



# The SGP fiscal rule in the case of sluggish growth: Simulations with the QUEST model<sup>☆</sup>

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Received 1 April 2005; accepted 1 July 2005

Available online 8 August 2005

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## Abstract

In this paper we study why the two largest EMU countries ran into budget deficit troubles during the past recession and which advantage and disadvantage the application of the SGP fiscal rule would have had. For this purpose we reproduce the downturn of the European economy since 2001 assuming two extreme interpretations: (a) on the one hand it could have been a consequence of a negative supply shock (TFP decline over 3 years) or (b) a negative aggregate demand shock (reluctant consumption and investment demand) could have caused the slowdown. These two shock scenarios are implemented into the QUEST model of the European Commission for the three largest Euro area countries—France, Germany and Italy. For both types of shocks we analyze the response of the economy under two alternative fiscal rules: (a) no SGP rule and (b) the SGP rule. Sticking to the SGP rule would have been advantageous (at least in the long-run) in case of the supply shock. In the case of a symmetric demand shock (a quick downturn, followed by an equivalent upturn) the SGP rule would have been neutral over the cycle, although harmful in the very short-run.

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*JEL classification:* C53; E17; E37; E62; H30; H62; H63

*Keywords:* Stability and growth pact; Fiscal rules; Macroeconomic models; EMU economies; Model simulations

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<sup>☆</sup> The opinions expressed are the authors' personal views and do not necessarily reflect those of the institutions to which the authors are affiliated.

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## 1. Introduction

In the last decade, many OECD countries have experienced with budgetary rules in order to help restore or safeguard fiscal sustainability (for an overview, see OECD, 2002). The most prominent examples are the USA with the 1985 Balanced Budget and Emergency Deficit Control Act (Gramm–Rudman Act) which was relaxed and renamed in the 1990 Budget Enforcement Act (BEA) introducing caps on discretionary spending. The caps could be exceeded in the event of “emergencies”. In the end most of its provisions elapsed in September 2002, without being extended or replaced (for an evaluation, see [Fatás & Mihov, 2004](#)). In the United Kingdom, two fiscal rules were set out in 1997: the so-called “golden rule”, which states that over the cycle current outlays, including the consumption of fixed capital should not be financed by borrowing; a debt rule, or “sustainability investment rule”, stipulating that over the cycle the ratio of net debt to GDP should not exceed a prudent level, defined for the time being as 40%. Several other OECD countries have adopted new rules since the 1990s (e.g. New Zealand and Switzerland with its debt brake—“Schuldenbremse”; see [Brandner, Frisch, Grossman, & Hauth, 2004](#)).

In the European Union the Maastricht Treaty and the stability and growth pact (SGP) put in place in 1997 by two regulations (1466/97 – surveillance – and 1467/97 – clarifying the excessive deficit procedure) and one resolution of the European Council set out conditions necessary to safeguard fiscal discipline in a common currency area (see [Brunila, Buti, & Franco, 2001](#); [Buti & Giudice, 2002](#); [Emmerson, Frayne, & Love, 2003](#)). The Treaty set the deficit hurdle for entry into monetary union at 3% of GDP, allowing for long-run debt convergence around 60% of GDP (on the assumption of trend growth around 3% and trend inflation around 2%, which satisfies the Domar formula). The SGP – which introduced possible financial penalties for non-compliance with the deficit ceiling – also calls for fiscal positions to be “close to balance” or in surplus over the medium run, which would asymptotically lead to zero net debt. These conditions are the minimum to achieve long-term fiscal sustainability in the individual countries. In practice, the emphasis has gradually shifted from the actual deficit measure to the cyclically adjusted one, to avoid pro-cyclical budgeting. This approach was made very explicit in 2001 in the revised Code of Conduct on the format and content of the stability and convergence programmes (see [European Commission, 2002](#), pp. 201–206). Besides, some euro area member states have also put in place domestic “stability pacts” in order to promote fiscal discipline at sub-national levels (Austria, Belgium, Germany and Spain; for Austria, see [Diebalek, Köhler-Töglhofer, & Prammer, 2005](#); [Schratzentaller, 2005](#)).

Although there are many efforts to justify the fiscal rules of the SGP theoretically (for an overview, see [Breuss, 1998](#); [Brunila et al., 2001](#); [De Grauwe, 2003](#)) or to formulate optimal fiscal rules in general (e.g. see [Annichiarico & Giammaroli, 2004](#); [Schmitt-Grohe & Uribe, 2004](#)), in practice there are no indisputable optimal criteria. Therefore, any indebtedness target is bound to remain judgemental. However, rules not only have the purpose to safeguard long-run fiscal sustainability, they also limit the room for discretionary policy and hence increase macroeconomic stability. [Badinger \(2004\)](#) concludes from a cross-section and panel analysis for a sample of 20 OECD countries over the period of 15 years that discretionary fiscal policy has a

significant and sizeable effect on volatility of GDP per capita (like [Fatás & Mihov, 2003](#)); but he did not find a direct effect on inflation volatility as postulated by [Rother \(2004\)](#).

Beyond their importance for ensuring sustainability, rules also have a role to play in communicating with the public. Therefore, they should fulfil some criteria (see [OECD, 2002](#), p. 126). Rules should be credible but not overly rigid, simple to understand, perceived as binding and backed by sanctions.<sup>1</sup> A way to alleviate the trade-off between credibility and flexibility is by improving transparency. In the EU, the requirement that member states submit annual stability and convergence programmes and their obligations to notify flow and stock outcomes twice a year is also meant to enhance transparency.

After a promising start the SGP seems not to have passed the “Elch” test during the low growth or stagnation phase in Europe since 2001. The excessive deficit procedure (EDP) according to Article 104 of the EC Treaty had to be initiated already against four EMU members (Greece, France, Germany and Portugal) and one non-member (Hungary). Whereas Greece and Portugal violated the rules *ex post* (for an overview of creative accounting in Europe, see [Koen & van den Noord, 2005](#)), France and Germany breached the 3% hurdle over 3 years, starting in 2002. Over the continuation of the EDP against both countries there was a legal row between the Commission and the ECOFIN resulting in a case before and the ruling of the [European Court of Justice \(2004\)](#).

Due to several shortcomings of the SGP a reform was overdue (see [Annet, Decressin, & Deppler, 2005](#)). The ECOFIN on 20 March 2005 and the European Council on 22 and 23 March 2005 agreed upon concrete reform steps aiming at more flexibility and practicability in implementing its rules, while retaining its two nominal anchors – the 3% of GDP reference value for the deficit and the 60% of GDP reference for the debt to GDP ratio.

In our contribution we do not put forward a new or alternative rule to the existing SGP rules but rather we want to study why the two largest EMU countries ran into the deficit troubles during the past recession and whether an alternative more SGP-like fiscal adjustment policy could have led to a better overall macroeconomic performance. For this purpose we reproduce the sluggish growth situation in some member states of the Euro area. Then we analyse fiscal policy under two alternative shock scenarios. One scenario views the sluggish growth period caused by a supply shock, one originating from a (negative) demand shock. For both types of shocks we analyse the response of the economy under two alternative fiscal rules: (a) no SGP rule and (b) the SGP rule. The exercise is carried out by simulations with the European Commission’s QUEST model.<sup>2</sup>

The next section provides a short overview of the model, its coverage and a brief description of its main features. In the third section we briefly describe the 6 years experience with the SGP and the concrete reform proposals by the ECOFIN and the European Council. The

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<sup>1</sup> [Buti and van den Noord \(2004\)](#) show that the current difficulties of EMU’s fiscal policy framework have little to do with its alleged fault lines and much to do with the resurgence of the electoral budget cycles.

<sup>2</sup> In a recent model simulation exercise [Neck, Haber, and McKibbin \(2005\)](#) study the different combinations for co-operation between fiscal and monetary policy in the enlarged EMU.

fourth section discusses and presents the results of the model simulations of the alternative scenarios concerning the fiscal policy stance in case of a period of sluggish growth. Then tentative conclusions are drawn from our exercise.

