 European regions, they find no evidence that subnational economic conditions influence the relationship between EU support and respondents' education level. However, they find that EU support is positively related to regional GDP per capita (though unrelated to regional unemployment), among both the higher and lower educated, and especially in the post-Great Recession period. Longitudinally, EU support is positively related to declining regional unemployment, both among the higher and lower educated, but not to increasing regional GDP per capita.

However, this geography of Euroscepticism cannot explain the specific national differences in support for the EU between Austria, Finland, and Sweden.

As in the case of the first integration puzzle (the EU-US puzzle) the unresolved "Misperception puzzle" - the economic benefits of EU membership are assessed differently by the populations of Austria, Finland, and Sweden - is crying out again for additional explanations. Such "hidden variables" should be able to explain the gap between the integration effects claimed by integration researchers and the assessment of the population of the EU member states. The *retarding forces* of EU integration are obviously perceived more strongly by the population (at least in some countries, like Austria) than the positive integration effects estimated by numerous studies (primarily based on trade integration). As mentioned earlier, the Brexit may give a hint that – from a certain tipping point - the population can no longer follow EU's policy of an "ever closer union".

14. From peace to war

Since the Second World War, Europe (and hence the EU) has enjoyed a sustained period of peace. And the EU was awarded the Nobel Peace Prize in 2012 for its long period of peace. Until the invasion of Ukraine by Russia on 24 February 2022, there were only minor skirmishes such as the disintegration of Yugoslavia. The collapse of the USSR and the dissolution of the Warsaw Pact was peaceful.

After the magical year of 1989, some spoke of the "End of History" (Fukuyama, 1992) meaning that after the end of the planning economy and the tyranny of the USSR, the free market and democracy will succeed globally. As there is no major military enemy one could

also save money by reducing the military expenditures. For the latter process the political slogan "Peace dividend" was created and popularized by US President George H. W. Bush and UK Prime Minister Margaret Thatcher in the light of the 1988–1991 dissolution of the Soviet Union[439]. That described the economic benefit of a decrease in defence spending. The term was frequently used at the end of the Cold War, when many Western nations significantly cut military spending such as Britain's 1990 Options for Change defence review. It is now used primarily in discussions relating to the guns versus butter theory.

The year 1989 is – historically speaking – a "magical one" because, according to the historian Hobsbawn (1995) it ended the "short 20th century" which began with World War I.

A new radical change of the political constellation took place in 1989. The bipolar system with two confronting political ideologies (Communism since the October revolution in 1917) and economic systems (market economy versus planned economy). A unipolar system with the United States as single superpower should emerge.

"1989" thus stands as a cipher for a whole series of events[440]. The Revolutions of 1989, also known as the Fall of Communism, was a revolutionary wave of liberal democracy movements that resulted in the collapse of most Marxist–Leninist governments in the Eastern Bloc and other parts of the world[441].

1989 is associated with the end of the Cold War in Europe, even though the new peace order was created by the Charter of Paris in 1990, as well as the Warsaw Pact, which was not dissolved until 1991. The dissolution of the Union of Soviet Socialist Republics (USSR) on 26 December 1991[442] and the end of the Warsaw Pact on 25 February 1991[443] changed the scope of action of most states, especially as they have since been able to change alliances and seek their own advantage between power constellations. This was particularly true for the de facto six "Soviet

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[439] See: https://en.m.wikipedia.org/wiki/Peace_dividend

[440] Besides the peaceful Opening-up of Eastern Europe in 1989, it is often suppressed the popular uprising on Tiananmen Square in Beijing. In 1989, the Tiananmen Square protests ended in a massacre in which the People's Liberation Army cracked down on a student protest on the square that had the stated purpose of calling for political liberalization and greater respect for human rights, killing an unknown number of protesters estimated to range from a few hundred to a few thousand (see: https://en.wikipedia.org/wiki/Tiananmen_Square

[441] See: Brait and Gehler (2014), p. 9-10; and Wikipedia: https://en.wikipedia.org/wiki/Revolutions_of_1989

[442] See: https://en.wikipedia.org/wiki/Dissolution_of_the_Soviet_Union

[443] On 25 February 1991, the Warsaw Pact (formally the Treaty of Friendship, Cooperation and Mutual Assistance, a collective defence treaty as reaction to the NATO treaty; signed in Warshaw between the USSR and seven other Eastern Bloc socialist republics in May 1955) was declared disbanded at a meeting of defence and foreign ministers from remaining Pact countries meeting in Hungary. On 1 July 1991, in Prague, the Czechoslovak President Václav Havel formally ended the 1955 Warsaw Treaty Organization of Friendship, Cooperation and Mutual Assistance and so disestablished the Warsaw Treaty after 36 years of military alliance with the USSR. The Warsaw Pact was the military and economic complement to the Council for Mutual Economic Assistance (Comecon), the regional economic organization for the Eastern Bloc states of Central and Eastern Europe (see: https://en.wikipedia.org/wiki/Warsaw_Pact)

satellite states" and members of the Warsaw Pact, East Germany, Poland, Czechoslovakia, Hungary, Romania, and Bulgaria. Mikhail Gorbachev's slogans of *perestroika* and *glasnost* revealed shortcomings and failures of the soviet-type economic planning model and induced institutional collapse of the Communist government in the USSR in 1999. From 1989 to 1991 Communist governments were overthrown in Albania, Poland, Hungary, Czechoslovakia, East Germany, Romania, Bulgaria, Yugoslavia, and the Soviet Union.

The Russian invasion of Ukraine on 24 February 2022 changed everything. Suddenly, the EU peace union is also faced with the task of defending itself. First indirectly by supporting Ukraine. As the war in Ukraine may not be the end of military challenges, the Commission elected by the European Parliament on 27 November 2024 also has a Commissioner for Defence (Andrius Kubilius) for the first time[444].

14.1 Is there a peace dividend?

As mentioned before, "Peace dividend" was a political slogan popularized by US President George H. W. Bush and UK Prime Minister Margaret Thatcher in the light of the 1988–1991 dissolution of the Soviet Union. It describes the economic benefit of a decrease in defence spending. The term was frequently used at the end of the Cold War, when many Western nations significantly cut military spending. In popular terms it is a discussions relating to the guns versus butter theory[445].

If after the end of conflicts as the end of the "cold war" the public finances can be adjusted to transform from war to a peace economy; then, a "peace dividend" refers to a potential long-term benefit as budgets for defence spending are assumed to be at least partially redirected to social programs and/or a decrease in taxation rates. The existence of a peace dividend in real economies is still debated, but some research points to its reality.

Military expenditure (in % of GDP) declined since the years shortly after World War II (see Figure 14.1). The trend towards a reduction in defence spending continued after 1989, although there are some countries where spending has increased again. These are the United States and Russia.

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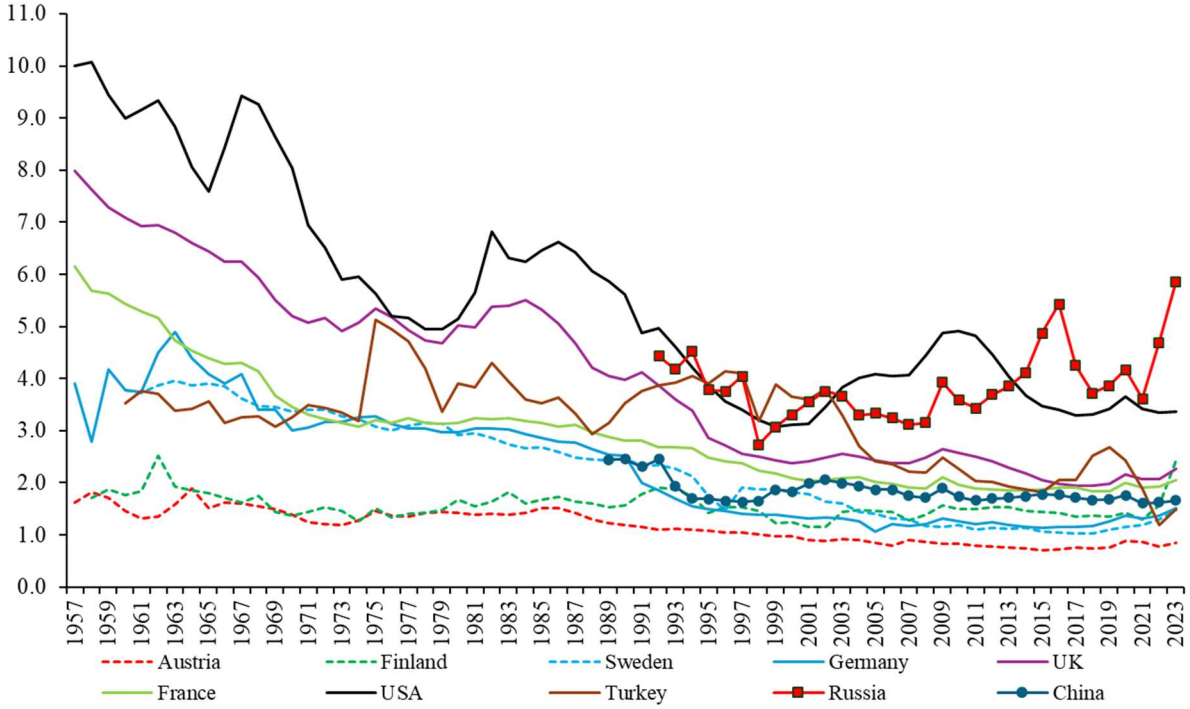
[444] See the website of President-elect Ursula von der Leyen (2024-2029): https://commission.europa.eu/about-european-commission/towards-new-commission-2024-2029/president-elect-ursula-von-der-leyen_en. Poster of Commissioners-designate (2024-2029): https://commission.europa.eu/document/download/df7693e5-834b-49e1-bf36-6a543ddfdf16_en?filename=Poster%20of%20Commissioners%202024%202029.pdf

