

THE EFFECTIVENESS OF EURO AREA FISCAL POLICIES

ARTICLES

The effectiveness of euro area fiscal policies

In the aftermath of the 2008-09 financial and economic crisis, significant fiscal stimulus packages were put in place in the euro area. Although reliance on automatic fiscal stabilisers has been preferred to fiscal activism in recent decades, the financial crisis created adverse conditions in which timely, targeted and temporary stimulus programmes were likely to be more effective in supporting output than in normal circumstances. At the same time, their effectiveness in securing a self-sustaining recovery crucially depends on there being a credible fiscal exit and consolidation strategy in place that supports confidence in the longer-term sustainability of public finances.

This article summarises the theoretical and empirical evidence on the effectiveness of fiscal policies, focusing on the euro area. In line with the evidence on fiscal multipliers, the analysis suggests that temporary fiscal stimulus programmes within the framework of the European Economic Recovery Plan (EERP) have, to some extent, been supportive for output growth and employment in the euro area. However, the stimulus packages have also contributed to a further pronounced and persistent deterioration of fiscal balances. Some euro area countries have been slow in deciding on and implementing fiscal exit and consolidation strategies, giving rise to increased risks to financial stability. An illustrative analysis of multi-year fiscal consolidation programmes suggests that the long-term economic gains of restoring sound fiscal positions in the euro area far outweigh the short-run costs.

I INTRODUCTION

Following the global financial and economic crisis of 2008-09, governments around the globe implemented expansionary fiscal policies with the aim of stimulating demand. For the euro area countries, the fiscal stimulus packages amount to roughly 2% of GDP over the two-year period 2009-10 (not counting off-balance-sheet measures and the economic support provided by automatic fiscal stabilisers). The common framework for these national counter-cyclical fiscal policies was provided by the EERP, which the European Commission launched on 26 November 2008 and the European Council approved on 11-12 December 2008.¹

Based on past experience, however, the effectiveness of counter-cyclical (discretionary) fiscal expansions is usually undermined because of delays in implementing fiscal measures, the difficulty of targeting these at the most affected households and firms and, more generally, the uncertainty about the economy's response to temporary expenditure programmes or tax reductions. Another problem relates to difficulties in reversing initially temporary fiscal expansions as this may lead to a loss of confidence in the longer-term sustainability

of public finances. As a result, counter-cyclical fiscal policy aimed at stabilising the macroeconomy has been largely discredited since the 1970s.

The purpose of this article is to discuss the effectiveness of euro area fiscal policies with a specific focus on the 2008-09 crisis. The article builds on existing empirical research and model-based analysis. Apart from assessing the efficacy of fiscal stimulus programmes, the article also illustrates the long-run benefits and short-run costs of fiscal consolidation programmes. Government deficit ratios were already in excess of the 3% of GDP reference value in 2009 in the vast majority of euro area countries. Government debt-to-GDP ratios were also rising substantially, approaching or going beyond 100% in several countries. This has called into question the longer-term sustainability of public finances. Ambitious fiscal consolidation efforts must therefore be an integral part of the exit strategy to bring public finances in line with the provisions of the Stability and Growth Pact.

¹ See European Commission, "A European Economic Recovery Plan", COM(2008)800, 26 November 2008. A brief discussion of the EERP is provided in A. van Riet (ed.), "Euro area fiscal policies and the crisis", *Occasional Paper Series*, No 109, ECB, April 2010.

This article considers fiscal policy in the euro area as a whole, but it should be emphasised that the main issue on the fiscal side has been the total neglect by some countries of the fact that they have had no room for fiscal manoeuvre at all.² Countries that delay fiscal consolidation or do not recognise the severity of their fiscal situation contribute to the fiscal problems in the euro area as a whole. This can raise concerns regarding financial stability. From this perspective, in a single currency area, fiscal policies need to take fully into account specific national weaknesses, within the requirements of the Stability and Growth Pact.

The article is organised as follows. Section 2 provides an overview of the theoretical underpinnings of fiscal policy effectiveness, with a specific focus on the recent crisis conditions. In this context, it discusses the role of automatic stabilisation and discretionary fiscal policy, the notion of Ricardian equivalence, the issue of liquidity and credit constraints, and the crucial importance of maintaining confidence in longer-term fiscal sustainability. Section 3 reviews the empirical evidence regarding the effects of fiscal policies on economic growth and the evidence on fiscal multipliers. Section 4 assesses the macroeconomic effects of fiscal stimulus programmes within the framework of the EERP, and also discusses, more generally, the size of fiscal multipliers within structural models used by a number of policy-making institutions. Against the background of post-crisis fiscal imbalances in the euro area, Section 5 discusses the costs and benefits of multi-year fiscal consolidation programmes. Finally, Section 6 concludes.