## 2. The simulation model

The analysis is carried out with the world macro model of the European Commission (QUEST; for a more detailed description, see Roeger & in't Veld, 1997, 2004). It is a new neo-classical-Keynesian synthesis model, which combines the rigours of dynamic general equilibrium models with features of Keynesian style rigidities. The behavioural equations in the model are based on principles of dynamic optimization of private households and firms. Economic agents are assumed to maximize utility and profit functions subject to intertemporal budget constraints and consumption and investment decisions, therefore incorporate forward looking behaviours. Economic theory not merely determines the long-run model properties, but also drives its short-run dynamics. The dynamic responses of the model have a theoretical basis, like the presence of adjustment costs and overlapping contracts, and adding ad hoc dynamics has been avoided as much as possible.

The supply side of the economy is modelled explicitly via a neo-classical production function. This assures that the long-run behaviour of the model resembles closely the standard neo-classical growth model and the model reaches a steady-state growth path with a growth rate essentially determined by the rate of (exogenous) technical progress and the growth rate of the population.

There are two major departures from the neo-classical model in the long-run. Because firms are not perfectly competitive but can charge markups over marginal cost in the long-run, the level of economic activity will be lower than that predicted from a model with perfect competition. Also, a bargaining framework along the lines of Pissarides (1990) is used to describe the interaction between firms and workers. Labour market rigidities and therefore involuntary unemployment persist even in the long-run and the model economy will therefore not reach steady state equilibrium with full employment. The short-run behaviour of the model is influenced by standard Keynesian features since the model allows for imperfectly flexible wages and prices, liquidity constrained consumption, adjustment cost for investment and labour hoarding.

## 3. Six years of experience with the SGP

### 3.1. *Sluggish growth in Europe since 2001*

The starting point of our analysis is the sluggish economic growth in some member states of the Euro area. The three large countries France, Germany, and Italy exhibited a period of slow growth over 3 years. In this period France and Germany were not able to keep their budget deficits below the 3%-SGP hurdle. Therefore, on 21 January 2003 the ECOFIN Council following the recommendation by the European Commission initiated the

Excessive Deficit Procedure (EDP) under Article 104 of the EC Treaty.<sup>3</sup> The same happened with France on 3 June 2003. With the decision of 25 November 2003 the ECOFIN council stopped the EDP for both countries against the intention of the Commission. Therefore, the Commission filed a suit against the ECOFIN before the European Court of Justice (ECJ). Its judgment was announced on 13 July 2004, declaring that on the one hand the ECOFIN has the right to decide against a recommendation by the Commission by qualified majority but on the other hand nullified the conclusions by the Council of 25 November 2003 (see [European Court of Justice, 2004](#)). On 14 December 2004, the Commission decided (and recommended it to the ECOFIN council) that no further steps are necessary under the EDP because the budgetary forecasts for 2005 are plausibly showing that both countries will bring down the deficit below 3% of GDP.

Since the inception of EMU in 1999 we exhibited already EDPs against four Euro area members:<sup>4</sup> Portugal (November 2002 until April 2004), Germany and France (2003–2004) and Greece (after the announcement by Eurostat that it had faked its budgetary figures and due to the recent permanent breach of the SGP rules). The ECOFIN council initiated the EDP against Greece on 5 July 2004 and additionally on 1 December 2004 the Commission launched an infringement procedure against Greece to prevent incorrect or incomplete data transmission in the future. Base was a final Eurostat report for 1997–2003 showing that the government deficit in Greece has been revised upwards by 2.1% of GDP on average over that period, leading to the conclusion that the government deficit ratio has always exceeded 3% of GDP in the period.

After EU enlargement on 1 May 2004 the ECOFIN council initiated EDPs against six new member states (Czech Republic, Cyprus, Hungary, Malta, Poland and Slovak Republic). On 5 July 2004 the ECOFIN council stopped the EDP against five countries, only in the case of Hungary the EDP continues with further budgetary surveillance.

Primarily we concentrate on the events in the three large Euro area countries France, Germany and Italy. However, we also show the performance of the two EDP countries Greece and Portugal in the following figures. The cyclical pattern of growth of real GDP was similar in the four countries; an exception is Greece. It exhibited a sustained high growth since the mid-1990s (see [Fig. 1](#)). Taking the output gap as business cycle indicator, one reaches at the same interpretation of the economic performance as shown with the GDP growth figures of [Fig. 1](#).

France's general government budget deficits exceeded the 3% SGP hurdle from 2002 to 2004 and according to the Autumn forecast by the [European Commission \(2004c\)](#) a continuation of deficits at or above 3% of GDP in 2005 and 2006 is probable (see [Fig. 2a](#)). The budgetary situation in Germany was similar (see [Fig. 2b](#)). In both countries the performance of the structural deficit (cyclically adjusted<sup>5</sup>) was somewhat better, but also fell short of the 3% limit. In Italy the budget deficit hit the 3% limit in 2004 and will stay there in

<sup>3</sup> Information about the framework and ongoing procedures in the context of the SGP and Fiscal Surveillance can be found on the website of the European Commission—DG Economic and Financial Affairs: [http://europa.eu.int/comm/economy\\_finance/about/activities/sgp/main\\_en.htm](http://europa.eu.int/comm/economy_finance/about/activities/sgp/main_en.htm).

<sup>4</sup> For a more comprehensive analysis of 5 years with EMU, see [European Commission \(2004a\)](#).

<sup>5</sup> For the proper interpretation and use of cyclically adjusted budget balances (CAP), see [Larch and Salto \(2003\)](#).

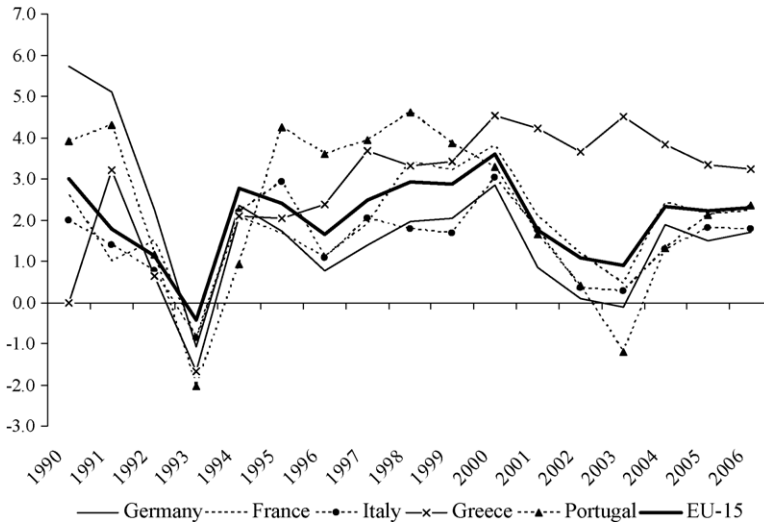


Fig. 1. GDP growth rates in % in selected Euro area countries. Data source: European Commission (2004c), also for Figs. 2 and 3.

2005 and 2006 according to the latest forecasts<sup>6</sup> (see Fig. 2c). Despite an excellent GDP growth performance, Greece permanently surpassed the 3% deficit hurdle in the actual and cyclically adjusted budget balance. Portugal surpassed the 3% limit in 2001 and the forecasts expect deficits higher than 3% of GDP in 2005 and 2006 (see Fig. 2d). When evaluating fiscal sustainability one looks at the performance of the debt to GDP ratio. Considering our four Euro area countries, some features stand out: first the level of the GDP ratio in France, Germany and Italy is only half that of Greece and Italy. However, one also can detect a divergent dynamic. France, Germany and Portugal either stabilized or decreased its debt to GDP ratios during the run-up to the evaluation of the Maastricht convergence criteria in 1998. Since then we see an increasing trend, although the levels are still close to 60% of GDP. In Greece and Italy, although still at high levels of over 100% of GDP the debt to GDP ratios exhibit a declining trend (see Fig. 3). In general we have three countries in the Euro area with still high and possibly unsustainable debt to GDP ratios. These are Belgium (the forecast for 2006 is 91%), Greece (110%) and Italy (104%). All other countries of EU-25 exhibit debt GDP ratios around 60% or below. This is particularly true for the new member states. Only Cyprus (69%) and Malta (74%) are somewhat above this general tendency.