[445] See: https://en.m.wikipedia.org/wiki/Peace_dividend

Figure 14.1: Military expenditure as percentage of GDP: Selected countries



Source: The SIPRI Military Expenditure Database: https://www.sipri.org/

In the back of wars and regional tensions (Ukraine, Gaza) world's top arms producers saw revenues rise in 2023. According to Stockholm International Peace Research Institute (SIPRI[446]), top 100 companies ramped up production and build workforces. The 41 companies in the top 100 based in the United States recorded 2.5 per cent more arms revenues in 2023 than in 2022. The largest increase of revenues recorded Russian arms producers (+40%), followed by those in South Korea (+39%), and Japan (+35%). China's firms increased arms revenues only by 0.7%, those in the UK by 3.4% und in Germany by 7.5%. The United States hold the largest share of arms revenues of the top 100 arms producers in 2023, namely 50%, followed by China (16%), UK (7.5%), Russia (4%), Israel (2.2%), and Korea, Japan, and Germany (each 1.7%).

Although the political discussion only gained momentum after the break-down of communism in 1989, the steady decline in military spending should have prompted us to think about it earlier. Although conventional wisdom suggests that reducing military spending may improve a country's economic growth performance, empirical studies have produced ambiguous results. An IMF study (Knight et al., 1995) extends a standard growth model and estimates it

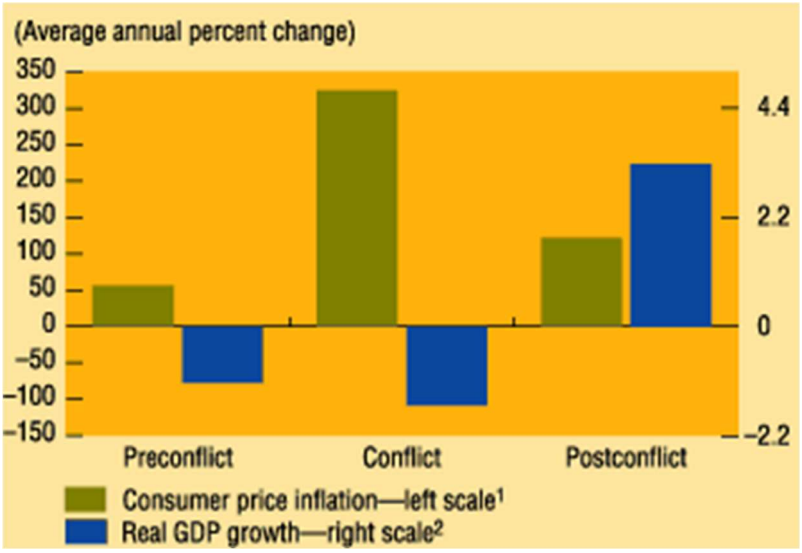
[446] See: https://www.sipri.org/media/press-release/2024/worlds-top-arms-producers-see-revenues-rise-back-wars-and-regional-tensions

using techniques that exploit both cross-section and time-series dimensions of available data to obtain consistent estimates of the growth-retarding effects of military spending via its adverse impact on capital formation and resource allocation.

Model simulations suggest that a substantial long-run "Peace Dividend" - in the form of higher capacity output - may result from: (i) markedly lower military expenditure levels achieved in most regions during the late 1980s; and (ii) further military spending cuts that would be possible in the future if a global peace could be secured. In cross-section estimations the share of military expenditure of GDP (m) cannot explain economic growth. Only panel regressions for the investment to GDP ratio reveal that a rise in the ratio of military spending has a statistically significant negative impact on investment. Also, the panel regression explaining economic growth with the usual growth-equation variables show the military expenditure have a negative and significant effect on growth. Simulations are done by assuming that the change in the average military spending ratio in each region is spread over the whole period 1986-90 and that after reaching its new level in 1990 the military ratio remains constant thereafter. After 50 years the level of GDP per capita would be higher by 1.4 ppts in industrial countries, but lower by 3.8 ppts in Eastern Europe, because the latter increased military spending in the simulated period.

In contrast, a recent IMF study comes to a rather negative conclusion about the peace dividend (see Gupta et al., 2002A, 2002B). Instead of only looking of the potential peace dividend derived from lower military spending, the authors analyse how conflict and terrorism have affected macroeconomic performance and public finances. The study first assesses the impact of armed conflict within countries by examining the evolution of macroeconomic and fiscal variables (such as growth, inflation, government revenues, expenditures, and budget balances) before (three years, on average), during, and after (three years, on average) 22 episodes in up to 20 conflict-afflicted countries between 1985 and 1999. Six of these are in Africa, three in Latin America, two each in Asia and the Middle East, and seven in Eastern Europe and the former Soviet Union. Then, to examine more rigorously the effects of conflict and terrorism, the authors econometrically estimate a system of interlinked equations covering a wider range of 45 countries, including those not affected by conflict and terrorism. The findings confirm that armed conflict and terrorism hurt economic growth and public finances, raising important issues for policymakers.

Figure 14.2: Real GDP growth and Consumer price inflation during conflicts



Source: Gupta et al. (2002B): https://www.imf.org/external/pubs/ft/fandd/2002/12/gupta.htm

Figure 14.2 illustrates that inflation increases dramatically during a conflict and then declines. Real GDP growth drops just before and during a conflict and then picks up afterwards. These results averaged over many conflicts and countries in the past, reflect the latest developments surrounding the war in Ukraine very well. The growth impact of conflicts has also significant influence of public finances. Government spending on defence soars just before a conflict and remains high until the conflict ends.

To control for variables other than armed conflict the authors isolate the effects of conflict and terrorism. They estimated simultaneously equations for economic growth, government tax revenues, and the composition of government spending. The analysis is based on a cross-country data set for 45 countries, of which two-thirds were not afflicted by conflict and terrorism, using five-year averages of annual data over 1980-1999. The study uses the SIPRI index for conflict and International Country Risk Guide (ICRG) ratings on conflict as a proxy for the combined risk from terrorism and conflict.

The results suggest that countries that end conflicts and combat terrorism will realize sizable economic gains in terms of growth, macroeconomic stability, and the generation of tax revenues. Ending conflict and terrorism and restoring security can result in a substantial *peace dividend*, freeing up fiscal resources that a country can use to lower its deficit, reduce taxes, or raise the allocation for pro poor spending.

Successful reconstruction after conflict involves rebuilding damaged institutions and infrastructure, which takes time and often requires continued involvement of donors and the international community. The IMF has been involved in lending in post conflict countries since

1995, as part of its emergency assistance facility. From 1995 to 2000, the IMF provided $300 million to seven post conflict countries.

Gorodnichenko (2023) shortly after the Russian invasion to Ukraine posted an article which insinuated that the peace dividend could be saved in Ukraine. Russia's aggression has brought the prospect of an arms race that only a victory by Ukraine can prevent. Helping Ukraine is the best investment in global security that can save the "peace dividend". Anyhow, as SIPRI stated, military expenditure has dramatically increase after the Ukraine war. The expansion of NATO by Finland and Sweden, the empowerment of EU's Member States concerning their military deterrence leads to a situation when most if not all NATO member states reach the long-ago accorded goal of a military spending ratio of 2% of GDP. In the end, the Russian aggression has turned the "peace dividend" that most European countries have (possibly) been able to reap since the end of the Cold War[447] into a "burden of war" with negative consequences of economic growth in the near future.

