



Benefits and Dangers of EU Enlargement^{*}

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Abstract. A new macroeconomic evaluation of EU enlargement is undertaken with a world macroeconomic model taking into account all possible integration effects: trade effects, Single Market effects, factor movements (FDI, migration) and the costs of enlargement. Due to the differences in size of the regions involved, on average the CEEC – measured in terms of real GDP – will gain around 10 times more from enlargement than the EU. Hungary and Poland can increase their real GDP by around 8 to 9 percent over a 10-year period, the Czech Republic gains a little bit less (5 to 6 percent). The EU on average would gain around 0.5 percent of real GDP over a 6-year period. Although, on average enlargement is a win-win game, the impact is quite different in the separate EU member states, with Austria, Germany and Italy gaining the most and losses for Spain, Portugal and Denmark. Hence, EU enlargement may not only be beneficial but might be a risky undertaking. Due to the regional different impact, enlargement acts like an exogenous shock leading to asymmetric disturbances in the EU. This could pause the process of business cycle synchronisation and might impair monetary policy in Euroland at the beginning of the enlargement process. A two-step integration of the CEEC into the EU – first the participation in the Single Market and only later into the EMU – is therefore preferable under the aspect of macroeconomic stability in Euroland.

Keywords: EU enlargement, European integration, model simulations, EMU

JEL codes: F020, F150, C530

I. Introduction

The European Council in Nice (December 2000) has paved the way for the enlargement of the European Union (EU). With the institutional reform (implemented in the Nice Treaty) the EU is now ready for enlargement up to 27 countries, although the Irish ‘No’ to the Nice Treaty on 7 June 2001 could delay its ratification in the EU. Nevertheless, the Nice Treaty represents an important of a series of steps towards enlargement. At the European Council summit in Copenhagen (June 1993) the Union invited the Central and Eastern European countries (CEEC) to enter the EU and formulated the famous three accession criteria (democracy, market economy, *acquis communautaire*). In early 1998, accession negotiations started with

^{*} This work is based primarily on earlier simulations of the macroeconomic impact on EU enlargement by Breuss (2001).

the first group of countries (the 'Luxembourg group': Czech Republic, Estonia, Hungary, Poland, Slovenia and Cyprus). In early 2000, negotiations were also opened with the rest of the candidate countries (the 'Helsinki group': Bulgaria, Latvia, Lithuania, Slovakia, Romania and Malta).

After the reforms of the common agricultural policy (GAP) and the structural policy in the Agenda 2000, finally, the institutional reform makes the EU fit for enlargement. The preparedness of the 12 candidate countries (10 CEEC plus Cyprus and Malta) is permanently evaluated during the ongoing negotiations (acquis screening on the basis of 31 chapters) according to the 'road map' agreed upon at the Nice summit and is documented by the European Commission in its annual progress reports. Turkey has been designated as an official candidate country on the European Council in Helsinki (December 1999) although negotiations have not yet begun. According to the 'road map' accession negotiations should be finished at the end of 2002. In 2003 the accession treaties must be ratified by all EU member states and the newcomers. The heads of states and governments on their Laeken European Council meeting in December 2001 announced that 10 candidate countries (all CEEC less Bulgaria and Romania plus Cyprus and Malta) could become EU members as early as of 2004.

EU enlargement is not only a project with a world political dimension (peace in Europe, unification of East and West, EU transforming into a world power) it will also have far-reaching economic implications. There are already some studies in the literature, which either analyse the potential welfare effects of enlargement for the EU and the CEEC on a global scale (e.g., see Brown et al., 1997 or Baldwin et al., 1997 and Lejour et al., 2002 with world CGE models; Neck et al., 1999 with a world macro model; Breuss, 2000b with a calibrated EU-CEEC growth model; EU, 2001d with growth scenarios for CEEC and their macroeconomic impact on EU-15, simulated with the QUEST-II macro model) or for individual countries (for Austria with a macro model, see Breuss and Schebeck, 1999; Keuschnigg and Kohler, 1999 with a CGE model; for Germany, see Keuschnigg et al., 1999 with a CGE model; for a survey of model simulations, see Breuss, 1999). The shortcomings of all these calculations are either that they did not include all possible integration effects which one can expect in case of EU enlargement as a specific kind of regional integration of a rich EU region with a poor CEEC region, and on the other hand that they mostly analysed the consequences only for the blocks EU and CEEC but not for all countries involved in this enlargement process.

The present new estimation of the macroeconomic effects emanating from the process of EU enlargement tries to remedy these shortcomings. Not only that all possible effects of this specific kind of regional integration are considered, but also their consequences for the old EU member states and the new possible members are analysed explicitly. The work is done by simulations with a world macro model (the Oxford Economic Forecasting – OEF World Macroeconomic Model). The OEF World Macroeconomic Model allows to analyse explicitly the effects for 13 EU countries (besides other large OECD countries) and three CEEC (Czech Republic,

Hungary, Poland) and Eastern Europe as a bloc. As far as the enlargement timing is concerned it is assumed that enlargement will take place in 2005. In our estimation three CEEC (Czech Republic, Hungary and Poland) will be dealt with explicitly. These three countries account for 2/3 of CEEC-10 absolute GDP. Their GDP per capita, however is higher than those of CEEC-10 by around 15 percent. Hence, the largest part of the CEEC-10 economies is covered by our analysis.

This study deals on the one hand with the benefits of EU enlargement in terms of real GDP growth for old and new EU members and on the other hand with possible dangers connected with merging a rich block of economies which are already more or less harmonised with a block of poor economies still in transition. According to the official doctrine the process of EU enlargement will take place in a two-step procedure: first, the new member countries enter the EU Single Market; only in a second step they will become members of the Economic and Monetary Union (EMU) of the EU. This process of 'flexible integration' could contribute further to a weakening of the EU. Whereas at present 12 out of 15 EU member states are in Euroland, after the first step of enlargement we will have a majority out of Euroland (15 out of 25). In this study we firstly model and simulate explicitly the possible integration effects of entering of new EU members into the Single Market. Based on the outcome of this exercise, secondly, we analyse the implications for the macroeconomic stability in Euroland. When the enlargement leads to different impacts in GDP growth as well as in inflation in the incumbents of Euroland then the macroeconomic stability could be endangered. It turns out that enlargement is not only about trade and growth potentials, but also about redistribution of income of labour market winners and losers. Because of the different macroeconomic impact in the EU member countries (real GDP, prices, real exchange rates, current account), enlargement can also be interpreted as a potential external shock hitting the widely harmonised EU asymmetrically and hence introducing new disturbances into the EU.

II. The OEF World Macroeconomic Model

The OEF World Macroeconomic Model (see OEF, 2000) is a traditional Mundell-Fleming type macro model with the standard demand and supply equations. Most of the equations consist of estimated parameters. Whereas the functional form for equations is left the same across countries, the estimated parameters differ. A typical Oxford country model consists of equations for four blocs: (1) the demand side, consisting of the goods market: consumption, investment, imports and exports, the money market: money balances, long bond rates, exchange rates; (2) the supply side, consisting of capital accumulation: capital stock, non-residential investment, real interest rates, labour market and the *nairu*: labour supply, participation rate, natural rate of unemployment, natural employment level, potential output, output gap, employment, average earnings, prices: gdp deflator, import prices, consumer prices; (3) government policy, consisting of monetary policy (in Euroland done by

the ECB): Talyor rule; fiscal policy (taking into account the Stability and Growth Pact – SGP – solvability constraints): government spending is exogenous; and (4) the rest of the world: world trade and world prices. The Oxford model consists also of a special section for the financial market and special features for the emerging market economies (risk premia). In the long run, each of the economies behave like the textbook description of a one sector economy under Cobb-Douglas technology in equilibrium.

The ‘core’ Oxford World Model comprises 24 country models together with six trading blocs. In addition, there are new 14 ‘emerging market’ country models. The country models are fully interlinked via trade, prices, exchange rates and interest rates, with the blocs completing all the world coverage. For our purpose, the EU consists of 13 explicit country models and the CEEC covers three country models for the Czech Republic, Hungary and Poland and the bloc Eastern Europe (consisting of the countries Bulgaria, Czech Republic, Hungary, Kazakhstan, Poland, Romania, Russia, Slovenia and Ukraine).

As a baseline for our calculations, the latest 10-year forecast of Oxford Economic Forecasting is used, assuming no enlargement and an adaptive economic policy stance, oriented on price stability in Euroland and fiscal discipline according to the Stability and Growth Pact targets (zero budget balance in the medium run). All members of Euroland have the same interest rates. It is assumed that accession of the three CEEC (Czech Republic, Hungary and Poland) takes place in 2005.

III. Integration Effects of EU Enlargement

The integration effects always depend on the degree of integration. In case of EU enlargement the new members will enter into the highest stage of economic integration in the EU (customs union, Single Market and lastly Economic and Monetary Union (EMU)). As far as the procedure of enlargement is known, it is realistic to assume a two-step procedure: first, the new members will enter the EU on the level of the Single Market. Only in a second step, the new members will participate in EMU (see EU, 2001b). Entering into Euroland right at the beginning is neither possible (because most of the candidate countries do not yet fulfil the convergence criteria), nor desirable. The following estimations refer therefore to the implications of entering into the Single Market of the EU.