<sup>6</sup> The short-term improvement in the actual budget balance figures in 2000 and 2001 was primarily due to the one-off proceeds relative to UMTS licenses, while the cyclically adjusted balances exclude these amounts. In 2000 these effects amounted to 50.8 bn DM in Germany, 13.8 bn Lira in Italy and 0.4 bn Pesetas in Portugal. In 2001, the UMTS effect amounted to 1.2 bn francs in France and 0.6 bn Drachma in Greece; see European Commission (2004c, p. 148).

3.2. The SGP mark II

Six years of experience with the SGP have also highlighted its shortcomings. One important insight is the heterogeneity of the performance of the Euro area member states; either concerning GDP growth or budgetary stability. The “European business cycle” is still more a phantom than reality! The EU enlargement 2004 additionally will contribute to the amplification of the economic performance in the EU-25. The fact of the rather heterogeneous

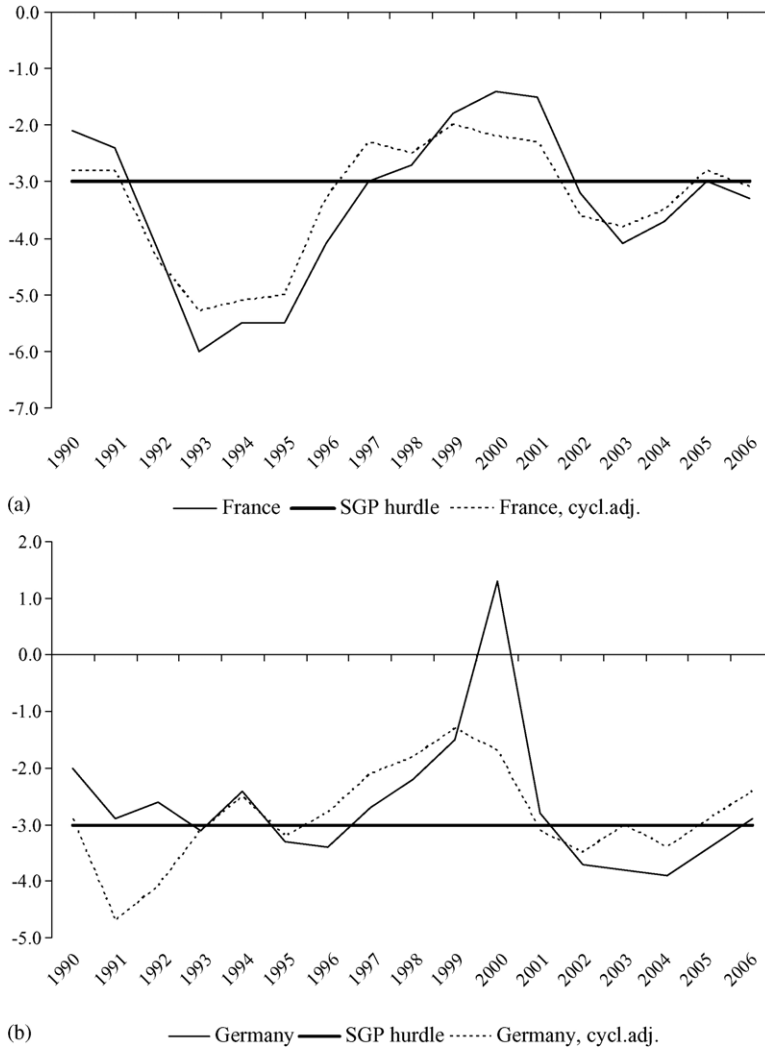


Fig. 2. (a) France: budget balance, actual and cyclically adjusted (in % of GDP). (b) Germany: budget balance, actual and cyclically adjusted (in % of GDP). (c) Italy: budget balance, actual and cyclically adjusted (in % of GDP). (d) Greece and Portugal: budget balances, actual and cyclically adjusted (in % of GDP).

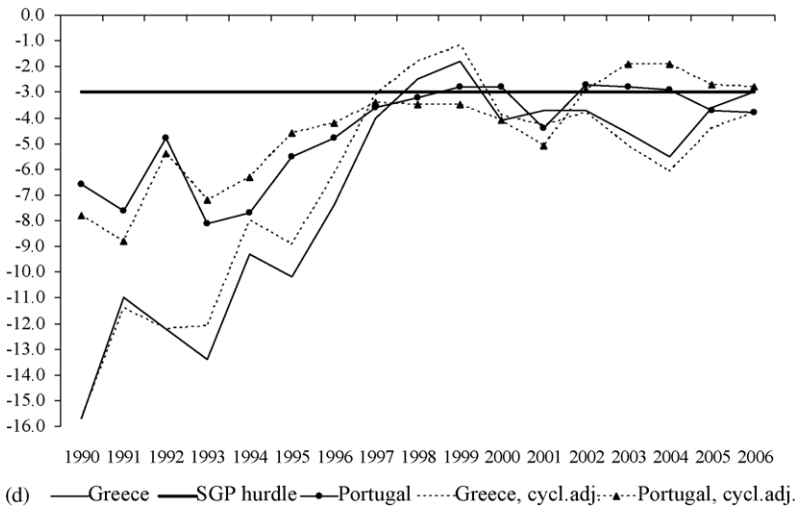
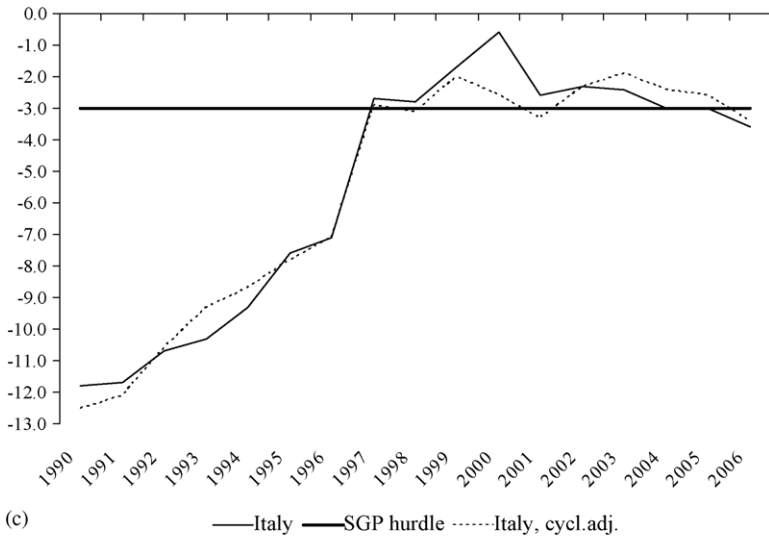


Fig. 2. (Continued).

picture of the performance of public debt sustainability and due to the protracted slowdown or “sluggish growth” period since 2001, the non-compliance with the SGP fiscal rules of two major EMU players was the reason why the [European Commission \(2004b\)](#) was rethinking the economic governance and implementation of the SGP. Many of these suggestions were taken up by the ECOFIN Council (2005) on 20 March 2005 and were endorsed by the [European Council \(2005\)](#) on 22 and 23 March 2005.

The [ECOFIN \(2005\)](#) unanimously agreed to overhaul the present SGP by making proposals for “strengthening and clarifying” its implementation, “with the aim of improving the



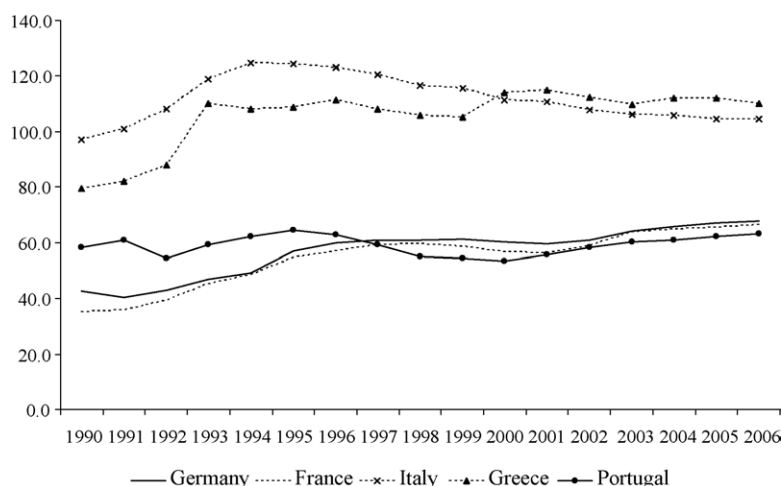


Fig. 3. Gross debt general government (in % of GDP) in selected Euro area countries.

coordination and monitoring of economic policies according to Article 99 of the Treaty and of avoiding excessive deficits as required by Article 104(1) of the Treaty”. These proposals will then be introduced into the Regulations 1466/97 and 1467/97<sup>7</sup> and will form the “SGP mark II”.