2 FISCAL POLICY EFFECTIVENESS: THEORETICAL CONSIDERATIONS

This section discusses the theoretical underpinnings of counter-cyclical fiscal policy and automatic fiscal stabilisation. In this context, a comparison is made between the effectiveness of fiscal policies under normal cyclical conditions and under the specific circumstances

of a financial crisis followed by a recession. The discussion also stresses the crucial importance of maintaining confidence in longer-term fiscal sustainability when designing fiscal stimulus programmes.³

COUNTER-CYCLICAL FISCAL POLICY

The idea that public spending (while keeping tax rates constant) is the right tool for addressing economic downturns is based on the view that, if private demand is too low, then government spending crowds in private spending. This Keynesian view has been challenged by the neoclassical view, namely that government spending and taxation are powerless to affect the aggregate levels of spending and employment in the economy. Consequently, such policies would only redirect resources from the private sector to the public sector, resulting in full crowding-out. In the 2008-09 crisis, the Keynesian view seems to have regained a stronghold.

Therefore, one must consider the different levels at which crowding-out may occur. First, the government will engage in productive activities that would otherwise be provided by the private sector, so that public spending would simply supplant private investment. Second, government spending may create upward pressure on real interest rates, especially in highly indebted countries. This reduces private expenditure that is interest rate sensitive (e.g. spending on consumer durables, business fixed investment and residential construction). Third, there are significant negative wealth effects associated with debt-financed public spending. This type of crowding-out effect is often associated with the Ricardian equivalence hypothesis, which states that households save the proceeds from a debt-financed fiscal stimulus in anticipation of the future tax increase needed

2 For an assessment of the diversity of the fiscal positions of euro area countries at the onset of the financial and economic crisis, see, for example, A. van Riet (ed.), "Euro area fiscal policies and the crisis", *Occasional Paper Series*, No 109, ECB, April 2010.

3 See also W. Köhler-Töglhofer and L. Reiss, "The effectiveness of fiscal stimulus packages in times of crisis", *Monetary Policy and the Economy*, Q1/09, Oesterreichische Nationalbank, 2009, pp. 78-99.

to repay the additional government debt. Under rather restrictive assumptions (see Box 1), such Ricardian behaviour implies that consumers' net wealth becomes invariant to an increase in debt-financed government expenditure.

In a severe recession associated with a global financial crisis, like the one experienced recently, the crowding-out effect may potentially be weaker for several reasons. First, the share of agents with liquidity and/or credit constraints may increase in the course of a recession, in particular when banks face balance sheet problems and reduce credit supply. This makes Ricardian behaviour less

important. Second, when the economy is experiencing a severe downturn, and inflation is already very low, the central bank may not want to counteract the inflationary effects of the temporary fiscal stimulus. Hence, *ceteris paribus*, less upward pressure on the real interest rate and a lower crowding-out effect is likely. Third, in the presence of a large negative output gap, the likelihood of crowding out private expenditure is probably smaller. Finally, in the face of a global recession, a common (coordinated) counter-cyclical fiscal response can internalise cross-border leakages and enhance its efficacy for all participating countries.

Box 1

RICARDIAN EQUIVALENCE

In economic theory, Ricardian equivalence arises when forward-looking consumers save the proceeds from a debt-financed fiscal stimulus in anticipation of the future tax increase that will be needed to repay the extra government debt. Consumers' net wealth is thus invariant in the event of an increase in debt-financed government expenditure, and budget deficits would have no short-term real economic effects. This theory contrasts with the conventional Keynesian view that higher budget deficits would stimulate demand in the short run.¹

The theoretical possibility of Ricardian equivalence is based on a number of strict assumptions. These assumptions include households that exist infinitely (or intergenerational altruism within households that have a finite life), price flexibility, lump-sum taxes, efficient capital markets and an absence of credit constraints.

On the one hand, in the case of a severe recession, Ricardian equivalence may be less likely to arise than in normal times. In particular, the share of households with liquidity or credit constraints may increase, making any effect of Ricardian behaviour less important. On the other hand, it has also been argued that if fiscal stimulus packages are perceived as permanent rather than temporary and lead to expectations of much higher government debt, the importance of Ricardian behaviour may actually rise. In addition, the possible negative reactions of financial markets to sizeable increases in government debt may undermine the expected positive economic effects of a fiscal stimulus. Indeed, an increased risk of defaults on government debt and the potential rise in interest rates will dampen or even offset the economic stimulus.²

1 See D. Ricardo, "On the principles of political economy and taxation", in P. Sraffa (ed.), *The works and correspondence of David Ricardo*, Volume I, Cambridge University Press, 1951; and R. Barro, "Are government bonds net wealth?", *Journal of Political Economy*, 82(6), 1976, pp. 1095-1117.