Therefore, we have to deal with the standard effects of regional integration (see Baldwin-Venables, 1995) plus some specific aspects in case of EU enlargement:

- *Trade effects*: Cost savings via abolition of existing import tariffs and of trade costs;
- *Single market effects*: Improvement in efficiency and more price competition;
- *Factor movements*: Foreign direct investment (FDI) from the West to the East; labour migration in the other direction;
- *Costs of enlargement for the old EU members, transfers to the new EU members (CEEC)*.

EU enlargement is a project of regional integration with several asymmetries. On the one hand a bloc of rich countries (EU) integrates a bloc of still poor countries, and on the other hand a large bloc integrates a small one. At present, all candidate countries are poor compared with the EU. On average, their GDP per capita (CEEC-10) in PPP terms lies around 40 percent of the EU (see Table I). The three CEEC which are dealt with here explicitly (Czech Republic, Hungary and Poland) are around 15 percent richer than CEEC-10. The absolute GDP in PPP terms of CEEC-10 is around 10 percent of the EU, measured at current prices it represents about 5 percent of the EU-15 GDP. The GDP of the CEEC-3 bloc amounts to 2/3 of CEEC-10. Labour productivity of CEEC-10 is also only 40 percent of the EU. The share of agriculture is four times higher than those of the EU. Monthly wages are on average only 35 percent of those of the EU. Trade with the EU is much more important for the CEEC than trade with the CEEC for the EU at a proportion of nearly 1:20. Austria (export shares with the CEEC-10 13.3 percent, import share 9.4 percent), Germany (8 percent/8.5 percent), Greece (8.8 percent/3.5 percent), Finland (7.6 percent/4.1 percent), Italy (5.4 percent/4.2 percent) and Sweden (4.3 percent/4.1 percent) are those countries which trade most intensively with the CEEC-10. The integration of a group of highly developed economies with a group of countries which are still in the process of transition determines not only the trade flows, but also induces factor movements. Although at a first glance EU enlargement is similar to the NAFTA integration, participating in the Single Market program and lastly in the EMU is of course a much higher level of integration than the American counterpart. Due to the fact that the size of the new member countries is quite small compared to EU-15, the derived impact of their own development on the present Union is always likely to be small.

1. TRADE EFFECTS

The EU has concluded Europe Agreements (EAs) with 10 CEEC. That implies that an asymmetric tariff reduction takes place in trade between the EU and the CEEC. Since 1997, the EU has eliminated practically all tariffs (exceptions are agricultural and sensitive products) on imports from the CEEC. The CEEC will do the same in the year 2002. Joining the EU in 2005, the CEEC will enter into the customs union of the EU (Common External Tariff and Common Commercial Policy) and by participating in the Single Market of the EU border controls will be abolished (reduces trade costs). As the exact cost savings of the elimination of border controls were never exactly recorded, in the literature the size varies between 5 percent (e.g., Kohler, 2000) and 10 percent (Baldwin et al., 1997). Hoffmann (2000) mentions border costs before the completion of the single market of 1.7 percent of total exports in the EU. Here we assume that the remaining import tariffs in the CEEC until the year 2002 will amount to 5 percent. The reduction of trade costs in the year of accession in 2005 are also assumed to be 5 percent. Whereas the elimination of

Table I. The dimension of EU enlargement: EU and CEEC, 1999

		EU-15	CEEC-10	CEEC-3	CEEC-10 EU-15 = 100	CEEC-3 CEEC-10 = 100
<i>Structural indicators:</i>						
Population	Mio.	376	105	59	27.83	56.41
Dependent employment	1.000 persons	133132	27842	15665	20.91	56.27
Employment total	1.000 persons	157244	42239	24216	26.86	57.33
GDP	bn. PPP (Euro)	7962	831	539	10.44	64.88
	bn. Euro	7964	341	240	4.28	70.25
GDP per capita	PPP (Euro)	21182	7946	9139	37.51	115.02
	Euro	21188	3262	4063	15.40	124.55
GDP/employment (labour productivity)	PPP (Euro)	50637	19676	22266	38.86	113.16
	Euro	50650	8078	9898	15.95	122.54
Monthly gross wages	PPP (Euro)	1987	714	837	35.91	117.37
	Euro	2007	301	375	14.98	124.58
Agricultural sector	% of GDP	1.70	7.20	4.30	423.53	59.72
	% of employment	5.10	16.10	10.10	315.69	62.73
FDI inflows	Mio. USD ^a	215864	16599	12968	7.69	78.13
	% of GDP	2.54	4.56	5.07	179.49	111.18
<i>Foreign trade:</i>						
Exports to CEEC	Mio. USD	99088				
	% of total exp.	4.58				
	% of GDP	1.17				
Imports from CEEC	Mio. USD	82794				
	% of total imp.	3.94				
	% of GDP	0.97				
Exports to EU	Mio. USD		80645	56955		70.62
	% of total exp.		68.50	71.90		104.96
	% of GDP		22.15	22.27		100.52
Imports from EU	Mio. USD		62.14	66332		70.54
	% of GDP		25.83	64.56		103.89
			94036	25.94		100.41
<i>Migration:</i>						
5 CEEC in 2005	persons	200000	-200000	-143700		71.85
5+5 CEEC in 2007	persons	210000	-210000	-72100		34.33
<i>'Costs of enlargement': Transfers from EU budget, net:</i>						
Cum. 2000–2010	bn. Euro	-190	190	134		70.70
	% of GDP	-0.15	2.10	2.48		118.10
in 2010	bn Euro	-39	39	27		69.77
	% of GDP	-0.30	3.68	4.35		118.21

^aEU-15: 1998.

Sources: Own compilation with data from Eurostat, OECD, Wifo, WIIW.

the remaining tariffs leads to welfare losses in the CEEC (domestically captured rents), the reduction in trade costs does only influence trade flows (trade creation).

Model inputs: The implementation of the trade effects belongs to the biggest challenges (see Kohler, 2000). In order to correctly measure the trade effects in case of enlargement, one should dispose of bilateral trade equations connecting the 15 EU member states with the 10 CEECs. As a rule, no world model – either CGE or macro – does consist of such a detailed trade network. As a compromise, the bilateral trade effects are calculated outside the model by using simple (trade weighted) import equations with the assumption of an average price elasticity. The trade effects of the elimination of tariffs (in the CEEC-3) and the trade costs, both in the EU and in the CEEC-3 are estimated and the values imputed into the OEF model equations for exports only because the export-led increase in real GDP generates additional imports.

Additional to the price effects due to the elimination of tariffs and the reduction of trade costs, the income effects in a trade-linked world model (spill-overs) lead to additional income effects not usually captured in CGE models.

Model results: Due to the fact that nearly 70 percent of the CEEC exports are sent to the EU, but only 4 percent of total trade of the EU is transacted with the CEEC, we get asymmetric trade effects (see Table I). They are larger for the CEEC than for the EU.

The partial trade effect leads to an increase of real GDP in the EU of roughly 0.05 percent cumulative over the period 2005 to 2010. Austria and the Netherlands would gain the most (cumulative of around 0.25 of a percentage points of real GDP; France, Ireland and Italy around 0.1 to 0.2 percent), some countries (Spain, the United Kingdom) would lose. The trade-induced GDP effect in the CEEC is nearly 10 times larger. In Hungary, real GDP would be stimulated by around 4.5 percent (cumulated over the period 2001 to 2010), in Poland and the Czech Republic somewhat half of that. The elimination of the remaining import tariffs will result in lost budget revenues of about 1 to 1.5 percent of GDP. The reduction of trade costs (Single Market entrance) leads to trade creation in the EU and the CEECs without directly deteriorating the budget. The trade effects do not imply major disturbances in other macroeconomic variables: generally, prices and employment increase, unemployment rates decrease. Only in the CEECs the budget and the external positions deteriorate, both the trade and the current balance (see Table II).

2. SINGLE MARKET EFFECTS

Enlargement will contribute to a widening of the European Single Market. This will result in an increasing competitive pressure for the accession countries but also – to a lesser degree – for the present members of the EU. Taking the experiences with the Single Market programme as a benchmark, this should result in an in-