The Council, reviewing the SGP provisions, detected mainly five areas for improvements (ECOFIN, 2005, p. 4): (i) enhance the economic rationale of the budgetary rules in order to improve their credibility and ownership; (ii) improve “ownership” by national policy makers (the Member States are responsible to implement the fiscal policies of their choice; the Council and the Member States respect the Commission’s responsibility as guardian of the Treaty and its procedures); (iii) use more effectively periods when economies are growing above trend for budgetary consolidation in order to avoid pro-cyclical policies (this should help to better adhere to the medium term objective (MTO) for the Member States budgetary positions of “close to balance or in surplus” (CTBOIS)); (iv) take better account in Council recommendations of periods when economies are growing below trend; (v) give sufficient attention in the surveillance of budgetary positions to debt and sustainability.

Derived from this diagnosis the Council aims at clarifying the SGP rules in the following areas:

- (1) *Strengthening the preventive arm*: in light of the increased economic and budgetary heterogeneity in the EU of 25 member states, MTOs should be differentiated and may diverge from CTBOIS of individual member states on the basis of their current debt to GDP ratio and potential growth. In cyclically adjusted terms (net of one-off and

<sup>7</sup> On 20 April 2005, the European Commission presented the proposals for a Council regulation amending regulation (EC) No. 1466/97 on the strengthening of the surveillance budgetary positions and the surveillance and coordination of economic policies and for a Council regulation amending regulation (EC) No. 1467/97 on speeding up and clarifying the implementation of the excessive deficit procedure. The new Council regulations (EC) are No. 1055/2005 and 1056/2005 of 27 June 2005, OJ L174 of 7.7.2005.

temporary measures), the range for the country-specific MTOs for Euro area and ERM II Member States should be between 1% of GDP for low debt/high potential growth countries and balance or surplus for high debt/low potential growth countries. Hence, long-term fiscal sustainability is taken into account better than hitherto. However, in order to reach their MTO, member states should pursue an annual adjustment in cyclically adjusted terms of 0.5% of GDP as a benchmark. In order to avoid pro-cyclical policies the Council demands a more symmetrical approach to fiscal policy over the cycle through enhanced budgetary discipline in periods of economic recovery.

- (2) *Improving the implementation of the excessive deficit procedure (EDP)*: the EDP should remain simple, transparent and equitable. The guiding aim of the EDP is the prompt correction of an excessive deficit. Assistance and not punishment should be the purpose. Policy errors should be distinguished from forecast errors. In the end, the Council should have the power to apply sanctions. In evaluating whether an excess over the reference value is only “exceptional and temporary” – according to new proposals for “SGP mark II” (see ECOFIN, 2005, p. 15) – the Commission should take into account a variety of “relevant factors”. In this respect, the Council calls for a clarification of the relevant framework in the following lines: (i) a stronger link with the *Lisbon targets* for medium to long-run growth meaning considering expenditures to foster R&D and innovation (see also Breuss, 2005); (ii) fiscal consolidation efforts in “good times”, *debt sustainability*, public investment and the overall quality of public finances; (iii) due consideration should be given to any other factors, such as budgetary efforts towards increasing or maintaining at a high level financial contributions to fostering international solidarity and to achieving European policy goals, notably the *unification of Europe* (e.g. costs of German unification; net-contributions to the EU budget); (iv) taking into account systemic pension reforms (net costs of the reform to the publicly managed multi-pillar system) for the initial 5 years after a Member State has introduced a mandatory fully funded system, or 5 years after 2004 for Member States that have already introduced such a system.

The *deadlines* connected with the EDP will also be handled more flexibly. The deadline for adoption of a decision under Article 104(6) should be extended from 3 to 4 months, those under Article 104(7) from 4 to 6 months. The 1-month deadline for the Council to take a decision to move from Article 104(8) to Article 104(9) should also be extended to 2 months, and the 2 months deadline under Article 104(9) should be extended to 4 months. Also the deadline for correcting an excessive deficit should be extended to the second year after its occurrence. Under special circumstances, the initial deadline for correcting an excessive deficit could be set 1 year later, normally the third year after its occurrence.

In the light of the experience of the slow growth in Europe since 2001, the Council also considers the current definition of “*a severe economic downturn*” given in Article 2(2) of Regulation 1467/97 as too restrictive. Presently it is defined – as a rule – as an annual fall of real GDP of at least 2%. The paragraphs (2) and (3) of Article 2 in Regulation 1467/97 need to be adapted, in order to allow both the Commission and the Council, when assessing and deciding upon the existence of an excessive deficit, to consider as exceptional an excess over the reference value which results from a “negative growth rate or from the accumulated loss of output during a protracted period of very low growth relatively to potential growth”.

In anticipating the major changes in the “SGP mark II” this study – by using the method of model simulations – analyzes two aspects: (i) the consequences of a protracted period of very sluggish growth as experienced in Europe since 2001 for the fiscal policy stance in the largest Euro area countries; (ii) the long-run impact of potential GDP and debt sustainability of different fiscal policy adjustments (either adhering to the SGP rules or ignoring it).

#### 4. Simulating alternative fiscal policy strategies to overcome a slow growth period

The starting point of our exercise is the sluggish economic growth in some member states of the Euro area (in particular Germany) over the period 2001–2004. Our aim is to reproduce this cyclical downturn and study the pros and cons of sticking to the SGP. One important problem one faces when analyzing the current economic situation is the uncertainty concerning the nature of the slowdown. At least two alternative interpretations seem possible.

##### 4.1. Interpretation 1

The euro area has been hit by a negative *supply shock* in the form of weak growth of productivity (TFP) over a period of 3 years. This view is consistent with the decline in TFP growth over a period of 3 years, which is unusual for pure cyclical variations in capacity utilization.

##### 4.2. Interpretation 2

It is not 100% sure that the supply side interpretation is correct. There is evidence for weak private domestic demand. Consumer spending has been low in Germany, possibly related to structural and pension reform debates. Also there has been a significant decline in the investment rate (especially in construction). The more permanent nature of sluggish demand could have contributed to the unusual pattern of productivity growth.

It turns out that a proper assessment of the economic situation is crucial, since both interpretations have different medium term consequences. If the supply interpretation is correct then the current slowdown is associated with at least a permanent level shift of GDP. In case the demand interpretation holds, a cyclical recovery can be expected and GDP returns to the historic trend line.

##### 4.3. Designing the simulation experiment

###### 4.3.1. Supply shock

It is assumed that the decline in growth rates is temporary and that TFP growth returns back to pre 2001 growth rates. The supply shock is generated by a 1% reduction of TFP growth over a period of 3 years. After 3 years, TFP growth returns to the trend in the 1990s. Notice, this means a permanent level shift of GDP.

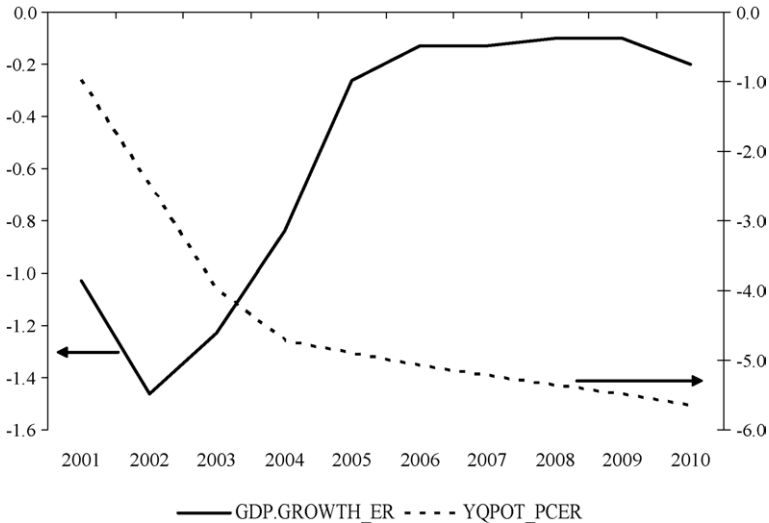


Fig. 4. Germany GDP growth (GDP.GROWTH.ER) and potential output level (YQPOT\_PCER) after a TFP shock of 1% over 3 years.