Even the EU, winner of the Nobel Peace Prize, speaks indirectly of armament. Emmanuel Macron in his second Sorbonne speech on 25 April 2024[448], speaks even more openly of a "war economy", which is necessary in the EU in order to be able to stand up to Russia militarily.

14.2 The price of war

After the Ukraine war one sees also a turn in the economic literature from peace (peace dividend) to the economics of war. Federle et al. (2024) study the price of war and estimate who loses the most economically. Wars cause death and destruction, disrupt trade, and wreak havoc on public finances. They also affect the economy at large, notably output and inflation. Countries that suffer from a war on their own soil often experience economic disasters. Yet, wars and the associated rise in military spending can also be expansionary and pull economies out of recessions (via a "peace dividend").

In an integrated global economy, the economic fallout of war is not confined to the country where the conflict is fought but spills over to other countries. Federle et al. (2024) study the economic effects of large interstate wars using a new data set spanning 150 years of data (1870-2022) for more than 60 countries. War on a country's territory typically leads to an output decline of 30 percent and a 15-percentage point increase in inflation. They find large negative effects also for countries that are geographically close to the war site, irrespective of their

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[447] According to Bruegel estimates (Demertzis, 2022) Europe has benefited from a peace dividend has amounting to 4,200 billion Euro over a 30-year period.

[448] See: https://geopolitique.eu/en/2024/04/26/macron-europe-it-can-die-a-new-paradigm-at-the-sorbonne/

participation in the war (these results are comparable to those of Gupta et al., 2002B). Output in neighbouring countries falls by more than 10 percent over 5 years, and inflation rises by 5 percentage points on average. Negative spillovers decline with geographic distance and increase in the degree of trade integration with the war site. For very distant countries, output spillovers can turn positive so that wars create winners and losers in the international economy. As the war destroys capital in the war site and productivity falls, trade with nearby economies decreases, generating an endogenous supply-side contraction abroad.

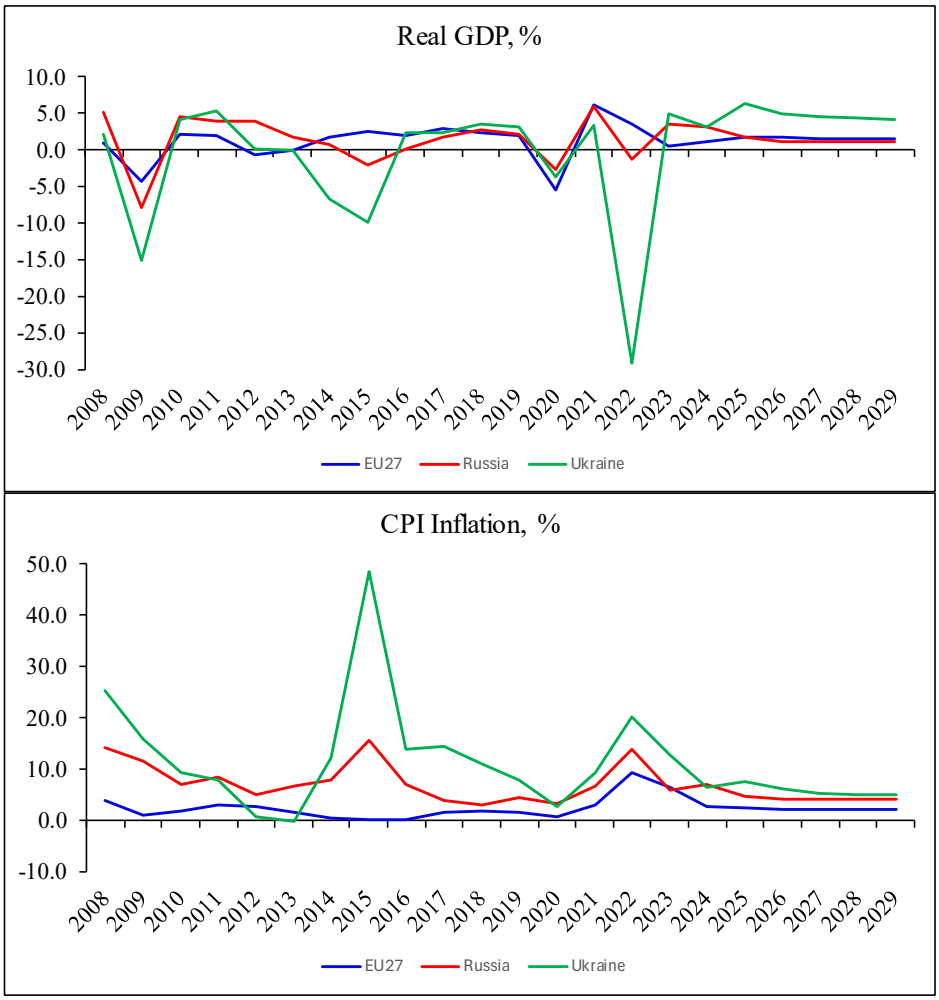
14.3 War in the Ukraine

If one compares this general, averaged results over a 150-years period with the most recent war in the Ukraine, the results by Federle et al. (2024) must be put into perspective. According to forecasts by the IMF (2024A) the aggressor Russia did not suffer as much as expected. In the year of the invasion of Ukraine in 2022, real GDP of the *Russian Federation* fell only 1.2% (after +6% in 2021 and -2.7% in the CORONA year 2020). In the second year of the war in 2023 GDP expanded already – stimulated by immense investments in the military sector - by 3.6%. Growth is projected to slip only to 3.2% in 2024 (see Figure 14.3).

This unexpected positive result for the country which started the war is mainly due to the boom in military production. The massive sanctions by the EU and allied countries had nearly no effect macroeconomically. Also, inflation was not as high as expected and followed a comparable path to those in Western Europe. The CPI inflation rate in Russia surged from 3.4% in 2020 to 6.7% in 2021 and 13.8% in 2022. In 2023 it already was down at 5.9%. Forecasts for 2024 see it at 6.9% (see Figure 14.3).

The attacked country *Ukraine* was hurt much stronger. In 2022 real GDP plummeted by -29.1% after +3.4% in 2021 and -3.8% in 2020. In 2023 GDP growth exceeded 5%. For 2024 forecasts see a growth of 3.2%. The development in 2024-2026 depends heavily on military and financial assistance from the EU and the USA. Inflation in the Ukraine – mainly due to the turbulence at the energy markets - has developed similarly to those in the EU. According to the IMF forecast, the rate of CPI inflation in the Ukraine surged from 2.7% in 2020 to 9.4% in 2021 and 20.2% in 2022. Since 2023 (12.9%) inflation gradually went down (2024 to 6.4%; see Figure 14.3).

Figure 14.3: Economic development in Russia, Ukraine and EU before and during the Ukrainian war



March 2014: Russia unilaterally annexes Ukraine's Crimean Peninsula.
24 February 2022: Russia invades Ukraine.
Source: IMF (2024A)