Table II. Integration effects of EU enlargement: Real GDP

	Trade effects		Single Market effects		FDI flows to CEEC		Migration to EU		Costs of enlargement		Total effects	
	A	B	A	B	A	B	A	B	A	B	A	B
<i>Cumulative deviations from baseline in %</i>												
Germany	0.15	0.01	0.50	0.37	-0.07	-0.12	0.06	0.23	-0.01	-0.01	0.63	0.48
France	0.02	0.12	0.21	0.27	-0.10	-0.21	0.03	-0.03	-0.05	-0.04	0.10	0.11
Italy	0.09	0.16	0.46	0.49	-0.04	-0.09	0.02	-0.03	-0.03	-0.03	0.50	0.50
UK	0.01	-0.06	0.22	0.19	-0.01	0.02	0.03	0.05	-0.02	-0.02	0.24	0.18
Spain	-0.06	-0.11	0.48	0.37	-0.11	-0.41	0.04	0.05	-0.08	-0.07	0.28	-0.18
Netherlands	0.08	0.17	0.72	0.31	-0.08	-0.21	0.05	-0.08	-0.06	-0.04	0.71	0.15
Belgium	0.06	0.09	0.31	0.40	-0.06	-0.21	0.03	-0.02	-0.01	-0.01	0.33	0.26
Sweden	0.04	0.06	0.65	0.04	-0.06	-0.16	0.07	-0.02	0.00	0.00	0.69	-0.07
Austria	0.20	0.14	0.59	0.64	-0.09	-0.29	0.13	0.16	0.00	0.01	0.83	0.66
Denmark	0.07	0.07	0.35	0.10	-0.07	-0.21	0.02	-0.05	-0.01	-0.02	0.35	-0.11
Finland	0.07	0.08	0.52	0.55	-0.09	-0.33	0.05	0.02	-0.02	-0.02	0.53	0.31
Ireland	0.07	0.20	0.64	0.77	-0.14	-0.40	0.05	-0.05	-0.15	-0.13	0.47	0.40
Portugal	0.04	0.12	0.68	-0.12	-0.09	-0.14	0.05	-0.12	-0.05	0.05	0.63	-0.21
EU-13	0.07	0.05	0.40	0.33	-0.07	-0.16	0.05	0.06	-0.03	-0.03	0.42	0.26
Poland	1.95	2.47	1.23	2.07	0.21	0.45	0.02	-0.12	1.87	3.15	5.26	8.02
Hungary	3.95	4.20	1.58	1.25	0.32	0.81	0.03	-0.09	1.45	2.23	7.32	8.40
Czech Republic	1.79	2.84	1.02	0.54	0.14	0.37	-0.03	-0.08	1.10	1.98	4.03	5.65
Eastern Europe ^a	0.94	1.23	0.53	0.62	0.08	0.19	0.01	-0.04	0.61	1.08	2.16	3.07

^a Eastern Europe: Bulgaria, Czech Republic, Hungary, Kazakhstan, Poland, Romania, Russia, Slovenia and Ukraine.

A = average of 2005/2006; B = average of 2008/2010.

Source: Own simulations with the OEF World Macroeconomic Model.

crease of productivity (exploiting economies of scale) and also in a decrease of the price levels (via decrease in mark-ups). Together, this should increase the growth potential in the CEEC as well as in the EU. In theory and in CGE models, such effects are dealt with the theory of monopolistic competition (of the Dixit-Stiglitz type; economies of scale, product variety, etc.). In macroeconomic models Single Market effects are captured by shocks to productivity and/or decreases in mark-ups (or an immediate decrease in the price levels). Here, we implement Single Market effects by an increase in efficiency (economies of scale) and by a decrease of consumer prices (a methodology, similarly applied when estimating the Single Market program by Catinat et al. (1988) separately, although in practice both phenomenon are interwoven.

Model inputs (a) Productivity shock – improvement in efficiency: We assume that the productivity shock and the price competition when entering the EU will be similar or even stronger for the CEEC than it were when the old EU members created the Single Market in 1993. As a benchmark we take the ex-ante expectations when creating the Single Market (Catinat et al., 1988) as well as ex-post experiences in single countries (e.g., in Austria, see Breuss, 2000a). This implies that for new members of the EU the productivity shock amounts to around 2 to 3 percent in the medium run. The initial shock to labour productivity in the CEEC is 1.5 percent, increasing to around 3 percent after 6 years.

In the present EU member states we assume in general a much weaker productivity shock and in particular we implement the so-called ‘Casella effect’. Casella (1996, p. 389) postulated that ‘if economies of scale imply that firms located in large countries enjoy lower costs, then the gains from enlarging the bloc will fall disproportionately on small countries, because the entrance of new members diminishes the importance of the domestic market and improves the small countries’ relative competitiveness’. Hence, we assume for the present small EU members an initial productivity shock of around 0.75 percent, decreasing over time and for the large EU countries one of only half of that size.

Model results: Due to the assumed asymmetry in the productivity shocks, real GDP develops better in small EU countries: Belgium, Austria, Finland and Ireland will see an increase of 0.5 percent, cumulated until 2010, although with a decreasing speed. Large EU countries will exhibit a GDP increase of only half of that size. However, increased labour productivity has a trade off on the labour market: employment decreases, unemployment increases. Competitiveness, measured by the real exchange rate (relative unit labour costs) improve. Prices decrease and hence also nominal GDP declines somewhat with negative consequences for the budget. Improved labour productivity implies also a redistribution of income from labour to capital.

Due to the higher productivity shock implemented for the CEEC-3 the macro effect described for the old EU members states are similar in structure, but much

larger in size. Real GDP increases of around 1 percent in the CEEC-3 (cumulated 2005 to 2010), although with a different time pattern in each of these countries (see Table II).

Model inputs (b) Price competition: The increase in price competition in an enlarged Single Market will be stronger in the new member states than in the old ones. Similar to the ex-ante expectations of the Single Market in 1993, we assume a decrease of the price level (measured with the CPI) of around 6 percent over 6 years (or 1 percent annually) in the CEEC-3. For the present EU members we assume a much weaker additional price competition and one which depends on the trade intensity with the CEEC. The price reductions are therefore calibrated according to trade weights, meaning that countries with more than 4 percent trade with the CEEC will be confronted with a price decrease of 0.5 percent annually, EU countries with less than 4 percent trade with the CEEC will see a price decrease of only 0.15 percent.

Model results: More price competition results in more demand and therefore in an increase of real GDP initially of around 0.5 percent in the EU countries with higher trade intensity with the CEEC, and around half of that effect in the other EU countries. The real GDP impact is similar initially in Poland and Hungary (namely around 1 percent) and only half of that size in the Czech Republic. Over time, the GDP effect remains high in Poland but declines in Hungary and the Czech Republic. The other macroeconomic performance is not influenced very much by this price competition shock (see Table II).

3. FACTOR MOVEMENTS

The four freedoms of the Single Market (free movement of goods, services, capital and labour) would imply that one deals with factor movement in connection with EU enlargement under the heading 'Single Market effects'. In most of the present studies, factor movements were either not considered at all or only partially. Therefore, both important factor movements (capital movements from the West to the East and labour migration from the East to the West) are analysed explicitly with the OEF World Macroeconomic Model.

Model inputs (a) FDI flows from the West to the East: Since the process of transition began in 1989, trade and foreign direct investment (FDI) have acted as the two main channels of integration. Over the last 10 years Hungary attracted most of the FDI inflows per capita (1764 US\$), followed by the Czech Republic (1447) and Estonia (1115). Poland – although attracting most of the FDIs in absolute terms – per capita only 518 US\$. The estimation for the future is taken from Gács (1999). Accordingly, the FDI inflows in the CEEC-3 should increase by around 1.5 percent of GDP. This would lead to capital accumulation as well as a renewal of the capital

stock and is one important candidate for improving the growth potential (see also Baldwin et al., 1997 in their less conservative scenario; most of their 18.8 percent real income increase are due to this effect). It is indisputable that the CEEC will get more FDIs when entering the Single Market of the EU (more security for foreign investors will lead to a reduction of the risk premia). However, it is more uncertain how to implement this factor movement on the side of the sender countries. Additional FDIs in the CEEC may reduce the investment potential in the EU (and/or in the rest of the world), or it has only indirectly a dampening effect via higher interest rates. Here we approach this problem via an increase of the short-term interest rate in Euroland by 0.05 percentage points at the beginning of the FDI process (already in 2003) up to 0.2 percentage points at the end of this process in 2010.¹ The reasoning behind is that additional capital demand in the EU will increase interest rates. This will indirectly crowd out investment in the EU countries.

Model results: As a consequence we get a similar result as in the case of labour migration. In the sender countries of the EU we see a slight decline of real GDP of around 0.1 percent at the beginning up to 0.2 percent at the end in the EU on average. Smaller countries will be hit stronger than large countries. In the CEEC we get a strong impulse for real GDP, strongest in Hungary with up to 1 percent, followed by Poland (+0.75 percent) and the Czech Republic (+0.5 percent). Increased capital movement after EU accession leads therefore to the result that the CEEC will gain a FDI (welfare) surplus, whereas the sender countries in the EU are confronted with a FDI (welfare) loss² (see Table II).

Model inputs (b) Migration from the East to the West: The hottest political potato connected with the enlargement debate is migration. Denied by the candidate countries that migration will happen at all, feared by the border states in the EU (Germany, Austria, the Scandinavian countries) that migration will disturb dramatically their labour markets when free movement of persons and therefore labour will be granted to the new members right from the beginning. Due to the large differences in wage levels (40 percent of the EU) could induce mass migration. Therefore, the border states of the EU plead for transitional arrangements in case of movement of persons.³

The migration scenario implemented into the Oxford model is based on the most recent estimations for the European Commission by Boeri and Brücker (2000; see also DIW, 2000). Assuming that all CEEC-10 join the EU in 2002, they find that 335.843 people would migrate from CEEC-10 to EU-15 in that year, of which the majority goes to Germany (65 percent or 218.430 persons) and to Austria (12.1 percent or 40.547 persons). Over time the inflow of migrating people will decline, in 2010 to 146.926 persons and in 2030 to 2.366 additional persons. Here we adapted these figures on the one hand in order to fit into our assumed time schedule for enlargement (2005 'Luxembourg group', 2007 'Helsinki group'), and on the other hand the figures had to be broken down in order to get the bilateral migration flows

from each of the CEEC-3 to all individual EU-15 member states. As a result, from the CEEC-3 in 2005 143.700 (to Germany 95.800; to Austria 17.650) persons will migrate to EU-15, declining to 72.100 in the year 2010 (Germany 48.000; Austria 8.820). Taking into account that around 2/3 enter the labour force we have finished the calibration of the migration scenario.