#### 4.3.2. Demand shock

It is assumed that private consumption declines exogenously at an increasing rate, starting with 1% of GDP in 2001 and ending with 4% at the end of 2003. Similarly for investment which is down by .5% of GDP in 2001 and where the shock ends with 2% at the end of 2003. Both shocks are reversed after 3 years in order to stress the pure cyclical nature of the economic downturn.

Both types of shocks are analyzed under two alternative fiscal rules

*Fiscal rule 1, no SGP:* full working of automatic stabilizers (possibly violating the 3% deficit ceiling), which means no change in expenditure levels except for unemployment benefits and no change in tax rates. In order to avoid long-run unsustainability, a debt rule is invoked after 10 years, which adjusts capital and corporate taxes in such a way as to stabilize the level of debt attained after 10 years.

*Fiscal rule 2, SGP:* strict adherence to the 3% limit. This is achieved by a reduction in government spending in the recession.

#### 4.4. Simulation results

##### 4.4.1. Supply shock scenario

###### 4.4.1.1. Results for Germany<sup>8</sup>.

4.4.1.1.1. *No SGP scenario.* The growth rate shock lasts for 3 years and then returns to the historical growth rate (see Fig. 4). That means potential and actual GDP is permanently down. With government expenditure and receipts hardly changed, this means that the fiscal

<sup>8</sup> We only present results for Germany and Austria (as a representative neighbouring country). Results for France and Italy are similar.

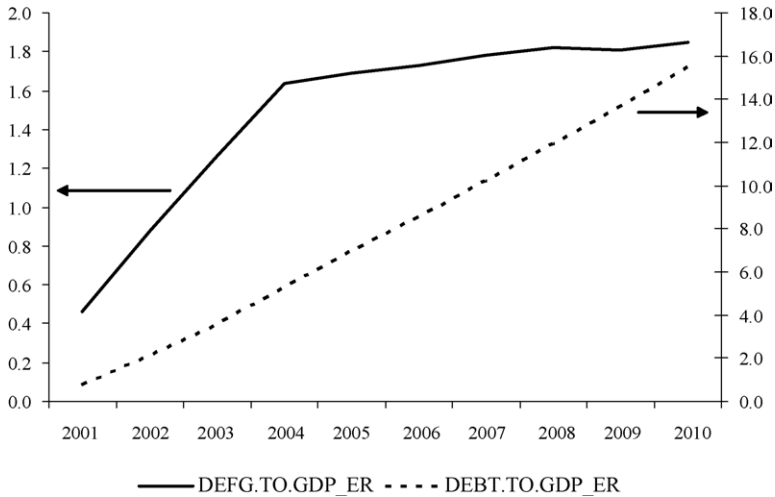


Fig. 5. Germany: budget deficit (DEFG.TO.GDP\_ER) and debt to GDP ratio (DEBT.TO.GDP\_ER) after the 3 years TFP shock.

deficit exceeds the 3% ceiling. Since the fiscal adjustment only occurs after 10 years the deficit remains high and leads to an accumulation of government debt as a % of GDP by about 15% points (Fig. 5). Stabilization of the government budget is eventually achieved via a tax increase. The additional tax burden is shared equally by capital and labor taxes which are increased by 2.5% points each.

The supply shock has clear adverse short term effects on growth. Interestingly growth never returns fully to the historic growth path. This is related to the two negative long-run effects of this policy, namely higher real interest rates and a larger tax burden<sup>9</sup> and the fact that the increase in taxes as well as the permanent increase in interest rates is understood by the private sector.

Other features of the adjustment are the strong response of investment and consumption to the permanent output loss (see Fig. 4) and the anticipation of higher taxes. The strong response of private demand leads to an improvement in the trade balance. Also because of the negative response of aggregate demand the exchange rate depreciates initially, followed by an appreciation in the longer run because of the permanent decline in domestic output. The combination of negative supply and (induced) negative demand shock implies that inflation does not pick up strongly.

*4.4.1.1.2. Alternative or SGP scenario.* Fiscal policy responds to the slowdown in Germany, France and Italy with a rapid adjustment of government expenditure in order to stabilize government debt at the pre shock level. This is the response of a country, which is close to 3% deficit and is then hit by a negative shock, i.e. there is no room for countercyclical fiscal policies.

<sup>9</sup> The interest rate effect of a permanent increase of Government debt by 10% points is below 10 basis points and is therefore at the lower end of available estimates.

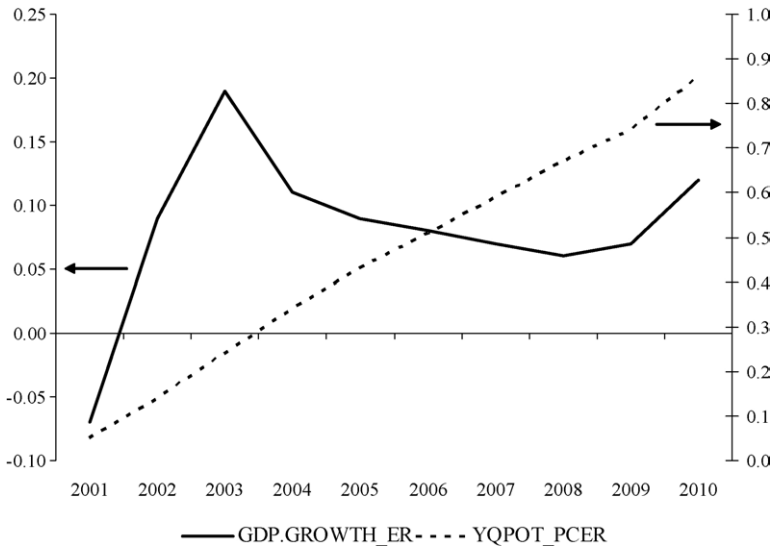


Fig. 6. Germany: comparing the SGP with the no SGP scenario results: GDP growth and potential output level after a TFP shock of 1% over 3 years.

*4.4.1.1.3. Economic interpretation of the SGP results in comparison with those of no SGP.* Obeying the SGP rules would have resulted in 1% point higher potential output level in the medium to long-run (see Fig. 6). The SGP approach would be only worse than the no SGP strategy in the first year of fiscal adjustment by around 0.1% points. Thereafter it results permanently in a growth bonus of 0.1% points annually (see Fig. 6). In addition to more growth the SGP strategy would have resulted in an improvement of the budgetary situation in Germany: the budget deficit is reduced and the debt to GDP ratio increases only by 1.5% points, resulting in a better performance compared to the no SGP strategy as far as the debt to GDP ratio is concerned by around 14–15% points (see Fig. 7).

*4.4.1.1.2. Spill overs to neighbors—the case of Austria.* The current SGP is looking primarily on the performance of a single Euro area country. This might be acceptable when evaluating a small country. If, however, a large country is scrutinized one should also consider the potential spill-over effects a large country might have. In order to study these additional effects we look at the outcome of the fiscal policy strategies in the three large Euro area countries on its neighbors. In order to make the presentation as simple as possible we only report the effects in Austria because Austria is highly connected with Germany and Italy and hence the spill-over effects are highest in this country.

Again the SGP strategy beats the no SGP fiscal approach. Only in the first year Austria would have suffered a small loss in real GDP growth by 0.2% points. Thereafter, however the effects are always better in the SGP case (see Fig. 8). Also potential output would be higher in the SGP scenario by 1/2% points in the medium to long-run.