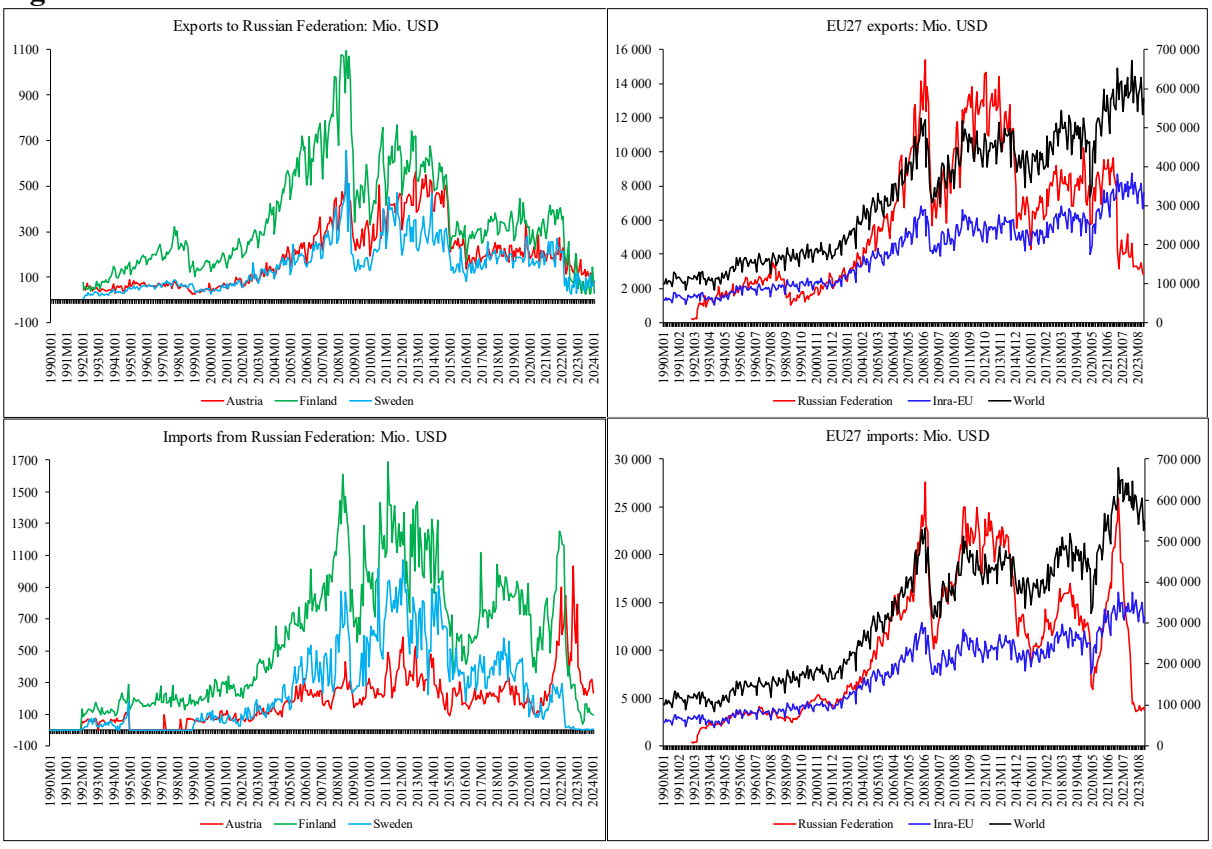
However, in the course of 2024, the robust economic situation in Russia has cracked. The rouble has depreciated sharply against the US dollar, which has also contributed to a renewed rise in inflation. Before the invasion of Ukraine in February 2022, one US dollar cost 72 roubles, at the end of 2024 already 108. Inflation increased from 7 ½% at the beginning of 2024 to over 9% in autumn, resulting in an average inflation rate of around 8 ½% in 2024 and hence above the estimations by the IMF (2024A).

In contrast to the economic development in the two countries at war (Russia and Ukraine), the negative spillovers to Western Europe were much stronger than expected. Real GDP in the EU27 has gone into a near-stagnation in 2023 (+0.6% after +3.6% in 2022 and +6.1% in 2021. In the CORONA year 2020 real GDP fell by 5.5%. But also, for the year 2024 (+1.1%) the forecasts are subdued. CPI inflation in EU27 – due to the energy crisis following the Russian invasion of Ukraine – was a big problem for the EU27 as a whole and for some Member States

in particular. In the EU27 the CPI inflation rate rose from 0.7% in 2020 to 2.9% in 2021 and 9.3% in 2022. Then in declined to 6.3% in 2023 and is expected to further slow down to 2.7% in 2024 (see Figure 13.3).

The three countries *Austria, Finland* and *Sweden* did not suffer a slump in real GDP growth in 2022 (Austria +4.8%, Finland +1.3%, Sweden +2.7%). Only in the following year all three countries slipped into a recession (Austria -0.7%, Finland -1.0%, Sweden -0.2%). Also, for the year 2024 the expectations are gloomy. Inflation exhibited the same pattern as in the EU, namely at increase of CPI consumer prices from a low level around 2% in 2021 to a steady increase up to 2022 (Austria +8.6%, Finland +7.2%, Sweden +8.1%). Then, in 2023 the inflation trend diverged. Whereas the rate remained high in Austria (+7.7%), it fell much more in Finland (+4.3%) and in Sweden (+5.9%). Also, for the year 2024 forecast see Austria in the lead in CPI inflation, nearly two ppts higher than EU average.

Figure 14.4: Trade with Russia after the invasion of Ukraine



Source: IMF Direction of Trade Statistics

Figure 14.4 documents the pattern of the trade development of the EU and the three countries, Austria, Finland, and Sweden since 1990. Finland traded traditionally absolutely the most of the three countries with Russia. The development of trade with Russia in the last 20 years were firstly determined by the Great Recession 2009 during which all trade flows

declined. The next years of trade with Russia were characterized by the political shocks in the Ukraine. The EU imposed the first sanctions against Russia after the occupation of Crimea in 2014. Then after the Russian invasion in Ukraine on 24 February 2022 the EU and G7 imposed a series of sanctions against Russia. Both events (2014 and 2022) reduced trade with Russia. Austria's imports from Russia in 2022 and 2023 were distorted by the surge in energy import prices. In contrast to most other EU member states (also Germany) Austria imported over 80% of its total gas imports from Russia.

Table 14.1: Trade with Russia during EU's sanctions after Crimea annexation in 2014 and Russian invasion of Ukraine in 2022 (% change)

	1M2014-12M2014		1M2022-1M2024	
	Exports to Russia	Imports from Russia	Exports to Russia	Imports from Russia
EU27	-20.3	-39.0	-64.9	-83.8
Austria	-15.9	-75.4	-63.4	-73.9
Finland	-16.8	-40.6	-92.2	-92.4
Sweden	-6.9	-43.1	-60.6	-99.1

Source: IMF Direction of Trade Statistics

Quantitatively, the EU sanctions after the Russian invasion of Ukraine in 2022 had much stronger trade implications than the sanctions after the Crimea annexation in 2014. This is no wonder, as the sanctions taken by the EU since 2022 (13 sanction packages) are much more comprehensive than those of 2014. Table 14.1 documents the slump in trade between the EU and the three states of Austria, France and Sweden and Russia. In the 2014-episode EU exports to Russia fell y around 20%, in the three countries even less. Imports from Russia declined more than exports to Russia, with the highest slump in Austria (-75.4%). In the sanctions episode since 2022 the collapse in Russian trade was more severe. Interestingly, exports to Russia of the EU and Austria and Sweden fell similarly around 60%, whereas those of Finland nearly came to a standstill. On the import side, the development in Austria stands out. Due to the still high dependency of gas imports from Russia, Austria's imports fell since the beginning of 2022 only by 74%, whereas those of Finland (-92%) and Sweden (-99%) nearly stopped (EU: -84%).

Because not all countries are participating in the Russia sanctions imposed by the EU, the USA and the G7, Russia can compensate partly the loss of trade with the West through trade with the South, but above all with China, India, and Turkey. The circumvention of sanctions with third countries has been documented several times. On the one hand by Bruegel ("Russian

Foreign Trade tracker"[449]; "Russian Crude Oil Tracker"[450]) and by wiiw and ifW Kiel (Astrov et al., 2024). The latter study details Russia's efforts to maintain its commodity exports by leveraging new maritime routes and spoofing Automatic Identification System (AIS) signals to avoid detection of ship-to-ship transfers of oil.

Nevertheless, Russian exports have fallen almost uniformly against all trading partners by around 25% since the start of the Ukraine invasion in 2022. The same is true for imports which even fell by around 55%. As a result, Russia's trade balance increased. According to data from IMF, Direction of Trade Statistics, the surplus increased from 198 bn USD in 2021 to 377 bn USD in 2022. In 2023 it declined to 285 bn USD. According to wiiw forecast (Pindyuk et al., 2024, p. 117), Russia increased its current account surplus from 105.5 bn EUR (or 6.8% of GDP) to 224.6 bn EUR (10.5%) in 2022. In 2023 it declined to 46.4 (2.5%). FDI liabilities shrank from 34.2 bn EUR to -37.6 bn EUR in 2022 and to -10.3 bn EUR in 2023, not at least a consequence of the EU sanctions. FDI assets only went down in 2022 (-12.4 bn EUR) from 55.6 bn EUR in 2021. In 2023 they again increased to 8.8 bn EUR. Despite western sanctions, the budget deficit was not particularly high in 2022 (-1.4% of GDP) and 2023 (-2.3%). Also, the general government debt was extremely low: 14.9% of GDP in 2023. Due to the stringent sanction regimes by the EU and the USA, many EU firms have left the Russian market (see Pindyuk et al., 2024, p. 35). In the Scandinavian countries mot firms have exited or left Russia. Austria (60%), Germany (48%) and Italy (65%) are EU MS whose companies have largely remained in Russia.