2 See, for instance, J. Seater, "Ricardian equivalence", *Journal of Economic Literature*, 31, 1993, pp. 142-190.

Regarding the actual implementation of fiscal policy, the above theoretical points suggest that, in order for a fiscal stimulus to be effective, it needs to be timely, targeted and temporary.⁴ But timeliness can be hampered by lags in decision-making and implementation. In fact, when the fiscal impulse reaches the economy, the measures taken are often no longer needed and could actually turn out to be pro-cyclical. The effectiveness of fiscal policies can also be reduced by calls for fiscal activism from different groups in society, which can increase the difficulties of agreeing on specific discretionary measures. Therefore, targeting fiscal policies at specific beneficiaries may also be a difficult task. In addition, spending increases or tax cuts initially intended to be temporary may, in the end, prove difficult for the government to reverse, which will then worsen the fiscal position and may imply higher domestic interest rates through increases in risk premia. Truly temporary (or short-lived) fiscal expansions reduce the negative wealth effect of government spending, and hence the crowding-out effect is likely to be smaller. Some of the research evidence also shows that fiscal expansion can be more effective when households expect it to be reversed through future government spending cuts.⁵

In addition, fiscal stimulus measures for certain sectors of the economy (e.g. the car scrapping premium put in place by several euro area countries) or for the labour market (for instance, subsidising shorter working hours) are likely to have distortionary effects on competition and on structural adjustments. This is another reason why such stimuli should be of a temporary nature.⁶

Consequently, although there are many theoretical reasons to argue that timely, targeted and temporary fiscal stimuli can be effective, there are many practical issues that can jeopardise its efficacy. At the same time, these practical constraints may be less important in a financial crisis, when the expectation of a prolonged recession offers less risk of a pro-cyclical response and it should be easier to target agents facing liquidity and/or credit

constraints. Moreover, the temporary nature of a fiscal stimulus can be signalled by a credible fiscal exit strategy conditional upon the recovery gaining hold.

AUTOMATIC STABILISERS

The advantages of automatic stabilisation are well known. First, they are less subject to time lags in decision-making compared with discretionary measures. Moreover, they are not subject to political decision-making processes and their economic impact adjusts automatically to the cycle. Of course, the better the fiscal position, the more scope there will be for the automatic stabilisers to operate freely and fully. Such reasoning underpins the framework of the Stability and Growth Pact, according to which countries must achieve a country-specific “close to balance or surplus” medium-term budgetary objective. Accordingly, automatic stabilisers should be the first line of defence in an economic downturn, provided they do not undermine fiscal stability.

FISCAL CONSOLIDATION

Related to the above considerations, favourable expectation effects could also, in theory, more than offset the contractionary impact of fiscal consolidation on growth (the so-called non-Keynesian fiscal effects). The expansionary fiscal contraction hypothesis posits that consumers anticipate benefits from fiscal consolidation for their permanent income and consequently raise private consumption straight away.

4 See, for example, the box in the June 2008 issue of the Monthly Bulletin, “Discretionary fiscal policies, automatic stabilisation and economic uncertainty”, and A. van Riet (ed.), “Euro area fiscal policies and the crisis”, *Occasional Paper Series*, No 109, ECB, April 2010 for further discussions and possible extensions of the three conditions for fiscal stimulus effectiveness.

5 See G. Corsetti, A. Meier and G. Müller, “Fiscal stimulus with spending reversals”, CEPR Discussion Paper No 7302, 2009.

6 See the box in the October 2009 issue of the Monthly Bulletin, “The effects of vehicle scrapping schemes across euro area countries” and the article “Labour market adjustments to the recession in the euro area” in this issue of the Monthly Bulletin.

In other words, the frequently assumed negative Keynesian reaction of private consumption to fiscal consolidation could be reversed. For instance, a significant and sustained reduction of government expenditure may lead consumers to assume that a permanent tax reduction will also take place in the near future, inducing a positive wealth effect and increasing private consumption.⁷ In addition and apart from the positive wealth effect, expansionary effects following fiscal consolidation can also relate to other factors such as supply-side or structural reforms, monetary policy adjustments or exchange rate depreciations accompanying the fiscal consolidation.