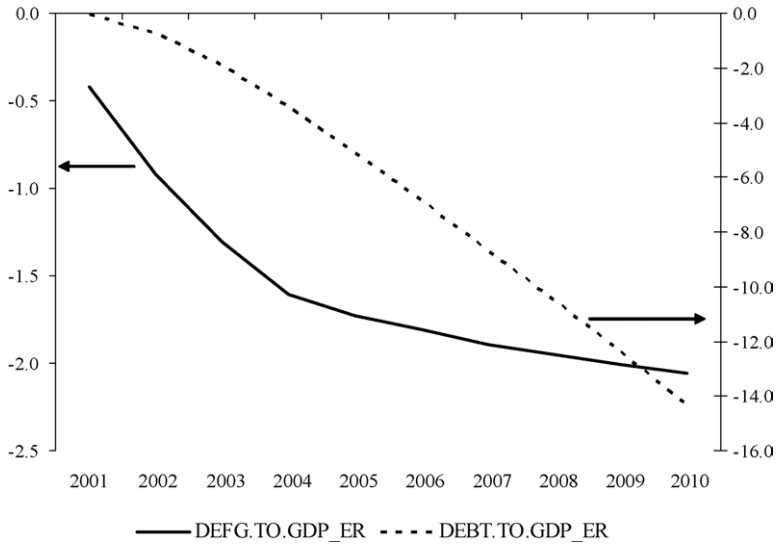


Fig. 7. Germany: comparing the SGP with the no SGP scenario results: budget deficit and debt to GDP ratio after the 3 years TFP shock.

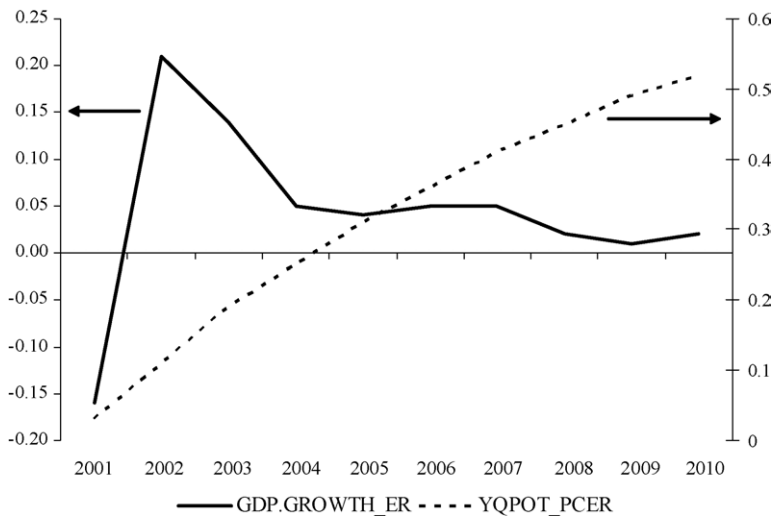


Fig. 8. Austria: comparing the SGP with the no SGP scenario results: GDP growth and potential output level after a TFP shock of 1% over 3 years.

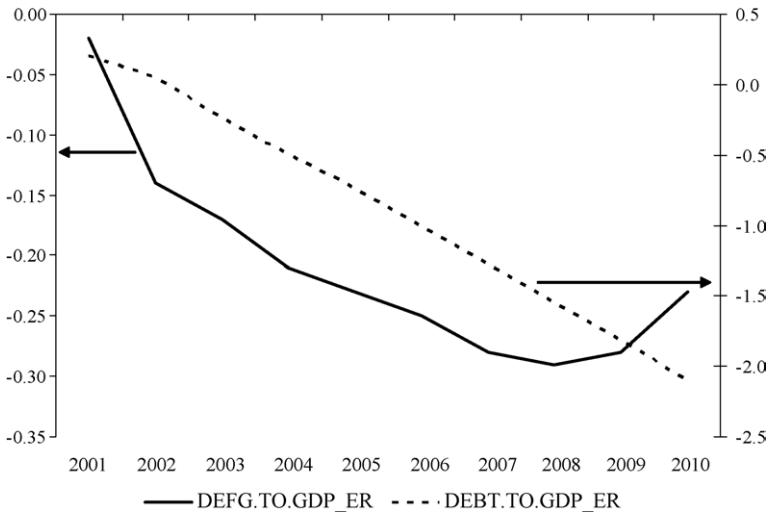


Fig. 9. Austria: comparing the SGP with the no SGP scenario results: budget deficit and debt to GDP ratio after the 3 years TFP shock.

The budgetary position would improve in Austria if the three largest Euro area countries would stick to the SGP strategy in order to overcome the economic crisis since 2001 (see Fig. 9).

#### 4.4.2. Demand shock scenario

##### 4.4.2.1. Results for Germany.

*4.4.2.1.1. No SGP scenario.* We explore the following scenario: A group of countries (notably Germany) has been hit by a negative (private) demand shock, which leads to a reduction in GDP over 3 years (similar in magnitude to the decrease under the supply scenario). Notice, the shock is designed to be a typical demand shock (i.e. the shock is temporary!); this means that the recession is relatively short lived and investment recovers strongly in the third year (see Fig. 10). A second feature which we want to highlight in this scenario is that not only is the negative demand shock temporary but it is followed by a positive demand shock after 3 years. In other words we want to stress a typical cyclical downturn with this scenario. This creates additional room for countercyclical fiscal policy, since any debt accumulated over the first 3 years will be eliminated (by a corresponding countercyclical policy in the following boom period).

The shock originates from private consumption. However, since it leads to a decline in prices and a rise in real interest rates it also has negative implications for investment. The exchange rate starts to depreciate because of the negative demand shock in the Euro area as a whole. Importantly: the design of the shock experiment does not lead to a build up of debt with a strong countercyclical policy (see Fig. 11).

*SGP scenario.* Here we assume that the short-term demand shock is adjusted with a SGP-like fiscal policy stance. That means that the short-term deterioration in the budgetary situation is counteracted by a cut in public expenditures.



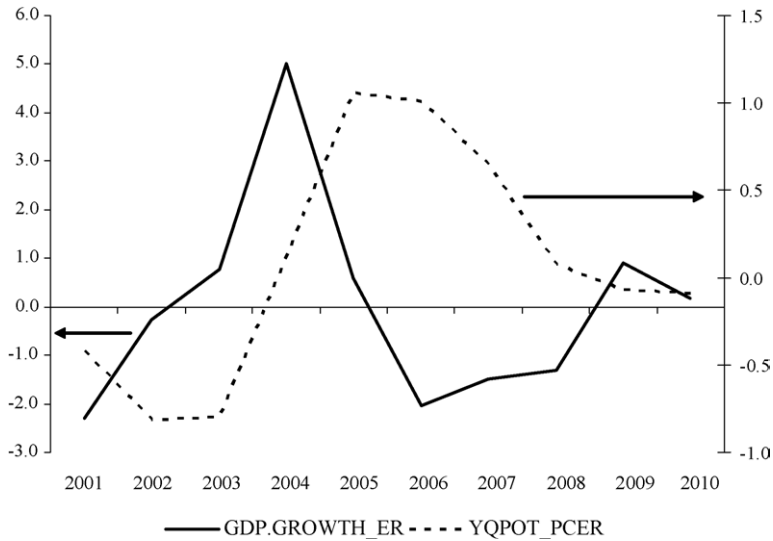


Fig. 10. Germany: GDP growth and potential output level after a demand shock.

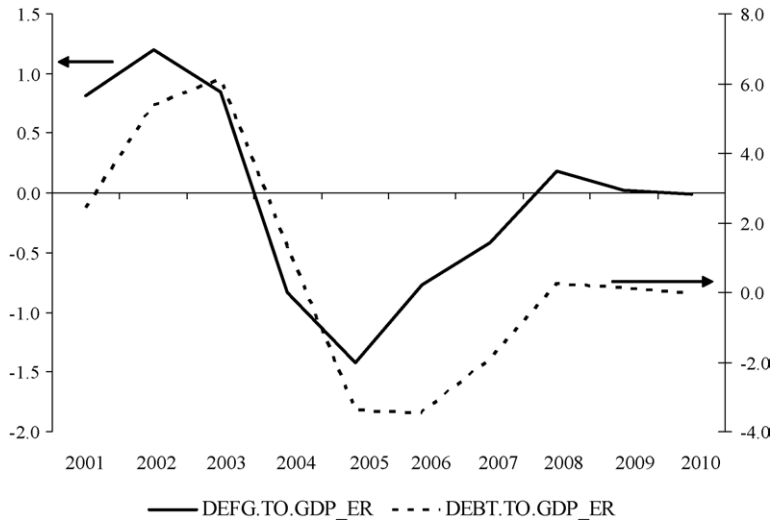


Fig. 11. Germany: budget deficit and debt to GDP ratio after a demand shock.