Model results: In conformity with theory (see Borjas, 1995) the model simulations with migration lead to the famous pattern of immigration surplus in the recipient countries (EU) and to migration losses in the sender countries (CEEC). Firms in the EU can produce more with more labour at lower wages. As a result real GDP increases – of course relatively strongest in Germany (+0.25 percent in 2010) and Austria (+0.15 percent) – and it declines in the CEEC-3 by around the same amount as Austria wins. Also measured by GDP per capita, in 2010 the immigration surplus is slightly positive in Germany (+0.2 percent) and Austria (+0.06 percent) because the immigrants only amount to 0.1 percent of total population in Germany and 0.2 percent in Austria at the beginning and their number will decline over time. As a consequence of the increase (decrease) of labour supply the unemployment rate goes up (down) initially in the EU (CEEC). Over time – also after the reduced migration flow – the disequilibria on the labour market vanishes. Migration has of course also to do with redistribution of income, in the recipient countries a shift from wages to profits and in the CEEC the other way round (see Table II).

4. THE COSTS OF ENLARGEMENT FOR THE EU – BENEFITS FOR THE CEEC

Beside the migration problem, the costs of enlargement is a potential cause for headache of EU citizens. As a starting point for the model implementation of the costs of enlargement by (in our case) three CEEC and its distribution on the present EU member states is the Agenda 2000, agreed upon by the heads of state and government at the special European Council in Berlin in March 1999. The Agenda 2000 includes a financial perspective for the period 2000 to 2006, assuming (technically) that the 'Luxembourg group' will join the EU already in 2002. Accordingly, the gross costs of enlargement (cumulative over the period 2000 to 2006, including also the pre-accession period costs) amounts to 80 billion Euro (or 0.13 percent of EU GDP, in the year 2006, 0.22 percent), subtracting the own resources which the 'Luxembourg group' has to contribute to the EU budget (1.27 percent of its GDP) we arrive at net costs of enlargement of around 60 billion Euro. This would be 0.1 percent of EU GDP (or in the year 2006, 0.17 percent).

Several adjustments have to be made, in order to fit the cost picture into our enlargement scenario. First, we have to extend the financial period to the year 2010.⁴ Second, it is necessary, to break down the average costs laid down in the Agenda 2000 for each EU member state and also to identify which transfers each of the three CEECs will receive over the simulation time period. Third, we have to adjust the costs to our time schedule (2005 accession of three CEEC, the rest will follow

in 2007). Lastly, the Agenda 2000 did not include the whole potential costs for the CAP (e.g., the direct support payments).^{5,6}

Model inputs: The Agenda 2000 excludes an increase of the own resources from the presently 1.27 percent of GDP. That means, that the costs of enlargement have to be brought up by the present EU member states by saving transfers in the CAP and structural funds area. The reform of these two policy areas already implies that those countries which were net receivers out of the EU budget will have to bear a higher burden as the so-called net payers. The Agenda 2000 has cut the transfers for structural policies much stronger than those for the CAP. That means that the so-called cohesion countries Greece, Ireland, Portugal and Spain will bear the highest burden. The calculation (adding to the costs for the CAP 80 percent due to direct support payments after 2006) results in cumulative net costs (already deducting the own resources of the CEEC) for enlarging by CEEC-10, cumulated over the period 2000 to 2010 of around 190 billion Euro (or 0.15 percent of EU GDP; in the year 2010 they would be around 40 billion Euro or 0.3 percent of EU GDP). The CEEC-3 we consider in our calculations explicitly cost 134 billion Euro over the same period or 0.11 percent of EU GDP (or 2.5 percent of CEEC-3 GDP). Whereas the burden of the costs of enlargement of the majority of the EU member states are below EU average (average 2005 to 2010, 0.17 percent of GDP), the cohesion countries have a higher cost burden: Portugal 1.5 percent of GDP, Greece 1 percent, Ireland 0.75 percent and Spain around 0.4 percent of GDP. Hungary and the Czech Republic will get transfers totalling to around 5.25 percent of GDP in 2010, Poland around 4 percent. This implies the ceiling of 4 percent of GDP in case of structural funds, agreed upon in the Agenda 2000. The costs and/or transfers are implemented into the Oxford model into three macro variables: in the current account balance with the full amount (deterioration in the EU countries, improvement in the CEEC), half of the amount in the national budgets (deteriorating in the EU, improving in the CEEC) and as a stimulus to infrastructure investment (dampening demand in the EU, stimulating demand in the CEEC).⁷

Model results: A deterioration in the budget balances and current account balances in the EU is accompanied with small decreases in real GDP in EU countries. In the CEEC-3, however, not only the budget and current account balances improve, but more importantly, the stimulus for infrastructure investment leads to higher real GDP. Real GDP would increase by around 3 percent in Poland, over 2 percent in Hungary and the Czech Republic, cumulated over the period 2001 to 2010. Such estimations are still at the cautious side. Recent evaluations of the Community Support Frameworks (CSFs) in the last two programming periods (1989 to 1999) indicate that the estimated effect (simulations with the HERMIN model) on growth was highest in Greece and Portugal, where the level of real GDP rose by 9.9 percent and 8.5 percent (cumulative over the period 1989 to 1999), respectively, over and above what would have been expected in the absences of assistance. The estimates

for Ireland (3.7 percent higher real GDP) and Spain (3.1 percent) over the same period are lower (see EU, 2001a, p. 131). The potential impact of the structural funds programme over the period 2000 to 2006, according to simulations with the HERMIN model is an additional cumulative increase of real GDP of 6 percent in Greece and Portugal, 4 percent in Eastern Germany, 2 percent in Spain and 1.5 percent in Ireland. After 2006 up to the year 2010 the GDP effects decline (see EU, 2000, p. 215). The QUEST II model of the European Commission (EU, 2000, p. 216) leads to much lower real GDP effects of the structural funds programme over the period 2000 to 2006: an additional increase of real GDP of 2.5 percent in Greece and Portugal over 10 years (2000 to 2009), of 1 percent in Spain and only 0.5 percent in Ireland. Our estimates for the CEEC-3 lie somewhat in the middle of these two extreme scenarios (see Table II).

5. OVERALL ENLARGEMENT RESULTS – MORE WINNERS THAN LOSERS

Due to the differences in the size of the economies involved in the enlargement process, the CEEC on average will gain around 10 times more from enlargement than the EU on average. After considering all possible integration effects involved in the enlargement project individually for all available countries in the Oxford World Macroeconomic Model, Hungary and Poland will increase their real GDP by around 8 to 9 percent over a 10-year period (inclusive the pre-accession period 2001 to 2004), i.e., nearly 1 percent higher yearly growth. The Czech Republic gains a little bit less (5 to 6 percent, or 0.5 to 0.75 percent higher yearly growth). The EU on average would gain around 0.5 percent more real GDP over a 6 years period (2005 to 2010), or less than 1/10 of a percentage point higher yearly growth. In particular those countries with close ties to the CEEC, like Austria, Germany and Italy will gain more than EU average; Austria's real GDP could be increased by 0.75 percent of GDP, or around 0.15 percent higher yearly growth. Also on average both sides – the EU, and more so the CEEC – will benefit from enlargement, for some countries in the EU, however, the costs surpass the benefits. In particular this is true for Spain, Portugal and Denmark. The slight positive GDP impulse initially vanishes in the medium run (see Table II and Figure 1). Although we analysed explicitly only CEEC-3, one can conclude that an enlargement by 10 or 12 countries might lead to slightly higher integration effects. As the three CEEC dealt with explicitly in our analysis cover around 2/3 of CEEC-10 GDP and exhibit stronger trade bonds with the EU than CEEC-10 on average we have captured the major part of the potential integration effects of EU enlargement.

When evaluating the total integration effects, one has to take into account a degree of caution. Not all partial effects are easily quantifiable. Whereas the quantification of EU transfers, FDI inflows and migration flows is relatively robust, others (Single Market effects – productivity and price competition) can only be evaluated with a wide margin of errors. This is important to know, if one looks at the different importance of the partial effects in the separate countries. The components of the

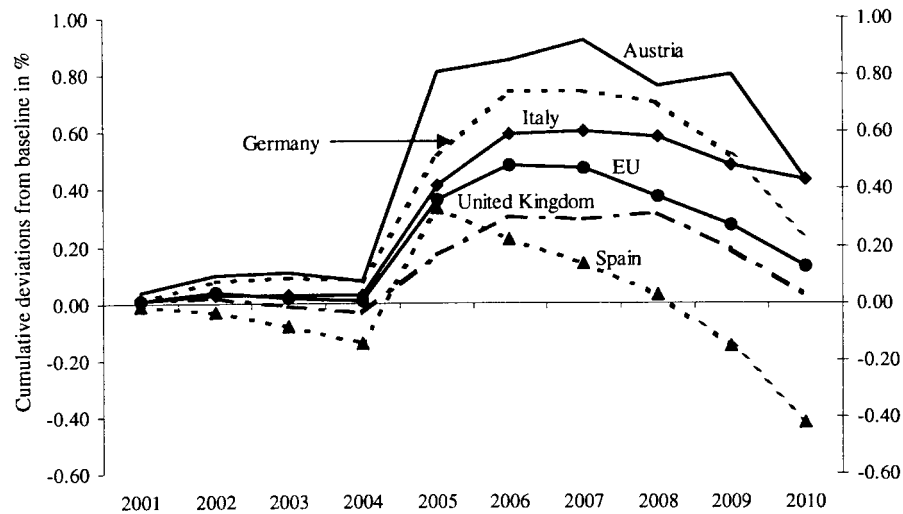


Figure 1a. Overall integration effects (real GDP) of EU enlargement: EU.