Furthermore, the credible announcement and implementation of a fiscal consolidation strategy may diminish the risk premium associated with government debt issuance, which in turn reduces real interest rates and makes the crowding-in of private spending more likely. This applies in particular to countries with very high budget deficits and high government indebtedness, which, in the context of a crisis, are most vulnerable to rapid changes in market sentiment. However, if the reduction in government expenditure is small and temporary, or lacks credibility, private spending may not respond positively to the fiscal cutback.⁸ In addition, literature on the subject also refers to the long-run benefits of fiscal consolidation on output arising from lower long-term interest rates following the reduction of government borrowing requirements.

FISCAL POLICIES AND LONG-TERM ECONOMIC GROWTH

The traditional neoclassical growth model does not allow for fiscal policies to affect the long-term growth rate of the economy. However, several extensions of the neoclassical growth theory have considered public expenditure and taxation as playing a crucial role in determining long-term economic growth.⁹ Moreover, government expenditure in public infrastructure and in research and development are also important factors for growth.¹⁰ The composition of public spending has also been identified as an

important factor, notably public investment in education, which increases the level of human capital and is one of the main sources of long-run economic growth. Therefore, productive expenditure has a positive effect on the growth potential of an economy by means of increasing the marginal productivity of capital and/or labour or total factor productivity. In this regard, “core” government spending may be as important to longer-term output growth as private capital and labour. It can raise the human and physical capital stock and technical progress in the economy either directly or indirectly by creating synergies for private activities.¹¹

In addition, efficient and sustainable fiscal policies are a prerequisite for long-term growth. They entail moderate and predictable growth-enhancing government spending which stimulates private investment and innovation, while minimising potential adverse repercussions from necessary taxation through the minimisation of disincentives to save, invest, work and innovate. Accordingly, size, composition and volatility of budgetary items may impinge on economic growth. In particular, higher levels of government spending to GDP may endanger fiscal sustainability and/or increase the tax burden, which is harmful to potential growth.

7 See O. Blanchard, “Comment on Giavazzi and Pagano”, in O. Blanchard and S. Fischer (eds.), *NBER Macroeconomics Annual*, Vol. 5, MIT Press, 1990, pp. 111-116.

8 See F. Giavazzi and M. Pagano, “Can severe fiscal contractions be expansionary? Tales of two small European countries”, in O. Blanchard and S. Fischer (eds.), *NBER Macroeconomics Annual 1990*, MIT Press, 1990, pp. 75-111. For empirical evidence see, for instance, A. Afonso, “Expansionary fiscal consolidations in Europe: new evidence”, *Applied Economics Letters*, 17(2), 2010, pp. 105-109.

9 See D. Aschauer, “Is public expenditure productive?” *Journal of Monetary Economics*, 23, 1989, pp. 177-200; and R. Barro and X. Sala i Martin, “Technological diffusion, convergence and growth”, *Journal of Economic Growth*, 2, 1995, pp. 1-27.

10 R. Lucas, “On the mechanism of economic development”, *Journal of Monetary Economics*, 22, 1998, pp. 3-42; R. Barro, “Economic growth in a cross section of countries”, *Quarterly Journal of Economics*, 106(2), 1991, pp. 407-430; and P. Romer, “Endogenous technological change”, *Journal of Political Economy*, 98(5), 1990, pp. 71-102.

11 See “Structural policies in times of crisis” in the December 2008 issue of the Monthly Bulletin.

3 FISCAL POLICY EFFECTIVENESS: EMPIRICAL EVIDENCE

This section discusses the empirical evidence from two strands of literature. The first is related to the long-term growth effects of fiscal policy. The second concerns literature which studies the size of fiscal multipliers, i.e. the impact of discretionary fiscal policy measures on output, considering different fiscal instruments.

LONG-TERM GROWTH EFFECTS OF FISCAL POLICY

The empirical findings regarding the effects of fiscal policies on economic growth, covering OECD countries, are predominantly based on panel and vector autoregressive (VAR) analysis. The results of such studies can be summarised as follows: negative effects arise from distortionary taxation and disproportionate levels of government consumption and public wages, whereas positive effects are associated with government investment and, notably, education expenditure.¹² For example, available empirical evidence on the macroeconomic rate of return on public investment suggests that public investment is expansionary and has crowding-in effects in most OECD countries.¹³ At the same time, other empirical studies find a negative link between government size and growth.¹⁴ For instance, both government size and fiscal volatility tend to hamper growth in OECD countries.¹⁵

FISCAL MULTIPLIERS – EMPIRICAL EVIDENCE

There is a wide body of literature which studies the size of fiscal multipliers, i.e. the impact of a change in fiscal variables on the level of output. For instance, available evidence from structural Bayesian VAR approaches for the United States, the United Kingdom, Germany and Italy find that government spending shocks, in general, have a small but positive effect on GDP. In addition, fiscal spending multipliers are positive but relatively small in the euro area, and time-varying VAR analysis reports that fiscal spending multipliers went up to about one in 1985 and then fell to about 0.5 in 2008.¹⁶