Overall, the sanctions by the West have massively damaged Russia's foreign trade relations. However, it was able to circumvent the specific sanctions on high-tech goods by importing from countries that do not support the sanctions, such as China and Turkey (see Bruegel: "Russian foreign trade tracker"). The analysis of the impact of sanctions with a gravitation model (Yalcin et al., 2024; Felbermayr, 2024B) confirms this effect of circumventing sanctions by Russi. Whereas the bilateral trade with Russia was reduced in the sanctioning countries (USA, Canada, EU, Norway, UK, Switzerland, Japan), the trade in the non-sanctioning countries (Turkey, China, and very strongly India) increased.

While there is a consensus among the EU member states regarding sanctions for specific goods (e.g. high-tech, some agricultural goods), it was difficult to boycott energy imports from

[449] See: https://www.bruegel.org/dataset/russian-foreign-trade-tracker
[450] See: https://www.bruegel.org/dataset/russian-crude-oil-tracker

Russia. Only oil imports were subject to a special regulation in November 2023. Gas imports have not yet been fully sanctioned - not least because of the boycott by Hungary and Austria.

The EU has sanctioned energy trade with Russia in several sanctions' packages[451]. The EU sanctions on energy covers 90% of EU oil imports from Russia. The import ban on Russian coal affects one quarter of all Russian global coal exports, amounting to an EUR 8 bn loss of revenue per year for Russia. Russian seaborne crude oil is fixed at a maximum price of USD 60 per barrel. "Premium-to-crude" petroleum products, such as diesel, kerosene, and gasoline, are fixed at USD 100 per barrel. To help tackle the "shadow fleet" used by Russia to circumvent the price caps, the G7 + Price Cap Coalition has introduced measures to closely monitor the sale of tankers to third countries.

Consequently, the EU practically import no longer crude oil from Russia (see Bruegel: "Russian crude oil tracker"[452]). Russia exports its oil primarily to India. Within the EU only Hungary, Czechia, and Slovakia are still importing crude oil via the Druzhba Pipeline.

Other energy measures are, an import ban on liquified petroleum gas (LPG), impacting annual imports worth over €1 billion, with an exemption for existing contracts for a maximum period of 12 months. And a ban on new EU investments in the Russian mining sector, with the exception of certain raw materials. Moreover, there were no sanctions on gas imports because Austria and Hungary were against them. However, the EU's gas imports have fallen sharply (see Bruegel: "European natural gas imports"[453]). In Austria, the dependence on Russia is still very high - not least due to OMV's long-term supply contract with Gazprom[454]. Most recently (3/2024), 93% of gas imports were sourced from Russia[455].

Austria does not import any fuels directly from Russia and has not imported any crude oil since spring 2022. However, some of the countries from which Austria imports fuels are heavily dependent on Russian crude oil (e.g. Kazakhstan), which means that Austria is also indirectly

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[451] See "Sanctions on energy": https://eu-solidarity-ukraine.ec.europa.eu/eu-sanctions-against-russia-following-invasion-ukraine/sanctions-energy_en; see also the timeline of measures adopted by the EU since 2002: https://finance.ec.europa.eu/eu-and-world/sanctions-restrictive-measures/sanctions-adopted-following-russias-military-aggression-against-ukraine_en#timeline-measures-adopted-in-2022-2023

[452] See: https://www.bruegel.org/dataset/russian-crude-oil-tracker

[453] See: https://www.bruegel.org/dataset/european-natural-gas-imports; and Financial Times, based on S&P Global Commodity Insights: https://www.ft.com/content/46d2f5a7-37ab-4196-bd00-754b9dfe7fb0

[454] On 5 November 2018 Gazprom and OMV signed an Amendment to the contract to increase gas supplies to Austria until 2040: https://www.omv.com/en/news/181105-gazprom-and-omv-sign-addendum-to-the-contract-to-increase-gas-supplies-to-austria

[455] See: https://energie.gv.at/hintergrund/import-von-russischem-gas

dependent. This high dependence on imports naturally entails supply risks that require an efficient system of crisis prevention and management[456].

According to a report by Euronews as of 8 May 2024[457], European Union countries kicked off negotiations on the next round of sanctions against Russia (package no 14), which for the first-time targets LNG. The proposal on the table breaks a long-held taboo in Brussels as Russian gas has been until now completely spared from any restrictions, despite repeated calls from Poland, the Baltics, the Nordics and, most passionately, Ukraine. But the plan, designed by the European Commission, falls short of an all-out import ban, as the bloc previously did with coal and seaborne oil.

Instead, it aims to prohibit trans-shipments of Russian liquefied natural gas (LNG), meaning the practice of re-exporting LNG that arrives at EU ports to other countries. The Centre for Research on Energy and Clean Air (CREA), an independent organisation that tracks Russian fossil fuels, estimates the bloc paid last year €8.2 billion for 20 billion cubic metres (bcm) of Russian LNG, representing 5% of the total gas consumption.

Belgium, France and Spain were the main entry points for Russian LNG. About 22% of these supplies were trans-shipped globally, with 8% (1.6 bcm) sent to other member states, CREA says, while the rest went to China, India, Turkey and other clients. Overall, the EU dependence of Russian gas has decline from 40% in 2021 to 8% in 2023.

This reflects the leading role played by Western companies in the sectors of cargo insurance and shipping services: last year, the maritime industry of G7 countries handled 93% of Russia's LNG exports, a transport valued at €15.5 billion.

The draft sanctions, sent to member states, aim to curb this lucrative business and curtail Russia's ability to move its prized supplies across the world. They also go after three LNG projects based in Russia that are not yet operational (Arctic LNG 2, Ust Luga and Murmansk).

However, the Kremlin has proved skilful in evading this story of constraints, as it has become painfully obvious in the price cap that the G7 and Australia had imposed on Russian seaborne oil. Despite the $60-per-barrel limitation, Russia has spent the last months selling its Urals oil at a price range of between $70 and $80.

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[456] See this statement by the Austrian Federal Ministry of Climate Action, Environment, Energy, Mobility, Innovation and Technology: https://www.bmk.gv.at/themen/energie/krisenmanagement/erdoel.html; Austria primarily imports crude oil from Kazakhstan, followed by Libya, Iraq, and Algeria. See also energy data from the International Energy Agency (IEA): https://www.iea.org/

[457] See: https://www.euronews.com/my-europe/2024/05/08/eu-countries-kick-off-talks-to-ban-re-exports-of-russian-lng

The blatant evasion has been credited to a so-called "shadow fleet" of aging, small-sized tankers that carry oil without Western-level insurance, making them harder to track.

Cracking down on this fleet is part of the latest round of sanctions, which a diplomat described as "quite substantive" as it also covers other economic sectors. If eventually approved, the sanctions will mark the 14th package since February 2022.

The energy crisis in Europe, triggered by the war in Ukraine, also has significant consequences for the location quality in Europe. A study by Prognos (2023) analyses the prices for the energy sources electricity and gas in an international comparison. A general conclusion is that the energy prices in Europe are much higher than in the United States or in Asian countries. Electricity costs 8.4 Euro cent/kWh) in USA, China, Canada, and South Korea. On average it is 19.9 in the EU. For the purchase of more than 150 Gwh the electricity prices vary heavily in the EU: from 32 Euro cent/kWh in Italy to 6 in Norway (22 in Austria, 14 in Finland, and 11 in Sweden). Prognos (2023) forecasts generally a decline in electricity prices up to 2030. A similar price gap is documented für gas prices. The gas price in Euro Cent/kWh ws 2 in 2022 and 1 in 2023. In the EU the gas price was 8.2. In the year 2030 the gas price could be lower in Europe (Germany 3.7), but it will be still lower in USA (1.5).

14.3.1 Ukraine's relationship with NAFTO

Since the outbreak of war with Russia, Ukraine has continued to seek closer ties with the United States, European Union, and NATO. This began with the NATO–Ukraine Action Plan in 2002[458]. In 2010, under President Viktor Yanukovych, Ukraine re-affirmed its non-aligned status and renounced aspirations of joining NATO. During the 2014 Ukrainian Revolution, Russia occupied Crimea and supported armed separatists in eastern Ukraine. As a result, in December 2014 Ukraine's parliament voted to end its non-aligned status, and in 2019 it enshrined the goal of NATO membership in the Constitution. At the June 2021 Brussels Summit, NATO leaders affirmed that Ukraine would eventually join the Alliance, and supported Ukraine's right to self-determination without interference. In late 2021, there was another massive Russian military buildup near Ukraine's borders. On 30 November, Russian president Putin said Ukraine joining NATO, and the deployment of missile defence systems or long-range missiles in Ukraine, would be crossing a red line. During the 2008 summit of NATO in Bucharest, Georgia was promised "future membership", but US president Barack Obama said

[458] See: https://en.wikipedia.org/wiki/NATO

in 2014 that the country was not "currently on a path" to membership. At the 2008 summit, Ukraine's desire to become a member of NATO was rejected, primarily by German Chancellor Angela Merkel and French President Nicolas Sarkozy, so as not to provoke Russia. Currently NATO recognizes Bosnia and Herzegovina, Georgia, and Ukraine as aspiring members[459]. The latest NATO-Ukraine Council in Chiefs of Defence format had a session on 16 May 2024[460]. Hence, NATO is indirectly involved in the Russia-Ukraine war.