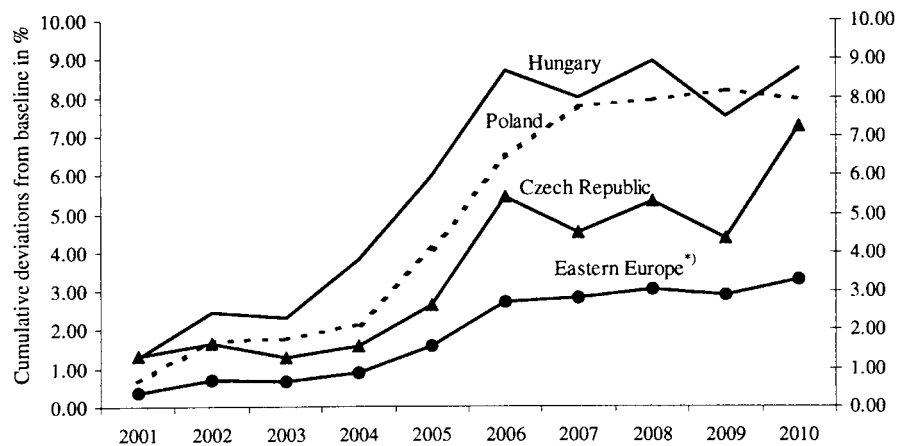


Figure 1b. Overall integration effects (real GDP) of EU enlargement: CEEC. (* Eastern Europe: Bulgaria, Czech Republic, Hungary, Kazakhstan, Poland, Romania, Russia, Slovenia and Ukraine.) Source: Own simulations with the OEF World Macroeconomic Model.

total integration effects have different weights in the East and in the West. In the case of Austria, the country which is probably the biggest enlargement winner, the Single Market effects account for 3/4 of the total GDP effects. Trade effects and immigration surplus are much less important. FDI outflows and costs of enlargement have negative impacts on GDP. In Hungary, for instance, trade effects and EU budget transfers have more importance than the Single Market effects and FDI inflows. In addition, for Germany and Austria the forecasted immigration surpluses might not be realised if they claim the full 7-year transition period in case of the free movement of labour.

Our results lie in the middle of those of former studies. They are quite similar to those of Brown et al. (1997) with a world CGE model. They get long-run real income gains for Czechoslovakia of 7.3 percent, for Hungary of 6.8 percent and for Poland 5.6 percent. The spill-over effect for the EU amounts to 0.2 percent. Neck et al. (1999) with a world macro model find only mild GDP effects for Eastern Europe (+1.6 percent) and practically no effects for the EU. Baldwin et al. (1997) with a world CGE model in their less conservative scenario are at the upper bound with real income increases of 18.8 percent in CEEC-7 in the long-run, but with only 0.2 percent income gain in the EU. Similar results are found in a calibrated two-bloc (EU-15 and CEEC-10) model (Breuss, 2000b) which includes trade effects, direct growth effects (via total factor productivity growth), FDI effects, migration effects and budgetary effects (costs of enlargement). The major growth impulse stems from the increase of TFP. As a result, real GDP increases in CEEC-10 by 17 percent after 18 years, those of EU-15 by 2.8 percent. A speedier integration of CEEC-10 would lead to more GDP and welfare in both regions. The European Commission in its mixed scenario and macro-model simulations study reaches similar results (EU, 2001d, p. 39) as we in our present study. First, for the future economic performance of CEEC-8, three growth scenarios are assumed (depending on initial conditions, macroeconomic policy framework, and on structural reform programmes). Accordingly, due to enlargement (assumed to start in 2005), annual GDP growth could be higher by 1.3 percent to 2.1 percent than in the 'no-join' baseline scenario. Given these growth impact in the CEEC-8 (positive demand impulse via trade) plus two supply impulses (migration effects and mark-up effects in the EU), simulations with the multinational macroeconomic model QUEST-II lead to small effects in EU-15 (between 0.5 percent and 0.7 percent cumulative GDP impact in the 2000–2009 decade). Lejour et al. (2001) with their CGE model ('WorldScan') simulate the long-run effects of EU enlargement for 4 EU countries and 2 CEEC plus three blocs ('South Europe', 'Rest EU' and 'Rest CEEC') and for 16 sectors, considering three integration effects (participation in the EU customs union, participation in EU's Single Market and migration). The results are similar to those of our study. Real GDP in 2020 will be higher by 0.26 percent in the EU-15 (Germany +1.6 percent, France +0.0 percent, United Kingdom +0.1 percent, Netherlands +0.2 percent; Sout Europe +0.2 percent, Rest EU +1.0 percent). In the CEEC real GDP will be considerable higher by 2020 (Hungary +9.6 percent, Poland +8.7 percent, CEEC-5 +2.1 percent, CEEC-7 +6.0 percent).

Whether the above simulated integration effects in connection with EU enlargement will be realised is a matter of political ability and growth-enhancing factors à la endogenous growth theory. Looking into EU history, after accession, some countries were more successful in realising the growth potentials than others. Since EU's first enlargement in 1973, only Ireland was a success story. Its real GDP per capita increased by 2.4 percentage points faster annually than those of EU over the period 1973 to 2000 (United Kingdom +0.01 percent, Denmark -0.4 percent). Greece's accession to the EU in 1981 was not successful. Its real GDP per

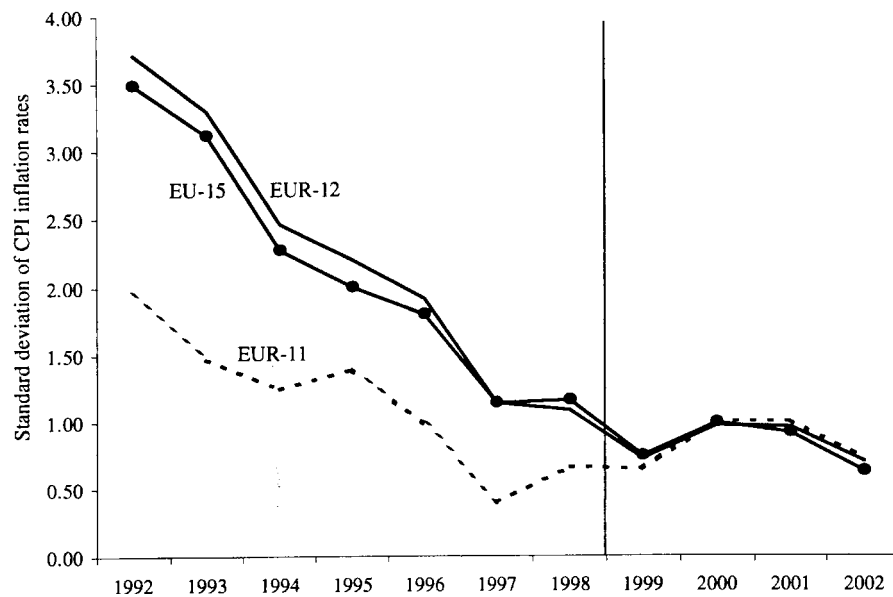


Figure 2a. Inflation convergence in the EU in the run-up phase to the EMU.

capita grew by 0.8 percentage points less annually than those of the EU between 1981 and 2000. A better performance was the second south enlargement in 1986. Portugal's (Spain's) real GDP per capita increased by 1.0 percentage points (+1.6 percentage points) faster than those of the EU since 1986. The growth performance of the new EU members after the last EU enlargement in 1995 was mixed: Finland's (Sweden's) real GDP per capita increased by 2.3 percentage points (+0.6 percentage points) faster annually than those of the EU since 1995 (Austria -0.04 percentage points). Econometric tests of integration effects according to the new growth theory show that European integration in the post Second World War period led to an increase of real GDP per capita in the EU by 0.4 percent annually (0.27 percentage points of which are due to GATT liberalisation and only 0.12 percentage points are due to EU integration proper; see Badinger, 2001).⁸

IV. A One or a Two-Step Integration? – Possible Dangers of Enlargement

There are two possible approaches for EU enlargement. One school – represented by independent researchers (like, e.g., Gros, 2000) – would prefer a one-step integration. They propose a participation in the Single Market and in EMU right from the beginning. Gros (2000) goes even further; he can imagine 'one euro from the Atlantic to the Urals' or – as a pendant to the Latin-American 'dollarisation' an 'euroisation' in Europe. Accordingly, the quick take over of the Euro would induce a strong pressure for stabilisation in the new member countries. This in turn could lead to a synchronisation of the business cycle *ex post* and hence could create

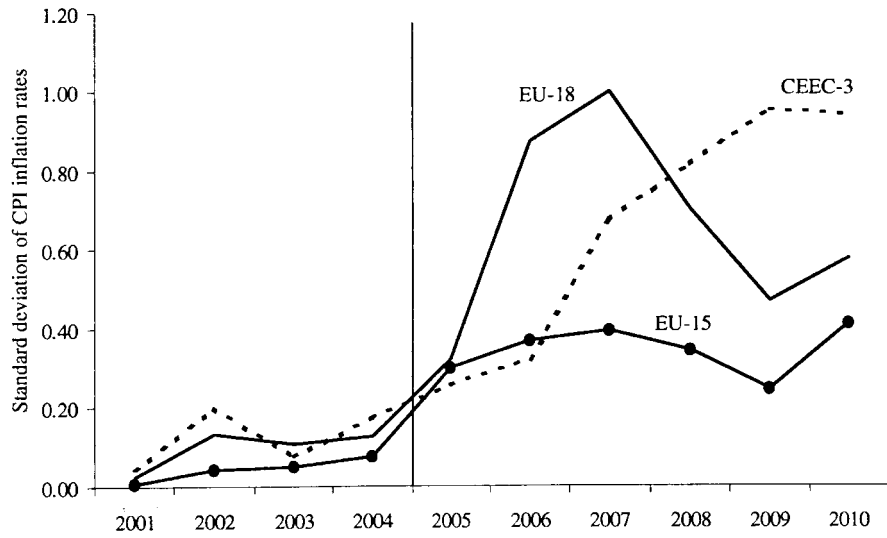


Figure 2b. Increased inflation volatility due to EU enlargement.