However, there is widespread uncertainty in empirical studies about the private sector's response to temporary fiscal actions. Fiscal spending and tax (cut) multipliers based on VAR models range from negative numbers to positive numbers well above one.¹⁷

One of the key difficulties in the empirical literature is related to the identification of the so-called fiscal shocks, i.e. the autonomous component of fiscal measures. Large fiscal stimulus programmes are typically implemented in times of economic distress. Hence, spending increases observed in the economic data typically reflect changes in the state of the economy, rather than autonomous changes in fiscal policy undertaken by the governments. Another problem is that fiscal measures are typically preceded by budgetary or even legislative processes. As a consequence, the fiscal measures are often anticipated by the private sector. In this case, the difficulty of assessing the effectiveness of fiscal stimulus measures by means of VAR models is further exacerbated.¹⁸ Moreover, as also noted in Section 2, the specificity of the policy environment in which counter-cyclical fiscal

12 See a summary in A. Afonso and J. González Alegre, "Economic growth and budgetary components: a panel assessment for the EU", *Working Paper Series*, No 848, ECB, 2008.

13 See A. Afonso and M. St. Aubyn, "Macroeconomic rates of return of public and private investment: crowding-in and crowding-out effects", *Manchester School*, 77(S1), 2009, pp. 21-39.

14 See European Commission, "Public finances in EMU 2008", *European Economy*, 4/2008.

15 See A. Afonso and D. Furceri, "Government size, composition, volatility and economic growth", *Working Paper Series*, No 849, ECB, 2008.

16 See O. Blanchard and R. Perotti, "An empirical characterization of the dynamic effects of changes in government spending and taxes on output", *Quarterly Journal of Economics*, 117, 2002 pp. 1329-68; A. Afonso and R. Sousa, "The macroeconomic effects of fiscal policy", *Working Paper Series*, No 991, ECB, 2009; and M. Kirchner, J. Cimadomo, S. Hauptmeier, "Transmission of government spending shocks in the euro area: time variation and driving forces", *Tinbergen Institute Discussion Papers*, TI 2010-021/2, 2010.

17 See P. van Brusselen, "Fiscal stabilisation plans and the outlook for the world economy", *ENEPRI Working Papers*, No 55, 2009.

18 Case studies, or narrative evidence of fiscal news, lead to larger fiscal multipliers than those in standard fiscal VARs. See C. Favero and F. Giavazzi, "Reconciling VAR-based and narrative measures of the tax-multiplier", *IGIER Working Papers*, No 360, 2010; and V. Ramey and M. Shapiro, "Costly capital reallocation and the effects of government spending", *Carnegie-Rochester Conference Series on Public Policy*, 48, 1998, pp. 145-94.

policy is typically applied also makes it difficult to generalise the results from the limited number of episodes of discretionary fiscal expansions.¹⁹

Additional available evidence also indicates that a higher public debt-to-GDP ratio reduces the effectiveness of fiscal policy. Therefore, a fiscal stimulus in the presence of lower government indebtedness can have a stronger effect on the economic recovery relative to a situation of higher government indebtedness.²⁰

Several studies suggest that the efficacy of a fiscal stimulus based on government spending can vary widely, depending on the monetary and fiscal policy regimes, i.e. how strongly the monetary and fiscal policies react to variations in the state of the economy, including the level of government indebtedness, as well as a range of other factors such as the size of the country, the degree of openness and other institutional factors. In this respect, structural models provide a clear advantage with respect to empirical VAR-based approaches in the assessment of the role of different policy and institutional environments on the efficacy of fiscal stimulus measures. They also allow for the consideration of different fiscal policy instruments.

4 EFFECTIVENESS OF FISCAL POLICY IN STRUCTURAL MODELS

Governments in the euro area have responded to the economic crisis with a range of fiscal stimulus measures within the framework of the EERP.

Table 1 gives a breakdown of the different fiscal measures implemented at the euro area level, as estimated by the European Commission. In total, the fiscal stimulus measures amount to 1.1% and 0.8% of GDP in the years 2009 and 2010 respectively. These fiscal measures have been implemented in addition to the stimulus provided through the operation of automatic fiscal stabilisers and do not include other extra-budgetary actions such as capital injections, loans and guarantees to non-financial firms and investment by public corporations.