In an interview, given to SkyNews on 29 November 2024[461], Ukrainian president Volodymyr Zelenskyy suggested a “hot phase” of Ukraine war could end in return for NATO membership if offered – even if seized land isn’t returned immediately. He has suggested a ceasefire deal could be struck if Ukrainian territory he controls could be taken “under the NATO umbrella” – allowing him to negotiate the return of the rest later “in a diplomatic way”. This is a response to reports saying one of US president-elect Donald Trump’s plans to end the Ukrainian war might be for Kyiv to cede the land Moscow has taken to Russia in exchange for Ukraine joining NATO.

14.3.2 EU-Ukraine relationship

The *EU-Ukraine relationship* started already in 2017 when Visa facilitation and readmission agreements entered into force. In September 2017 the Association Agreement and Deep and Comprehensive Free Trade Area (DCFTA) entered into force. Then, shortly, after the beginning of Russia’s war of aggression on 24 February 2022, Ukraine applied for EU Membership. In June 2022, the European Council granted candidate status to Ukraine[462]. Such countries must reform their national laws to align with Eu rules, regulations, and standards. In December 2023, the European Council decided to open accession negotiations with the Ukraine.

Under the title “EU Solidarity with Ukraine” the EU supports Ukraine with a comprehensive package of economic, social, and military aids[463]. This package amounts to EU 98.5 billion in overall support to Ukraine and Ukrainians. It consists of the following parts: EUR 17 billion made available to Member States to cater for the needs to people fleeing the war. EUR 32 billion

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[459] See: https://www.nato.int/

[460] See: https://www.nato.int/cps/en/natohq/events_225099.htm?selectedLocale=en

[461] See: https://news.sky.com/story/zelenskyy-suggests-hes-prepared-to-end-ukraine-war-in-return-for-nato-membership-even-if-russia-doesnt-immediately-return-seized-land-13263085

[462] Besides Ukraine, the following countries have EU candidate status: Albania, Bosnia and Herzegovina, Georgia, Moldova, Montenegro, North Macedonia, Serbia, and Türkiye. See the website of the European Commission, “EU enlargement“: https://european-union.europa.eu/principles-countries-history/eu-enlargement_en. For details on the EU-Ukraine relations, see: https://neighbourhood-enlargement.ec.europa.eu/european-neighbourhood-policy/countries-region/ukraine_en

[463] See: https://ec.europa.eu/commission/presscorner/detail/en/FS_22_3862

in military assistance for Ukraine under the European Peace Facility (EPF: EUR 6.1 bn) and by Member States individually. EUR 49.4 billion in financial and budget support and humanitarian assistance (EUR 12.2 bn from EU MS, EUR 37.2 bn in macro-financial assistance budget support, humanitarian, and emergency support, provided or guaranteed by the EU budget).

Because Russia blocked the Black Sea route for wheat shipments from Ukraine to the rest of the world, the EU set up "The EU-Ukraine Solidarity Lanes". The Solidarity Lanes were set out in May 2022 in order to ensure that Ukraine can export grain and other agricultural products, as well as import the goods it needs, from humanitarian aid to animal feed and fertilisers. According to Ukrainian customs registers, since May 2022 the Solidarity Lanes have enabled Ukraine to export about 122 million tonnes of goods, including 66 million tonnes of grain, oilseeds, and other related products, and to import around 45 million tonnes of goods it needs for a total estimated total value of €139 billion. Over €2 billion has been mobilised to scale up the Solidarity Lanes, including contributions by the Commission, the European Investment Bank, the European Bank for Reconstruction and Development, and the World Bank.

What are the facts if Ukraine would become a member of the EU? Well, with an area of 6203,628 km2 and a population of 33.4 million it would be geographically the largest country in Europe and in the EU. With its population size, it would belong to the middle-large countries, comparable to Poland (38.4 million). However, due to its large territory it is an agrarian country with a huge potential. In 2021, agriculture was the biggest sector of the economy. Ukraine is one of the world's largest wheat exporters. Nevertheless, it remains among the poorest countries in Europe with the lowest nominal GDP per capita (IMF data, 2025: 16 300 PPP dollars). The richest EU country, Luxembourg has a per capita income of 147 600 and the poorest, Bulgaria 37 900. On average, EU27 has a GDP per capita of 63 000 (at PPP dollars).

Ukraine's accession to the EU would have a serious impact on the EU budget (regional funding and cohesion politics as well as transfers within the framework of the CAP; see Busch and Sultan, 2023[464]). The Ukraine has a three times as much arable land (33 million hectare) than Poland 11 in Poland). Currently, France with EUR 65 bn gets the most subsidies in the framework of the CAP (within the MFF 2021-2027). Estimates by Busch and Sultan (2023, p. 8), indicate that the Ukraine would be eligible to get EUR 68 bn to EUR 79 bn (if the Ukraine were already member of the MFF 2021-2027). A similar picture results concerning the payments in the framework of EU's cohesion policy. Currently, in the MFF period 2021-2027

[464] See also Emerson (2023)

Poland will get under this title with EUR 75 bn the most cohesion transfers. The Ukraine's claims of cohesion means would amount to EUR 50 bn to EUR 62 bn.

Emerson (2023) in a similar study as those of Busch and Sultan (2023) also expresses similar concerns of a potential Ukrainian EU accession for the EU budget. However, he is not overly pessimistic. Of course, the costs will be significant for sure, but alarmist talk sometimes heard, that all member states will become net payers into the budget, is totally unfounded. There are control mechanisms capping both cohesion and agricultural expenditures.

Even with an optimistic assumption of accession in 2030, the full impact will not be felt until the 2040s, given the long transition periods for phasing in agricultural expenditures. By this time, many things will have changed, including catch-up towards the average EU income level by member states acceding since 2004, creating budgetary space for new and poorer member states. However, there remain big uncertainties over how the war in Ukraine will end and how reconstruction will be funded beyond the major commitments being proposed for the EU – i.e., from other G7 donors, the international financial institutions, and possibly Russia's frozen assets. However, overall, the budgetary dimension to Ukraine's possible accession looks relatively manageable.

In a recent study by the Kiel Institute for the World Economy, Binder and Schularik (2024) estimate the cost for Germany of not supporting the Ukraine. At 0.1% of GDP, German average annual military support for Ukraine since the beginning remains small relative to the size of the German economy and small also compared to previous German support during wars of self-defence (for example, during the first Gulf War in 1990-1991).

- A Russian victory in Ukraine would lead to substantially higher costs for Germany via (i) increased military spending, (ii) additional refugees, and (iii) the loss of trade and investment with Ukraine. For Germany, they estimate costs of 1% to 2% of GDP annually, about 10-20 times higher than current military support levels.
- Given the costs, it is in the German economic self-interest to maintain and even significantly increase support for Ukraine to avoid paying the much higher costs of a Russian victory.
- Game theory shows that a path to peace opens if the aggressor, Russia, recognizes that the war cannot be won by military means and the continued pursuit of military victory becomes too costly for the regime. Committed Western support will drive up the cost and shift the Kremlin's cost-benefit analysis.

14.4 Sanctions against Russia

The Russian invasion of Ukraine on February 24, 2022, has a history. Ukraine[465] is a country in Eastern Europe. It is the second-largest European country after Russia, which borders it to the east and northeast. It has a population of 33.4 million. It also borders Belarus to the north; Poland, Slovakia, and Hungary to the west; and Romania and Moldova to the southwest; with a coastline along the Black Sea and the Sea of Azov to the south and southeast. Kyiv is the nation's capital and largest city, followed by Kharkiv, Dnipro and Odesa. Ukraine's official language is Ukrainian; Russian is also widely spoken, especially in the east and south.

The former constituent republic of the Soviet Union since 1922, Ukraine gained independence in 1991 as the Soviet Union dissolved, and declared itself neutral. Russia had signed the Budapest memorandum in 1994 that said that Ukraine was to hand over nuclear weapons in exchange of security guarantees and those of territorial integrity. This agreement was criminally disregarded by Russia.