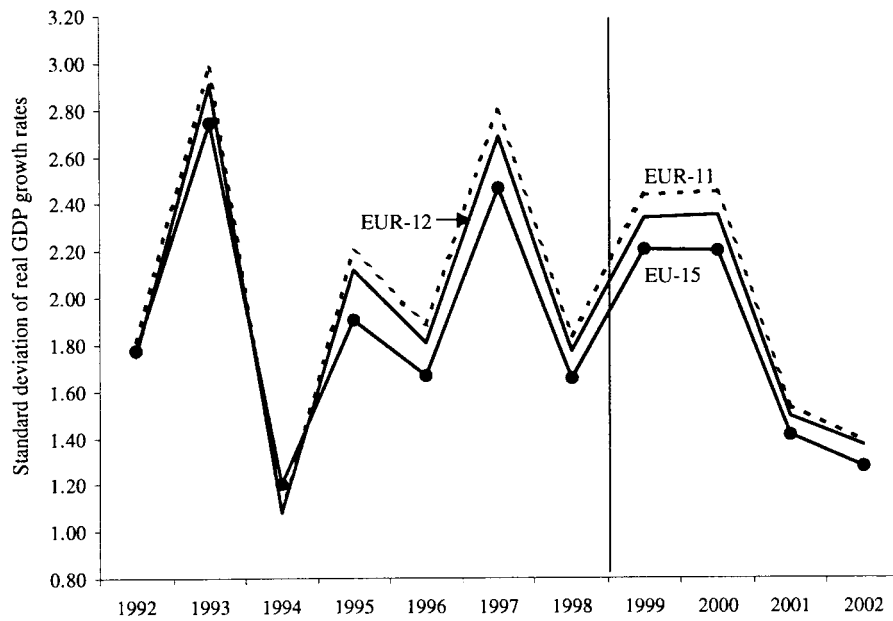


Figure 3a. GDP growth convergence in the EU in the run-up phase to the EMU (no 'European business cycle').

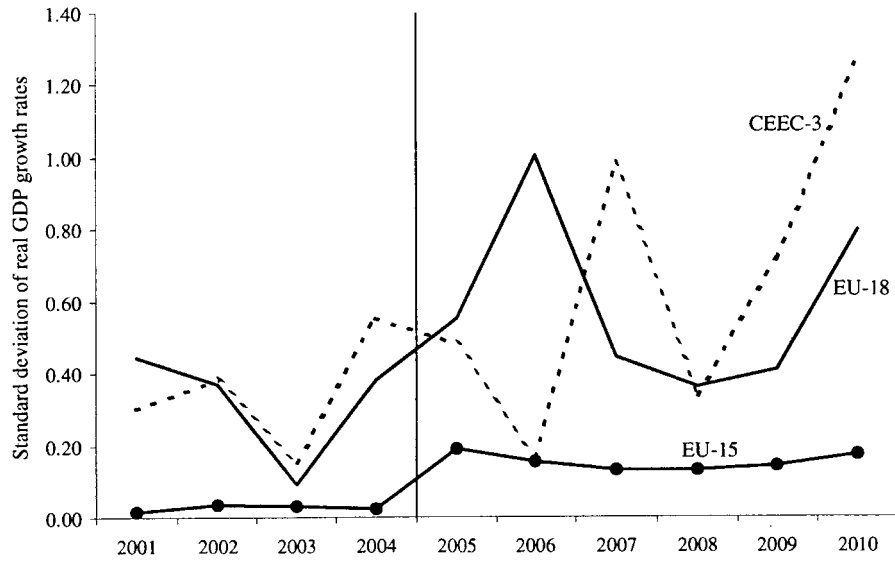


Figure 3b. Increased GDP growth volatility due to EU enlargement.

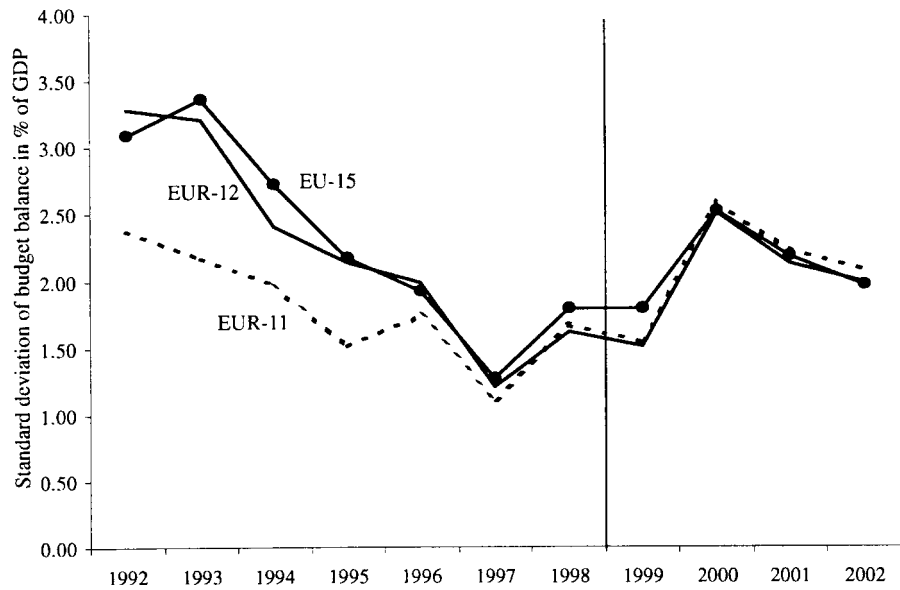


Figure 4. Budgetary convergence in the EU in the run-up phase to the EMU.

a situation where a country is more likely to satisfy the criteria for an optimum currency area (OCA criteria) for entry into a currency union ex post rather than ex ante (see for this argument, Frankel and Rose, 1998).⁹ But, the participation in the EMU does not depend on more or less strict OCA criteria but simply on the

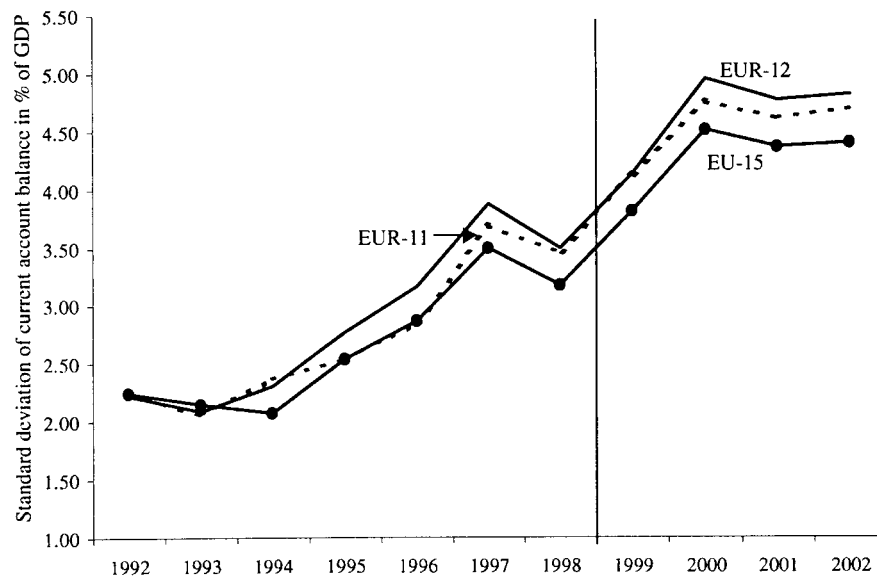


Figure 5. Increased Current account divergence in the EU in the run-up phase to the EMU.

Maastricht convergence criteria (which the CEEC do not yet satisfy – in particular concerning price stability and the interest criterion; see Table IV).