Table 1 reveals that, within the EERP, support for households' purchasing power accounts for about 40% of the total stimulus in the euro area countries in 2009-10. These fiscal measures have taken the form of a reduction in direct taxes, social security contributions and VAT, as well as direct aid, such as income support for households and support for housing or property markets. Notable stimulus measures have also been adopted to support investment and businesses directly. These categories account for roughly 30% and 20% of the total stimulus respectively. Support for investment has primarily taken the form of public (infrastructure) investment, while the measures directly targeted at supporting business activity have mainly been aimed at reducing business costs (reduction of taxes and social security contributions, direct aid in the form

19 See, for example, T. Davig and M. Leeper, "Monetary-fiscal policy interactions and fiscal stimulus", The Federal Reserve Bank of Kansas City, RWP 09-12, 2009.

20 See Chapter 3 of IMF, "World economic outlook: crisis and recovery", April 2009.

Table 1 Composition of fiscal stimulus packages in the euro area in 2009-10

(as a percentage of GDP)

	2009	2010	Corresponding fiscal instruments in the New Area-Wide Model
Measures aimed at households	0.4	0.3	Transfers and labour income taxes to all households; consumption taxes
Increased spending on labour market measures	0.1	0.1	Government consumption
Measures aimed at businesses	0.2	0.2	Payroll taxes; capital income taxes; private investment tax credits
Increased public investment	0.3	0.2	Government investment
Total	1.1	0.8	

Sources: "Public finances in EMU 2009", *European Economy* 5/2009, p. 14, Table I.1.1, European Commission, 2009. Discrepancies arise as a result of rounding. For 2010, only the total size of stimulus measures is available. The individual measures for 2010 are calculated using the shares in the total stimulus in 2009.

Note: In the case of multiple fiscal instruments in the New Area-Wide Model, it is assumed that the stimulus measures are allocated proportionally to each instrument.

Table 2 Economic effects of the euro area fiscal stimulus in the New Area-Wide Model

(percentage; percentage points)

	2009	2010	2011	2012	2013
Real GDP	0.7	0.6	0.1	0.1	0.1
Headline CPI inflation	-0.2	0.1	0.1	-0.1	-0.1
Government deficit-to-GDP ratio	0.6	0.7	-0.2	-0.4	-0.3
Government debt-to-GDP ratio	-0.1	0.7	1.2	0.9	0.6

Notes: Real GDP is expressed in percentage deviations from the baseline which is the calibrated steady-state solution of the model. All other variables are expressed as percentage point deviations from the baseline.

of earlier payment of VAT returns, subsidies and the stepping up of export promotion). Labour market measures (wage subsidies and active labour market policies) account for about 10% of the total stimulus and thus represent the smallest fraction of the total stimulus measures.²¹

The ECB's New Area-Wide Model (NAWM)²² has been used to illustrate, by means of simulations, the likely economic effects of the EERP. To this end, Table 1 also provides information on how the different fiscal measures implemented within the framework of the EERP were allocated to the NAWM's fiscal variables in the simulation exercise. Because of the unavoidably imperfect match between the exact fiscal stimulus measures adopted by the euro area member countries and the NAWM's fiscal variables, a certain amount of judgement was needed. For instance, labour market measures were allocated to government consumption since they are primarily active labour market policies, the costs of which are paid for by the government. Nevertheless, keeping the above-mentioned caveat in mind, the simulations broadly reflect the actual EERP measures.

In the NAWM, the paths of fiscal instruments specified in Table 1 are imposed and the endogenous response of the economy is simulated. It is assumed that the stimulus is initially fully debt-financed. Within the first two years, the nominal interest rate and lump-sum taxes are kept constant. Thereafter, the nominal interest rate is adjusted according to a Taylor rule and lump-sum taxes are adjusted gradually to reduce the government debt-to-GDP ratio to its long-run target of 60%. Note that the model-based simulations do not explicitly consider financial

stability aspects and possible repercussions from the heightened risk to financial stability on account of the deteriorating fiscal balance. The simulations also consider the euro area as a whole and hence do not address the specific circumstances of diverse fiscal positions within the euro area.

Table 2 shows the simulation results from the NAWM. The impact on real GDP in 2009 and 2010 (relative to the steady-state baseline) is positive, amounting to about 0.7% and 0.6% respectively.^{23,24} Assuming that the fiscal stimulus measures are lifted in 2011, the effects on real GDP fade away rather quickly. The response of headline CPI inflation is muted,

21 See "Public finances in EMU", *European Economy*, 5/2009, European Commission, 2009.

22 The analysis is based on the NAWM version described in R. Straub and I. Tchakarov, "Assessing the impact of a change in the composition of public spending - a DSGE approach", *Working Paper Series*, No 795, ECB, 2007. In the model, the fiscal authority adjusts lump-sum taxes in response to deviations of the government debt-to-GDP ratio from 60%, in line with the Maastricht Treaty. The monetary authority follows a standard Taylor rule in terms of consumer price inflation and deviation from its price stability objective (excluding the first-round effects of changes in consumption taxes) and the output gap. In the NAWM, households differ with respect to their ability to access financial markets. A fixed proportion of 75% of households are assumed to be Ricardian (not liquidity constrained) and the remaining 25% of households are assumed to be non-Ricardian (liquidity constrained), with non-Ricardian households having a higher propensity to consume.