Comparing the two demand shock scenarios with each other. With a temporary demand shock, countercyclical fiscal policy is more effective in stabilising the economy, though the fiscal multiplier<sup>10</sup> remains relatively small (below 50% of the change in the deficit)). But,

<sup>10</sup> There are several studies dealing with the importance of automatic stabilizers in Europe; see Al-Eyd, Barrell, Holland, and Hurst (2004), Andrés and Doménech (2003), and Barrell and Pina (2004).

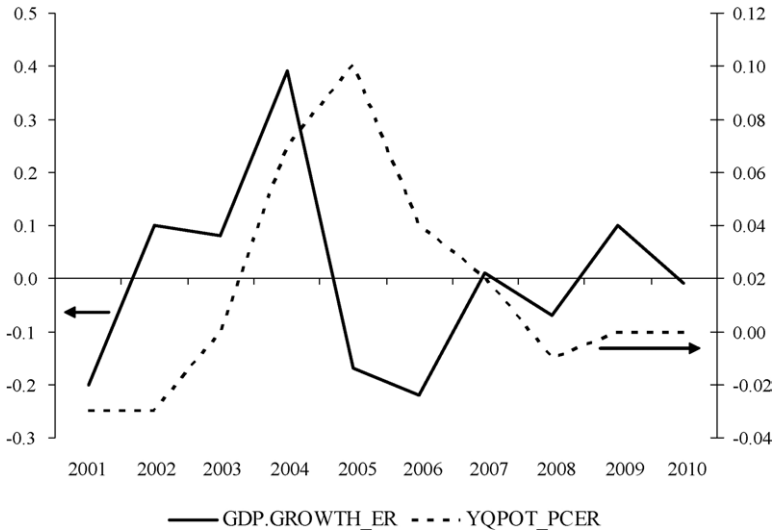


Fig. 12. Germany: comparing the SGP with the no SGP scenario results: GDP growth and potential output level after a demand shock.

as can be seen from the comparison between the SGP and NO SGP scenario, short-run output stabilisation is achieved with practically no cost in terms of future output losses (see Fig. 12). Also the budgetary performance is balanced in the medium to long-run (see Fig. 13). Fiscal stabilisation is more effective in this case since the shock and therefore the

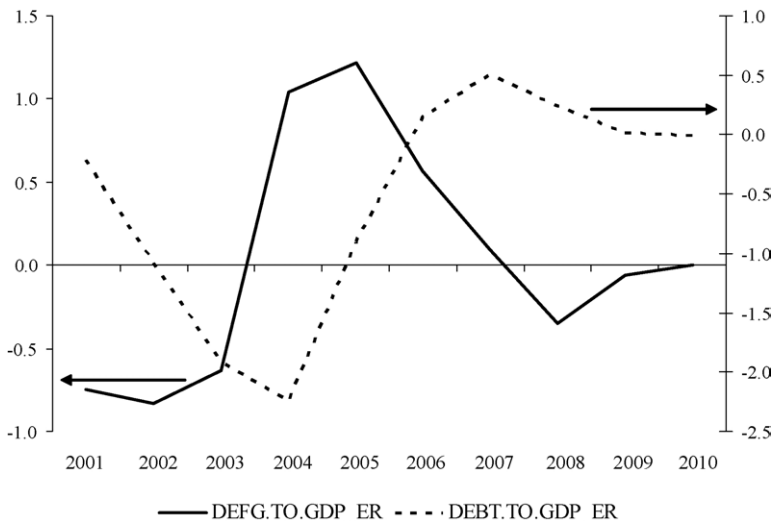


Fig. 13. Germany: comparing the SGP with the no SGP scenario results: budget deficit and debt to GDP ratio after a demand shock.

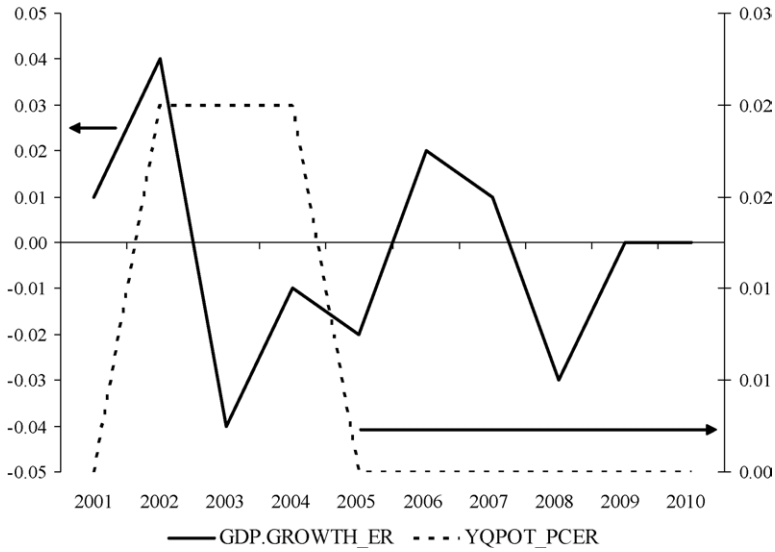


Fig. 14. Austria: comparing the SGP with the no SGP scenario results: GDP growth and potential output level after a demand shock.

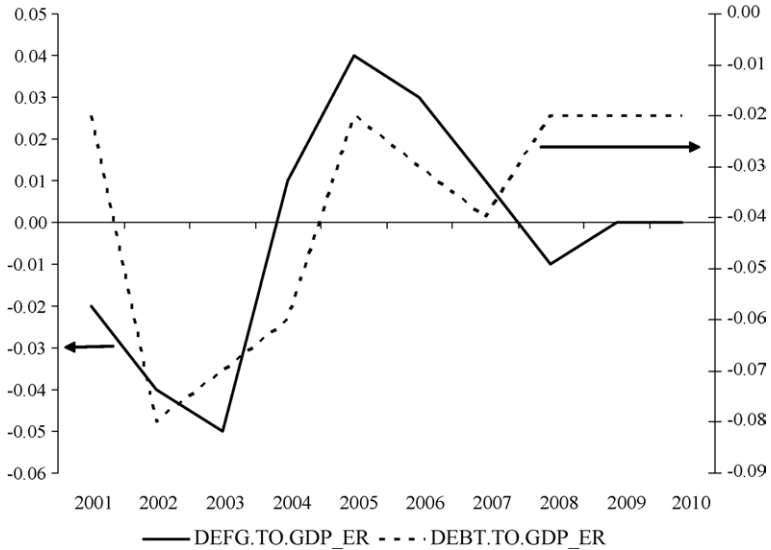


Fig. 15. Austria: comparing the SGP with the no SGP scenario results: budget deficit and debt to GDP ratio after a demand shock.

fiscal response is only of a temporary nature. Because of the consumption smoothing motive of households, private consumption responds less to a temporary fiscal shock. Secondly, there are no long-run adverse income effects.

*4.4.2.2. Spill overs to neighbors—the case of Austria.* Due to the small net effects in the three large Euro area countries the net spill-over effect (SGP minus no SGP strategy) after a demand shock in the large countries is neutral in the medium or long-run. This is the case in terms of real GDP (see Fig. 14) as for the budgetary performance (see Fig. 15).

## 5. Conclusions

In this paper we tried to study the advantage or disadvantage of applying the SGP fiscal rule in the case of a sluggish growth period, which dominated the economic situation in Europe in the years after 2001. The present debate about “refocusing the SGP” tries to improve the Pact exactly in view of the most recent bad experiences in France and Germany, struggling with the task to comply with the 3% deficit hurdle in the light of a slow but still positive growth over several years. The reform aims at improving the SGP in the following areas (European Commission, 2004b, p. 3): “(i) placing more focus on debt and sustainability in the surveillance of budgetary positions; (ii) allowing for more country-specific circumstances in defining the medium-term objectives of “close to balance or in surplus”; (iii) considering economic circumstances and developments in the implementation of the excessive deficit procedure; (iv) ensuring earlier actions to correct inadequate budgetary developments”.