A new constitution was adopted in 1996. A series of mass demonstrations (November 2013 to February 2014), known as the *Euromaidan*, led to the establishment of a new government in 2014 after a revolution. Russia then in late February and early March 2014 unilaterally annexed Ukraine's Crimean Peninsula, and pro-Russian unrest culminated in a war in the Donbas between Russian-backed separatists and government forces in eastern Ukraine. It then launched a proxy war in the Donbas via the breakaway Donetsk People's Republic and Luhansk People's Republic. The first months of the conflict with the Russian-backed separatists were fluid, but Russian forces then started an open invasion in Donbas on 24 August 2014. Together they pushed back Ukrainian troops to the frontline established in February 2015, i.e. after Ukrainian troops withdrew from Debaltseve. The conflict remained in a sort of frozen state until the early hours of 24 February 2022, when Russia proceeded with an ongoing invasion of Ukraine. Russian troops control about 17% of Ukraine's internationally recognized territory, which constitutes 94% of Luhansk Oblast, 73% of Kherson Oblast, 72% of Zaporizhzhia Oblast, 54% of Donetsk Oblast and Crimea.

The continued military actions after the Crimea annexation and in the Ukrainian oblast in the East until the invasion of the Ukraine were a clear breach of the *Minsk agreements* (Minks I and II[466]) of 2014, which should guarantee a ceasefire. Since March 2014, the EU has progressively imposed restrictive measures (sanctions) against Russia, initially in response to

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[465] For the following, see: https://en.wikipedia.org/wiki/Ukraine
[466] See: https://en.wikipedia.org/wiki/Minsk_agreements

the illegal annexation of Crimea and Sevastopol and the deliberate destabilisation of Ukraine[467]. On 23 February 2022, the EU expanded the sanctions in response to the recognition of the non-government-controlled areas of the Donetsk and Luhansk 'oblasts' of Ukraine, and the ordering of Russian armed forces into those areas. After 24 February 2022, in response to Russia's military aggression against Ukraine, the EU massively expanded the sanctions. It added a significant number of individuals and organisations to the sanctions list and adopted unprecedented measures with the aim of weakening Russia's economic base, depriving it of critical technologies and markets, and significantly curtailing its ability to wage war.

In parallel, the EU sanctions regime concerning Belarus has been expanded in response to the country's involvement in Russia's aggression against Ukraine. This is in addition to the sanctions aimed at Belarus that were already in place. This sanctions regime consists of a range of financial, economic and trade measures.

The sanctions consisted of individual sanctions against Persons around Vladimir Putin, economic sanctions comprising financial sanctions, sanctions in the sectors energy, transport, and technology, changes in visa policy for diplomates. The one package after the other followed[468]. In the following packages also, Belarus was sanctioned. In the third package a SWIFT ban for seven Russian banks (enlarged to other, also Belarus banks followed) was issued. Trade restrictions followed concerning iron and steel and luxury goods. Bans on imports of wood, cement, seafood, and liquor followed. Export bans, targeting jet fuel, quantum computers, advance semiconductors, high-end electronics, dual-use goods etc. A ban on imports from Russia of crude oil and refined petroleum products were topics of the sixth package. On 23 February 2024, two years after the full-scale invasion and war of aggression against Ukraine, EU adopted its 13th package of individual and economic sanctions against Russia. The sanctions as of 22 March 2024 concerned sanctions over death of Alexei Navalny. On 24 June 2024, the EU put together the 14th package of sanctions against Russia. The new sanctions target high-value sectors of the Russian economy such as energy, finance, and trade, and make it increasingly difficult to circumvent EU sanctions. Further sanctions followed, the latest on 8 October 2024, when the EU adopts new sanctions regimes in response to hybrid threats from Russia.

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467 See: https://finance.ec.europa.eu/eu-and-world/sanctions-restrictive-measures/sanctions-adopted-following-russias-military-aggression-against-ukraine_en#timeline-measures-adopted-in-2022-2023; see also: For the "EU sanctions against Russia following the invasion of Ukraine", see: https://eu-solidarity-ukraine.ec.europa.eu/eu-sanctions-against-russia-following-invasion-ukraine_en; see also the EU Sanctions Map: https://sanctionsmap.eu/#/main

468 For a „Timeline - EU sanctions against Russia"; see: https://www.consilium.europa.eu/en/policies/sanctions-against-russia/timeline-sanctions-against-russia/

On 16 December 2024, the EU adopted the 15th sanctions package against Russia[469]. The focus of this package is to keep cracking down on Russia's shadow fleet, as well as combating sanctions' circumvention. It also includes substantial individual and entity listings related to the Russian military-industrial complex and increases the legal protection of EU Central Securities Depositories (EU CSDs). With this package, the EU has, for the first time, imposed 'fully-fledged' sanctions (travel ban, asset freeze and prohibition to make economic resources available) on various Chinese actors.

In the wake of Russia's full-scale invasion of Ukraine in 2022, one of the key measures taken by the international community was the freezing of Russian assets abroad. The assets frozen after February 2022 encompass a wide array of financial instruments and holdings. These include bank accounts, real estate properties, stocks, bonds, luxury assets, and various investments held by Russian entities and oligarchs. The funds in question also involve around €275 billion in central bank assets across the EU, US, Japan, and Canada. The total amount of Russia's frozen assets in the US is around €67bn[470].

The US sanctions, which exclude Russia from the international financial system, are likely to be a major blow to the Russian banking system. On 21 November 2024 the United States adopted sanctions to curtail Russia's use of the international financial system[471]. The sanctions affect 118 individuals and entities that operate in Russia's financial services sector and support the Kremlin's war effort. These targets include Gazprombank, Russia's largest remaining bank not previously blocked by the United States, dozens of additional Russian banks still maintaining ties to the international financial system, and individual Russian banking officials. The Department of the Treasury is also issued an alert describing sanctions risks related to joining Russia's System for Transfer of Financial Messages, which the Kremlin created and uses to evade sanctions. This action reaffirms the U.S. commitment to curtail Russia's ability to use the international financial system to conduct its war against Ukraine and disrupts Russia's attempts to make cross-border payments for dual-use goods and military materiel.

On 12 February 2024, the EU Council adopted a decision and a regulation clarifying the obligations of central securities depositories holding assets and reserves of the Central Bank of Russia that are immobilised as consequence of EU's restrictive measures. The Council decided in particular that central securities depositories holding more than EUR 1 million of assets of the Central Bank of Russia must account extraordinary cash balances accumulating due to EU

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[469] See: https://ec.europa.eu/commission/presscorner/detail/en/ip_24_6430
[470] See: https://www.euronews.com/business/2024/03/20/the-long-battle-over-russias-frozen-assets-heats-up
[471] See: https://www.state.gov/sanctions-to-curtail-russias-use-of-the-international-financial-system/

restrictive measures separately and must also keep corresponding revenues separate. In addition, central securities depositories shall be prohibited from disposing of the ensuing net profits. This decision paves the way for the Council to decide on a possible establishment of a financial contribution to the EU budget raised on these net profits to support Ukraine and its recovery and reconstruction at a later stage.

After a COREPER meeting on 8 May 2024, it seems that EU paves way for using windfall profits from Russian frozen assets to arm Ukraine[472]. The plan has been in the making since Kyiv's backers decided to freeze hundreds of billions of euros worth of assets in response to Russia's invasion of Ukraine in 2022 but EU countries had been cautiously waiting for legal certainty from the EU's institutions on how these assets can be used.

Under the agreed scheme, the bloc will be able to use windfall profits from immobilized Russian assets, worth up to EUR 3 billion per year, currently stuck in the Belgium-based clearing house Euroclear and other European depositories, primarily to finance the joint purchase of weapons for Ukraine.

"The money will serve to support Ukraine's recovery and military defence in the context of the Russian aggression", Belgium, which holds the EU's rotating presidency, said after the deal was made. The first pay-outs are expected to be made in July.

In the previous weeks, several EU member states had objected to the fact that the proceeds are subject to a 25% tax under existing Belgian fiscal rules, which was one of the last stumbling blocks to a deal.

The compromise move was made possible by an eleventh-hour compromise whereby Belgium said it would be ready, from 2025 onwards, to channel the tax revenue from the proceeds into a common fund for Ukraine, EU diplomats said.

In addition, Brussels also reduced the fee that Euroclear will charge for handling the frozen Russian assets to 0.3% from the initially discussed 0,5% after a push from Germany and France, EU diplomats said.