23 Owing to the temporary nature of the fiscal stimulus, and since the physical capital stock adjusts slowly in the model, the increase in real GDP is mostly generated by an increase in employment.

24 The effects of the EERP on, for example, real GDP, as estimated on the basis of the NAWM, are somewhat smaller than those obtained with the European Commission's Quest III model (see "Public finances in EMU", *European Economy*, 5/2009, European Commission). The differences reflect alternative modelling assumptions (e.g. regarding the importance of liquidity and credit-constrained households) and a somewhat different design of the simulations. For instance, increasing the share of non-Ricardian households from 25% to 50% would make the real GDP effects about 0.1% larger in 2009-10 in the NAWM.

amounting to -0.2 percentage point in 2009 and 0.1 percentage point in 2010. The impact on the government deficit-to-GDP ratio amounts to 0.6 percentage point in 2009 and 0.7 percentage point in 2010, followed by improvements in the budget balance from 2011 onwards. The government debt-to-GDP ratio falls slightly in the first year (because of the positive denominator effect in 2009), but then the impact turns positive and remains at an elevated level, peaking at 1.2 percentage points in 2011.²⁵

Taking into account the allocation of the fiscal stimulus measures provided in Table 1, these results are well aligned with the more detailed analysis of fiscal multipliers given in Box 2. In particular, according to the simulations, the average two-year GDP multiplier of the EERP is about 0.7, which is well within the range of individual instrument multipliers from 0 to 2 reported in Box 2 (see Table B, Column I). Box 2 also provides a detailed explanation of the fact that temporary expenditure-based fiscal measures have larger multipliers than temporary revenue-based fiscal measures, since the former stimulate aggregate demand directly and more effectively. In particular, expenditure-based multipliers range from 0.3 to 2, while revenue-based multipliers range from 0 to 0.4 (see Table B, Column I in Box 2). The composition of the EERP given in

Table 1 reveals that the division of revenue and expenditure measures is roughly 50/50, which produces the overall EERP GDP multiplier reported above. These considerations lead to the conclusion that the fiscal stimulus packages could have been more effective in stimulating output and employment if, for example, a larger portion of the packages had been devoted to measures that temporarily enhance public or private investment.

All in all, the simulations suggest that the output gains of temporary fiscal stimulus measures are positive, albeit short-lived. At the same time, the stimulus packages have also contributed to a further deterioration of fiscal balances. Many euro area countries have been slow in implementing fiscal exit and consolidation strategies. This gives rise to increased risk to financial stability by weakening public confidence in the capacity of governments to restore the sustainability of public finances. This underlines the utmost importance of a swift implementation of credible consolidation strategies in order to re-establish fiscal balance in the aftermath of the crisis.

²⁵ The presence of Ricardian households implies a negative wealth effect in response to the anticipated future tax increase, so that short-run real GDP is affected negatively by the initial rise in government debt.

Box 2

FISCAL MULTIPLIERS IN GENERAL EQUILIBRIUM MODELS¹

Given the widespread resort to fiscal policy as a tool to fight the collapse in demand following the economic and financial crisis, academia and policy institutions have recently produced a considerable amount of research on the effects of fiscal stimuli using structural general equilibrium models. The findings of this research suggest that a key factor is the design of the fiscal stimulus itself, e.g. the fiscal instrument chosen, the duration of the stimulus, whether the nominal interest rate is kept constant or not, and the way it is financed.²

¹ This box is largely based on G. Coenen, J. Kilponen and M. Trabandt, "When does fiscal stimulus work?", *Research Bulletin*, No 10, ECB, 2010.

² See, for example, the following recent papers: L. Christiano, M. Eichenbaum and S. Rebelo, "When is the government spending multiplier large?", *NBER Working Paper*, No 15394, 2009; J. F. Cogan, T. Cwik, J. B. Taylor and V. Wieland, "New Keynesian versus Old Keynesian government spending multipliers", *Journal of Economic Dynamics and Control*, 34, 2009, pp. 281-295; G. Corsetti, A. Meier and G. Müller, "Fiscal stimulus with spending reversals", *IMF Working Paper*, No 09/106, 2009; C. Erceg and J. Lindé, "Is there a fiscal free lunch in a liquidity trap?", *CEPR Discussion Paper*, No 7624, 2010; R. Hall, "By how much does GDP rise if the government buys more output?", *NBER Working Paper*, No 15496, 2009; and M. Woodford, "Simple analytics of the government expenditure multiplier", *NBER Working Paper*, No 15714, 2010.