With the QUEST model we reproduced the downturn of the European economy since 2001 assuming to extreme interpretations: (a) on the one hand it could have been a consequence of a negative supply shock (TFP decline over 3 years) or (b) a negative aggregate demand shock (reluctant consumption and investment demand) could have caused the slowdown. In any case we implemented these two shock scenarios in the three largest Euro area countries—France, Germany and Italy.

From our exercise we can draw the following tentative conclusions:

### (a) Supply shocks:

- (1) Obeying to a rule which forces the debt level back to the pre recession level (via cuts in government expenditure) gives the better permanent results (e.g. as measured by changes in private consumption or real GDP). This is in line with the SGP fiscal rules.
- (2) There is however a “small” cost in terms of current year output losses. This is to some extent model dependent and one could consider a sensitivity analysis with a few modifications to the model, which make it less forward looking.
- (3) The SGP type rule is more favorable for neighbor countries, at least seen from a permanent perspective.
- (4) The long-run effects of a lax fiscal policy response (no SGP rule), in terms of higher distortionary taxes and higher real interest rates are sizeable.

## (b) Demand shocks:

With pure temporary demand shocks (which are followed by demand shocks going in the opposite direction) countercyclical fiscal stabilization (the no SGP scenario) does not seem to be harmful but to the contrary can contribute to stabilizing the economy.

A final judgment on fiscal rules and the SGP in particular must therefore be based on an analysis of the nature of recessions in the Euro area. If recessions are fairly symmetric cyclical phenomena (followed by a boom of equal size) then countercyclical policies may be a good idea. If one believes that recessions in the euro area are of a more asymmetric nature, i.e. the economy does not fully return to the pre recession trend, then a more restrictive fiscal framework (the SGP scenario) may be more optimal.

## References

- Al-Eyd, A., Barrell, R., Holland, D., & Hurst, I. (2004). *Fiscal Rules and Stabilisers in Europe*. London: NIESR.
- Andrés, J., & Doménech, R. (2003). *Automatic stabilizers, fiscal rules and macroeconomic stability*. Madrid: Documento de Trabajo, No. 0314, Banco de España.
- Annet, A., Deccessin, J., & Deppler, M. (2005, February). *Reforming the stability and growth pact* (IMF Policy Discussion Paper, PDP/05/2). Washington, DC.
- Annichiarico, B., & Giammaroli, N. (2004, August). *Fiscal rules and sustainability of public finances in an endogenous growth model* (ECB Working Papers Series, No. 381). Frankfurt: European Central Bank.
- Badinger, H. (2004, November). *Fiscal rules, discretionary fiscal policy and macroeconomic stability: An empirical assessment for oecd countries*. WU-Vienna: Europe Institute, unpublished manuscript.
- Barrell, R., & Pina, A. M. (2004). How important are automatic stabilisers in Europe? A stochastic simulation assessment. *Economic Modelling*, 21(1), 1–35.
- Brandner, P., Frisch, H., Grossman, B., & Hauth, E. (2004). *Eine Schuldenbremse für Österreich*. Wien: Projektbericht.
- Breuss, F. (1998, August). *Sustainability of the Fiscal Criteria in Stage III of the EMU* (IEF Working Paper No. 29). WU-Vienna: Europe Institute, WU-Wien.
- Breuss, F. (2005, February). *Die Zukunft der Lissabon-Strategie* (WIFO Working Paper No. 244). Vienna: Austrian Institute of Economic Research.
- Brunila, A., Buti, M., & Franco, D. (Eds.). (2001). *The Stability and Growth Pact: The Architecture of Fiscal Policy in EMU*. Basingstoke, New York: Palgrave.
- Buti, M., & Giudice, G. (2002). *EMU's Fiscal Rules: What Can and Cannot be Exported?* Brussels: European Commission.
- Buti, M., & van den Noord, P. (2004, July). *Fiscal Policy in EMU: Rules, discretion and political incentives* (European Economy, Economic Papers No. 206). Brussels: European Commission.
- De Grauwe, P. (2003). *The Economics of Monetary Union* (5th Revised ed.). Oxford: Oxford University Press.
- Diebalek, L., Köhler-Töglhofer, W., & Prammer, D. (2005). The Austrian stability pact 2001–2004—design, objectives and effectiveness. *Wirtschaftspolitische Blätter*, 1, 291–305.
- ECOFIN (2005, March 21). *Improving the implementation of the stability and growth pact* (Council Report of the extraordinary ECOFIN meeting on 20 March 2005 to the European Council, 22–23 March 2005). Brussels.
- Emmerson, C., Frayne, Ch., & Love, S. (2003, September). *The Government's Fiscal Rules. The Institute for Fiscal Studies (IFS)* (Briefing Note No. 16, April 2001) (updated).
- European Commission (2002). *Public Finances in EMU 2002* (European Economy No. 3). Brussels.
- European Commission (2004a). *EMU after 5 years, European Economy* (Special Report). Brussels January 2004.
- European Commission (2004b, September 3). *Strengthening economic governance and clarifying the implementation of the stability and growth pact*. Communication from the Commission to the Council and the European Parliament. Commission of the European Communities. Brussels, COM, 2004 (581 final).

- European Commission (2004c). The economy for the Euro area, the European Union, and Candidate Countries in 2004–2006: Economic Forecast, Autumn 2004 (European Economy No. 5). Brussels.
- European Council (2005, March 23). Presidency Conclusions of the Brussels European Council, 22 and 23 March 2005 (Luxembourg Presidency). Brussels.
- European Court of Justice (2004, July 13). Judgment of the Court of Justice Clarifying the Powers of the Commission and the Council, Relating to the Excessive Deficit Procedure, Case C-27/04. Luxembourg.
- Fatás, A., & Mihov, I. (2003). The case for restricting fiscal policy discretion. *Quarterly Journal of Economics*, 118(4), 1419–1447.
- Fatás, A., & Mihov, I. (2004 April). *The Macroeconomic Effect of Fiscal Rules in the US States* (CEPR Discussion Paper Series No. 4372). London.
- Koen, V., & van den Noord, P. (2005, February). *Fiscal gimmickry in Europe: One-off measures and creative accounting* (OECD, Economics Department Working Paper No. 417 (ECO/WKP(2005)4). Paris.
- Larch, M., & Salto, M. (2003). *Fiscal rules, inertia and discretionary fiscal policy* (European Economy, Economic Papers No. 194). Brussels: European Commission.
- Neck, R., Haber, G., & McKibbin, W. J. (2005). Global macroeconomic policy implications of an enlarged EMU. In F. Breuss & E. Hochreiter (Eds.), *Challenges for Central Banks in an Enlarged EMU, ECSA-Austria Publication Series: Vol. 9* (pp. 235–257). Wien, New York: Springer.
- OECD (2002, December). IV: Fiscal Sustainability: The Contribution of Fiscal Rules, in: *Economic Outlook 72* (pp. 117–136). Paris.
- Pissarides, C. A. (1990). *Equilibrium Unemployment Theory*. Oxford: Basil Blackwell.
- Roeger, W., & in't Veld, J. (1997). *QUEST II: A Multi-country Business Cycle and Growth Model* (Economic Papers No. 123). Brussels: European Commission.
- Roeger, W., & in't Veld, J. (2004). Some selected simulation experiments with the European commission's QUEST model. *Economic Modeling*, 21, 785–832.
- Rother (2004). *Fiscal policy and inflation volatility* (ECB Working Paper No. 317). Frankfurt: European Central Bank.
- Schmitt-Grohe, St., & Uribe, M. (2004, January). *Optimal simple and implementable monetary and fiscal rules* (NBER Working Paper Series No. 10253). Cambridge, MA.
- Schratzenstaller, M. (2005). A new revenue sharing act and a new stability pact for Austria—no fundamental changes. *Austrian Economic Quarterly*, 1, 12–22.