The official doctrine – represented by the ECB (ECB, 2001, pp. 114–118) and the ECOFIN Council of 7 November 2000 (see EU, 2001b) – proposes a two-step integration of the CEECs. The ECOFIN Council in its statement on the implications of the accession process upon exchange rate arrangements in the candidate countries identified three distinct stages (two of which belong to the after-accession period) for the full monetary integration of candidate countries: (1) the *pre-accession stage* (free choice of an exchange rate regime; policy should be oriented towards achieving real and nominal convergence; fulfilment of the (economic) Copenhagen criterion of ‘the existence of a functioning market economy able to cope with competitive pressures and market forces within the Union’; (2) the *accession stage* (new member states shall treat their exchange rate policy as ‘a matter of common interest’ (EC Treaty Article 124); no competitive devaluations; the candidate countries enter the EU as member states with a derogation concerning the EMU; co-ordination of economic policy and expectation that they work towards fulfilling the Maastricht convergence criteria); (3) *after accession*, although not immediately, accession countries are expected to join the ERM II. The ERM II has stable but adjustable central rates to the Euro for the participating currency with fluctuation bands of ± 15 percent around the central rate; countries with a Currency Board pegged to the Euro may join the ERM II; after application the candidate countries are evaluated according to the Maastricht convergence criteria; the new member states will adopt the Euro in a manner that ensures equal treatment with the initial participants in the Euro area.

Our results of the macroeconomic impacts of the accession of the CEEC accessing EU's Single Market support strongly the official doctrine. The partial integration effects as well as the total outcome shows that – what is usually not considered in a pure trade-oriented debate of enlargement – EU enlargement acts like asymmetric shocks which are more pronounced in the new member states than in the incumbents. We have different supply-side shocks (via the Single Market effects – productivity/price shocks; and via factor movements – labour migration and FDI flows) and demand shocks (trade effects and indirect effects of the costs of enlargement).

A strong price convergence is the characteristic of the run-up period to the third stage of EMU in the nineties (see Figure 2a). The entrance of the CEEC into the EU would only cause a slight increase in inflation volatility. If they, however, would step in immediately into Euroland, inflation volatility would increase considerably (see Figure 2b). Although the Single Market effects increase price stability in general, this effect differs from country to country in the old and new member states. The accession to Euroland would make it difficult for the ECB to run a central monetary policy for the 'average' inflation country in Euroland (at least if the ECB sticks to its present 2 percent inflation target!).

In contrast to price convergence, the short history of EMU did not witness a stronger synchronisation of the Euroland business cycle¹⁰ (see Figure 3a). However, the one-step integration of the CEEC would again dampen the ambitions of harmonising the Euroland business cycle even further. The enlargement effects increase GDP growth volatility (see Figure 3b), much stronger in the CEEC than in the EU-15 and in Euroland. Although there is an asymmetric impact in case of enlargement (not all EU-15 members are gaining to the same extent) the overall effect of de-synchronisation is small in case of the two-step solution.

Euroland has not only led to a price and interest rate convergence, also the budgetary position could be improved considerably in the run-up phase to the third stage of EMU due to the necessity to fulfil the Maastricht convergence criteria and thereafter – due to the pressure by the Stability and Growth Pact (SGP; see Figure 4). In case of enlargement the CEEC will profit from the net-receiver position and can therefore improve their budgetary position. The public sector would therefore contribute to Euroland stability.

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In contrast to the improvement of the internal – budgetary – stability (and convergence) due to the creation of EMU, the external – current account – position exhibited in the nineties a marked divergence (see Figure 5). Besides the

Table III. Macroeconomic effects of EU enlargement in selected countries

	Germany		Italy		UK		Spain	
	A	B	A	B	A	B	A	B
<i>Cumulative deviations from baseline in %</i>								
GDP, real	0.63	0.48	0.50	0.50	0.24	0.18	0.28	-0.18
GDP, nominal	0.70	0.63	0.37	-0.36	0.18	-0.13	0.08	-0.30
GDP per capita, real	0.52	0.41	0.49	0.49	0.23	0.17	0.27	-0.18
Personal disposable income, nominal	0.32	0.33	0.10	-0.29	0.01	-0.24	-0.02	-0.40
Personal disposable income, real	0.73	0.76	0.69	1.04	0.15	0.25	0.30	-0.02
Consumer prices	-0.42	-0.43	-0.59	-1.33	-0.06	-0.31	-0.33	-0.41
Employment total	0.09	0.47	-0.15	0.02	-0.28	0.08	-0.35	-0.55
Productivity (GDP/employment)	0.53	0.01	0.63	0.48	0.51	0.10	0.61	0.36
Relative ULC (real effective exchange rate)	-0.16	1.36	-0.47	-0.09	-0.09	-0.41	-0.17	0.83
<i>Cumulative deviations from baseline in percentage points</i>								
Unemployment rate	0.11	-0.21	0.15	0.06	0.28	-0.05	0.32	0.53
Current account (% of GDP)	0.04	0.24	-0.05	-0.21	0.04	0.21	-0.33	-0.15
Budget balance (% of GDP)	0.11	0.29	0.10	0.00	-0.07	0.12	-0.06	-0.23
Short-term interest rate (%)	-0.18	0.72	-0.18	0.72	0.13	0.20	-0.18	0.72

A = average of 2005/2006; B = average of 2008/2010.

Source: Own simulations with the OEF World Macroeconomic Model.

detrimental influence of the oil price hike this mirrors primarily the 'costs' of adjustment to a single currency in Euroland, especially in those countries which before used their currencies to devalue in case of current account troubles (e.g., in Greece, Italy, Spain and Portugal). The CEEC start already with a heavy heritage from their transition process: their current accounts exhibit generally a deficit. Partly, these deficits are compensated by FDI inflows. Participation in the Single Market would further deteriorate the current account in Hungary, but improve it in the Czech Republic and Poland (see Table III). Signs of potential financial crises like those in Asia in 1997/98 or in Russia in 1998 can not be detected by analysing the foreign reserve position or the actual exchange rate development. Most of the CEEC have already oriented their exchange rate policies towards the Euro, either by explicitly linking their currencies to the Euro (in form of a Currency Board) or by voluntarily pegging the currency to the Euro (see Table IV).

An ongoing dilemma is inherent in the CEEC, the so-called Balassa-Samuelson effect.¹¹ On the one hand, the catching-up to the real GDP per capita levels of the EU countries implies a permanent real appreciation (which is also a side results of our enlargement simulations; see Table III: an increase in GDP per capita goes

Table III. Continued

	Austria		Poland		Hungary		Czech Republic	
	A	B	A	B	A	B	A	B
<i>Cumulative deviations from baseline in %</i>								
GDP, real	0.83	0.66	5.26	8.02	7.32	8.40	4.03	5.65
GDP, nominal	0.82	0.11	4.21	1.87	7.67	8.49	2.60	-2.31
GDP per capita, real	0.62	0.54	5.52	8.18	7.56	8.54	4.18	5.75
Personal disposable income, nominal	0.52	-0.22	3.68	1.66	7.06	9.60	2.81	0.76
Personal disposable income, real	1.35	1.21	5.66	9.87	8.16	12.20	5.72	11.36
Consumer prices	-0.84	-1.42	-1.97	-8.14	-1.11	-2.77	-2.88	-10.62
Employment total	-0.37	-0.04	0.45	1.71	0.42	0.82	-0.54	0.40
Productivity (GDP/ employment)	1.20	0.72	4.83	6.30	6.91	7.56	4.58	5.22
Relative ULC (real effective exchange rate)	-0.18	-0.01	3.04	5.51	4.69	3.57	4.85	10.42
<i>Cumulative deviations from baseline in percentage points</i>								
Unemployment rate	0.60	0.20	-0.63	-1.33	-0.52	-0.39	0.43	-0.15
Current account (% of GDP)	-0.04	0.40	3.07	4.87	-1.04	-5.28	3.09	3.57
Budget balance (% of GDP)	0.12	0.25	2.48	6.12	4.56	3.85	0.83	1.90
Short-term interest rate (%)	-0.18	0.72	-3.95	-4.26	-1.46	5.81	2.04	5.54

hand in hand with a real appreciation). On the other hand, these countries would need real depreciation in order to correct their bad current account positions and regain international competitiveness. A feasible solution to this dilemma is only an improvement of productivity – in particular in the non-traded goods or in the service sector. The Single Market integration effects could help on this way.

The trade-off connected with the two-step integration solution would be a strengthening of an integration à deux vitesses (or more 'flexible' integration). In case of the two-step solution we would have more countries out of Euroland (15 – 12 new members plus the old 'outs' Denmark, Sweden and the United Kingdom) than in it (only 12). This in turn questions the functioning of the Single Market if not all Euroland-outs would strictly link their currencies to the Euro (which is demanded by the ERM-II system). Otherwise, competitive devaluations (like in the EMS crises years 1992–1993) could endanger the Single Market principle which rests on fair competition.