Additionally, the European Central Bank (ECB) would get a role in the management of the emergency buffer created with the fee to pay for lawyers in case of Russian litigation.

On 21 June 2024, the EU formally adopted an agreement that taps the windfall profits Euroclear makes by reinvesting the cash generated by those assets - such as coupon payments on bonds[473]. Western sanctions mean coupon payments and maturing assets cannot be sent to

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[472] See: https://www.euractiv.com/section/europe-s-east/news/eu-paves-way-for-using-windfall-profits-from-russian-frozen-assets-to-arm-ukraine/?_ga=2.194993966.2016442725.1715358293-53342799.1715358293

[473] See: https://edition.cnn.com/2024/05/24/business/russian-frozen-assets-g7-ukraine/index.html

Russia. Under the EU agreement, between EUR 2.5 and EUR 3 billion of these profits will be sent annually to Kyiv. The first payment will be made in July, with 90% earmarked for arms and military equipment. The split of funds will be reviewed each year starting in January 2025, with the option to shift spending toward rebuilding Ukraine's war-torn economy as its needs change.

In a separate initiative, G7 leaders meeting at a summit in June 2024 are expected to discuss a US-led push that would allow a group of countries to provide up to USD 50 billion in assistance to Ukraine, with a major part of the aid being repaid with the windfall profits from frozen Russian assets immobilised globally.

Not only the EU imposed sanctions against Russia, but also the majority of the Western World. Besides the neutral state Switzerland which fully takes part at the EU sanctions regime, the Leaders of the *G7 countries* (Canada, France, Germany, Italy, Japan, United Kingdom, USA; and EU) have issued sanctions against Russia in several statements and reaffirmed its solidarity with Ukraine. The first such statement dates on 24 February 2022, the day of the invasion of Ukraine by Armed Forces of the Russian Federation[474]. In the G7 Leader's Statement in Brussels, 24 March 2022 the say under point 7[475]: *"We underline our resolve to impose severe consequences on Russia, including by fully implementing the economic and financial measures we already imposed. We will continue to cooperate closely, including by engaging other governments on adopting similar restrictive measures to those already imposed by G7 members and on refraining from evasion, circumvention and backfilling that seek to undercut or mitigate the effects of our sanctions."* Also in the following statements, the G7 leaders have further renewed and deepened their commitment with Ukraine.

14.5 Safer together - civilian, and military preparedness

The EU and its Member States are facing increasingly multi-dimensional, complex, and cross-border threats and crises. Europe is facing a new reality, marked by increased risk and deep uncertainty. Since the start of this decade, the EU has experienced the most severe pandemic in a century (COVID-19), the bloodiest war on European soil (the Russian invasion in Ukraine 2022) since the Second World War, and the hottest year (2024) in recorded history. Therefore, for EU preparedness is urgent.

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[474] See: http://www.g8.utoronto.ca/summit/2022elmau/220224-statement-on-invasion.html
[475] See: http://www.g8.utoronto.ca/summit/2022elmau/220324-statement.html

Against this backdrop, Sauli Niinistö – former President of the Republic of Finland and Special Adviser to the President of the European Commission – was tasked by President von der Leyen, together with the High Representative for Foreign Affairs and Security Policy (HR/VP), to prepare a report assessing the complex challenges that the EU and its Member States face and to develop recommendations on how to enhance the EU's civilian and military preparedness and readiness for future crises[476].

The report by Niinistö (2024) underlines the need for an ambitious new approach to our preparedness and readiness. To this end, it presents around 80 recommendations for both short-term and medium to long-term actions.

According to the European Commission, true preparedness will require a more comprehensive and integrated approach. All relevant military and civilian crisis response actors need to be fully ready and capable to respond effectively and seamlessly, as part of a wider whole-of-government and whole-of-society approach. A higher level of preparedness is needed across the board, linking internal and external security, and drawing on both civilian and/or military means. More European cooperation this area is even more urgent after the re-election of Donald Trump as President of the United States. As mentioned earlier the new European Commission for the period 2024-2029 has also installed – for the first time – a Commissioner for Defence (and Space).

15. Conclusions

30 years ago, on 1 January 1995, Austria, Finland, and Sweden joined the EU. Joining the EU was not a one-off, shock-like experience. On the contrary, the three countries were already linked to the EU through several processes before. Above all, the FTAs of 1973 put an end to the integration policy dichotomy of the 1960s (EFTA versus EC). After separation with customs walls, there was unification with tariff dismantling. By mid-1977, the FTAs of 1973 had created a large free trade area - at least for industrial and commercial goods - between the EU and EFTA. The EEA in 1994 led to further deepening, which was completed with EU accession in 1995.

Austria, Finland, and Sweden share several similarities as small-open economies and have a comparable history of EFTA-EU integration since the Post-War II era. Of the three, *Sweden* is relatively the largest country with 10.6 million inhabitants, followed by *Austria* (9.2) and *Finland* (5.6). *Sweden* is also the largest country in terms of economic strength, measured by

[476] See: https://commission.europa.eu/topics/defence/safer-together-path-towards-fully-prepared-union_en

nominal GDP at PPS (492 bn), followed again by *Austria* (442) and *Finland* (239). As a result, *Austria* was recently (in 2025) the richest country with a GDP per capita of 48169 (at nominal PPS), followed by *Sweden* (46262) and *Finland* (42370). In all three countries growth of real GDP declined in the last 30 years of EU membership if compared with a quarter of a century ago. In the 30 years of EU membership *Sweden* with an average growth rate of real GDP of 2.2% performed the best of the three EU Member States, followed by *Finland* (+1.8%) and *Austria* (+1.6%). A first look at the map of Europe makes it clear that Austria, which lies at the heart of the EU with six EU MS as neighbouring countries, should naturally benefit the most (primarily via trade) from EU membership and being a member of EU's Single Market. Geography, on the other hand, does not play as big a role for Finland and Sweden as it does for Austria, because they only have themselves as direct neighbours and two other EU MS as indirect EU neighbours.

This relative economic performance of the three countries contrasts with the results of the numerous studies examining the economic impact of their EU membership. They consistently identify Austria as the primary beneficiary in terms of GDP growth and overall welfare improvements. The ex-ante studies are not very informative because there are only a few. However, the ex-post EU integration studies give a clear picture about the ranking of which of the three countries is the winner of EU membership. Out of 22 ex-post EU integration studies *Austria* was placed in 18 cases at first place (82%). Only in three studies Austria was ranked second (13%) and in only one study (5%), Austria was at the third rank. In contrast, *Finland* was first in three cases (14%) of the total number of studies, in eight cases at place two (36%), and eleven places (50%) at place three. In *Sweden*, the third place dominates with eleven cases (50%) of all studies, in nine cases (41%) it took place two and only in two cases Sweden was first (9%).

These findings primarily stem from evaluations of EU membership based on trade integration. Notably, Austria had already established substantial trade ties with the existing EU as an EFTA member, surpassing Finland, and Sweden in this regard. *Austria* could increase its intra-EU export share of 63.5% of total exports in 1994 to 68.8% in 2025. In *Sweden*, on the other hand this share fell from 56% to 54.5%. *Finland's* intra-EU export share rose only very slightly from 54.6% to 56.9%. The EU's extensive enlargement, commencing in 2004 with the accession of Eastern European countries, further boosted Austria's trade share with the EU. Conversely, Finland experienced a negative trade shock due to the collapse of the USSR.

Contrasting this picture of relative gains from EU membership with the overall macroeconomic performance of the three countries, it becomes evident that the Scandinavian

countries, particularly Sweden, have outperformed Austria since 1995. This could mean that the Scandinavian countries have benefited more from other advantages of EU membership than just from greater trade integration into the EU single market. And is it the other way around for Austria? This insight could help to explain part of the EU integration puzzle. The puzzle arises from the fact that although the majority of integration studies conclude that Austria has benefited most from EU membership, the Austrian population is much less likely than the Scandinavian countries to believe that EU membership is a good thing or that it benefitted from it. Or one could argue that the better overall economic performance of e.g. Sweden is due primarily to non-EU stimulating factors (better national policy) than Austria which on the other hand would perform even worse than it did without EU membership.

Anyhow, this study seeks to unravel the puzzle by employing a comprehensive range of analytical tools and multi-indicator comparisons to evaluate the economic performance of the three countries after EU membership. The research reveals that relying solely on "trade-related" integration effects can be misleading. It is crucial to also consider non-trade factors such as productivity and non-economic elements to accurately assess the prosperity brought about by EU integration. Ultimately, countries join the EU not solely to thrive economically, but also to contribute to the construction of a better Europe that extends beyond mere prosperity.

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