Table IV. Maastricht convergence criteria: Candidate countries, 2000/2001 (precondition to enter the EMU)

	Inflation CPI	Government budgetary position	Foreign debt whole economy	Exchange rates	Exchange rates	Long-term interest rates
	(HICP) [†] %-change 2001*	Deficit % of GDP 2001*	Debt (gross) % of GDP 2000**	%-change vis-à-vis Euro ^a 2001	Exchange rate regime 2001	Lending rate in % 2000**
Ref. value EU-15	3.5 (3.3)	-3.0	60.0	No devaluation	-	7.0
Bulgaria	7.5	-0.9	76.9	±0.0	CB (Euro) ^c	13.6
Czech Republic	4.6	-7.1	17.3	-9.4	Managed float (Euro)	8.0
Estonia	5.9	-0.3	5.3	±0.0	CB (Euro) ^c	8.9
Hungary	9.1	-4.4	55.7	-3.0	Crawling peg (Euro) ^b	13.1
Latvia	2.5	-1.8	14.1	-5.0	Fixed peg	10.2
Lithuania	1.4	-1.7	23.7	-14.4	CB (USD) ^{c,d}	11.8
Poland	5.6	-4.3	40.9	-9.6	Full float	20.3
Romania	34.1	-3.5	22.9	+114.0	Managed float	53.8
Slovakia	7.4	-4.8	32.4	-1.5	Managed float	9.8
Slovenia	8.5	-1.2	25.8	+17.6	Managed float	17.7
Transition accession countries	9.2	-4.3	31.5	-	-	16.7
Cyprus	1.8	-2.6	63.0	-0.7	Managed float	6.0***
Malta	2.2	-5.4	60.6	-	Managed float	7.4
Turkey	54.5	-19.6	57.8	+119.7	Free float	51.2
Candidate countries	26.5	-9.7	38.2	-	-	17.8

Table IV. Continued

	Inflation		Government		Foreign debt		Exchange rates		Exchange rates		Long-term interest rates
	CPI	(HICP) [†]	Deficit % of GDP 2001*	Debt (gross) % of GDP 2000**	Debt % of GDP 2000**	whole economy	%-change vis-à-vis Euro ³ 2001	Exchange rate regime 2001	Lending rate in % 2000**		
Ref. value	3.5 (3.3)		-3.0	60.0	-	No			7.0		
EU-15						devaluation					
Euro area	2.8 (2.8)		-1.1	68.8	-	-	-	-	5.0		
EU-15	2.6 (2.5)		-0.5	62.5	-	-	-	-	5.0		

^a Most recent devaluation (+) or revaluation (-) against the Euro since 1 January 1999. The candidate countries are not yet members of the Exchange Rate Mechanism (ERM-II).

^b Hungary extended the band of fluctuations against the Euro from $\pm 2.25\%$ to $\pm 15\%$ on 4 May 2001.

^c CB = Currency Board. ^d Lithuania changed its anchor for the Litas from the US-dollar to the Euro as of 2 February 2002.

Data sources: * Autumn 2001 forecasts for the Candidate Countries, European Economy, Supplement C, Economic Reform Monitor, No. 4, November 2001, Brussels; **4th Report of the European Commission on the progress towards accession, Brussels, 13 November 2001; *** Day-to-day money rate; [†] CPI (consumer price index); in parenthesis: HICP (harmonised index of consumer prices).

V. Conclusions

Several attempts have already been made to estimate the economic effects of EU enlargement with different model approaches. Here, the expected economic benefits are confronted with possible dangers in connection with EU's most ambitious political integration project. First, a new macroeconomic evaluation of EU enlargement is undertaken with a world macroeconomic model taking into account all possible integration effects: trade effects, Single Market effects, factor movements (FDI, migration) and the costs of enlargement. Due to the differences in size of the regions involved, on average the CEEC – measured in terms of real GDP – will gain around 10 times more from enlargement than the EU. Hungary and Poland can increase their real GDP by around 8 to 9 percent over a 10-year period, the Czech Republic gains a little bit less (5 to 6 percent). The EU on average would gain around 0.5 percent of real GDP over a 6-year period. Although, on average, enlargement seems to be a win-win game, the impact is quite different in the separate EU member states, with Austria, Germany and Italy gaining the most and losses for Spain, Portugal and Denmark. Hence, EU enlargement acts like an exogenous shock leading to asymmetric disturbances in the EU. This could pause the process of business cycle synchronisation and might impair monetary policy in Euroland at the beginning of the enlargement process. A two-step integration of the CEECs into the EU – first the participation in the Single Market and only later into the EMU – is therefore preferable under the aspect of macroeconomic stability in Euroland.

Notes

1. How big the interest rate effect may be is largely unknown. Bartolini and Symanski (1995) study the macroeconomic impact of a sustained annual capital transfer of 70 billion USD from Western Europe to Eastern Europe. Simulations with the IMF MULTIMOD show that in Western Europe the long-term interest rate would increase by 0.5 percentage point. Neck and Schäfer (1996) make a similar experiment with the McKibbin World Macromodel. An annual capital transfer of 35 billion USD from Western Europe to Eastern Europe would increase the long-term interest rate in Germany by 0.2 percentage points. In case of our enlargement experiment by three CEEC the following additional capital demand to finance the equivalent FDIs from the West to the East is assumed: in 2003 the three CEEC would attract additionally 330 mill. USD, increasing to 8.435 mill. USD in 2010 (this amounts to cumulative 28.596 million USD over this period). The assumed interest rate effect in Europe lies therefore in the range of the above mentioned studies.
2. These results have also to be seen in connection with the reorientation of FDI flows from the old EU member states (primarily from the cohesion countries) to the new EU member states (CEEC) due to the reform of the structural funds in view of enlargement (see Section II.4. – The costs of enlargement for the EU – benefits for the CEEC). Braconier and Ekholm (2001) find that the opening up of the East after 1989 has led to a FDI diversion from the high wage countries in the EU to the low wage countries in the CEEC. Employment in the old EU multinational firm locations decreased, those in the CEEC increased.
3. The European Commission in its information note (EU, 2001c) suggests five options concerning the free movement of workers in the context of enlargement: Option 1: Full and immediate application of the *acquis*; Option 2: Safeguard clauses; Option 3: Flexible system of transitional arrangements (different by countries; evaluation after an introductory phase); Option 4: Estab-

lishment of a fixed quota system (access to the EU labour market is limited on an EU level, on a national, regional or sectoral level); Option 5: General non-application of the *acquis* for a limited period of time. Germany and Austria are favouring a transitional arrangement for 7 years (the Commission favours a 5 plus 2 system – a general transitional period of 5 years plus 2 years for countries which need this to protect their labour markets). Under the Swedish Presidency (first half of 2001) the negotiation position of the EU was clarified insofar, as Germany and Austria can stick to the 7-year transition period, whereas other EU member states may refrain from it. The CEEC have already accepted the German-Austrian demands for a 7-year transition period in this area.

4. The negotiations for the new financial perspectives for the period 2007–2013 will take place in the years 2005–2006. Then the EU will already have to include the exact costs of the enlarged EU.
5. In its new proposal for accession negotiations the European Commission in January 2002 suggested to grant the new EU members direct payments only in a ‘phasing in’ manner: the new members will get 25 percent of the usual direct payments in 2004 and will reach 100 percent after 10 years.
6. One might also add the costs of adjustment to the *acquis communautaire* which the EU is imposing to the CEEC as a precondition to join the EU (Copenhagen criteria) in the same way Rodrik (2001) mentions the burden of stabilisation the ‘Washington consensus’ (IMF, World Bank) is imposing on developing countries.
7. Breuss et al. (2001, 2002) have shown theoretically and empirically that Agenda 2000’s structural policy reform will lead to a redirection of FDI from the old EU cohesion countries to the new member states of the CEEC by a considerable amount.
8. Crespo-Cuaresma et al. (2002) estimate with growth equations and a Dummy variable that the growth effect of EU membership is increasing with the length of membership (value of the coefficient is 0.04). Additionally, they demonstrate that poor EU countries (cohesion countries) exhibit a higher EU membership coefficient with a higher value (0.09) than EU average (0.04). This might justify our estimations according to which the poor CEEC will gain more from EU enlargement than the rich old EU member states.
9. Whereas some authors (e.g., see Artis and Zhang, 1999) assert that exchange rate stability (in the EMS) led to a stronger synchronisation of the European business cycle (or at least a lessening of the affiliation to the US cycle and a stronger correlation with the German cycle), Inklaar and de Haan (2001) doubt these findings. In contrast, they find no relationship between exchange rate stability (measured during the EMS period) and business cycle synchronisation.
10. This endorses the findings by Inklaar and de Haan (2001).
11. On the one hand, there is no consensus whether there is a Balassa-Samuelson effect at all (e.g., Faria and León-Ledesma (2001) find no significant long-run relationship between the relative price ratios of major industrial countries and their GDP per capita ratios), and on the other hand, in the case of the CEEC it is not easy to determine, how large it could be. Kröger and Redonnet (2001) just simply assume that due to the catching-up potential of CEEC’s GDP per capita their inflation rate will increase by 4 percent per year. The Deutsche Bundesbank (2001, p. 25) estimates an annual real appreciation in the CEEC due to the Balassa-Samuelson effect (improvement in labour productivity vis-à-vis the EU) of between 1.9 percent and 2.6 percent in the period 1994–1999. Other studies reach similar results (Broeck and Slok (2001) 1.4 percent to 2.0 percent; Halpern and Wyplosz (2001) 2.9 percent to 3.1 percent; Coricelli and Jazbec (2001) 0.7 percent to 1.2 percent). In the period 1997 to 1999 the real exchange rates of the CEEC-10 appreciated on average by around 4 percent annually (without Bulgaria and Romania, the rate amounts to 3.3 percent). Given the estimations above, the Balassa-Samuelson effect seems to be responsible for half of the total real appreciation of the CEEC’s currencies during the last years (see Deutsche Bundesbank, 2001, p. 25).

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