The quantitative importance of several of these factors was analysed in a model comparison exercise coordinated by the IMF in spring 2009.³ The models compared, including the ECB's NAWM, share many features such as forward-looking behaviour on the part of households and firms, nominal and real rigidities, as well as liquidity and/or credit constraints. Hence, the models depart from the Ricardian equivalence hypothesis discussed in Box 1. The models are calibrated to, or estimated for, the United States, the euro area/EU and the rest of the world. Reflecting the differences between these economic areas, the models feature, inter alia, different degrees of price stickiness, different proportions of liquidity/credit-constrained households and different degrees of openness. In all the models, monetary and fiscal policies are characterised by simple feedback rules.

Table A reports the ranges of fiscal multipliers and inflation effects obtained from different models for the euro area/EU. The effects are shown under two different assumptions, namely that the nominal interest rate reacts in accordance with an interest rate feedback rule, and that the nominal interest rate remains unchanged for two years. It can be seen that the government consumption multipliers are remarkably similar across models when the nominal interest rate adjusts (close to, but below one). A constant nominal interest rate – resembling a situation in which the central bank may not want to counteract the inflationary effects of a fiscal stimulus – increases the multiplier in all models. When the central bank raises nominal interest rates in accordance with a feedback rule, the multiplier ranges from 0.7 to 0.8, while under a fixed nominal interest rate the multiplier ranges from 1.1 to 1.7.

The sizeable difference in the multipliers relates to the differing reactions of the real interest rate. Under a fixed nominal interest rate, and because of emerging price pressures, the real interest rate falls, while when the nominal interest rate adjusts, the real interest rate rises. In the latter case, the increase in the real interest rate causes households and firms to postpone their consumption plans

3 For details, see G. Coenen, C. Erceg, C. Freedman, D. Furceri, M. Kumhof, R. Lalonde, D. Laxton, J. Lindé, A. Mourougane, D. Muir, S. Mursula, C. de Resende, J. Roberts, W. Roeger, S. Snudden, M. Trabandt and J. in't Veld, "Effects of fiscal stimulus in structural models", *IMF Working Paper*, No 10/73, 2010.

Table A GDP multipliers and the impact on CPI inflation based on models for the euro area/EU

(percentage; percentage points)

	GDP multiplier		Headline CPI inflation	
	Variable nominal interest rate	Two-year constant nominal interest rate	Variable nominal interest rate	Two-year constant nominal interest rate
Increases in expenditure				
Government consumption	0.7 - 0.8	1.1 - 1.7	0.0 - 0.1	0.2 - 0.3
Government investment	0.8 - 1.1	1.1 - 1.6	0.0 - 0.1	0.1 - 0.3
Transfers to all households	0.0 - 0.2	0.1 - 0.5	0.0 - 0.1	0.1 - 0.1
Transfers to non-Ricardian households	0.1 - 0.6	0.6 - 1.2	0.1 - 0.2	0.2 - 0.3
Reductions in revenue				
Labour income taxes	0.1 - 0.3	0.0 - 0.8	-0.1 - 0.0	-0.1 - 0.1
Consumption taxes	0.2 - 0.3	0.4 - 1.0	0.0 - 0.0	0.1 - 0.2
Capital income taxes	0.1 - 0.1	0.1 - 0.2	0.0 - 0.0	0.0 - 0.1

Notes: This table provides the ranges (min-max) of the GDP multiplier and the impact on headline CPI inflation (excluding the direct effect of consumption tax changes) across models. The fiscal multipliers are calculated as the two-year average percentage deviation of real GDP from baseline GDP. The impact on CPI inflation is measured as the annualised two-year average percentage point deviation from baseline inflation. All fiscal stimuli are standardised to 1% of baseline GDP. Except for capital income taxes, the models are the European Commission's QUEST model, the IMF's GIMF model, the ECB's NAWM and the OECD's Small Fiscal Model. For capital income taxes the models are QUEST and GIMF. The fiscal stimulus is assumed to last for two years with full reversal to the baseline afterwards. During the first two years, the fiscal stimulus is fully debt-financed.

and to reduce investment in physical capital. Under a fixed nominal interest rate, the fall in the real interest rate leads to higher consumption and investment spending than in the endogenous interest rate response case.

The results shown in Table A also highlight that the fiscal instruments which directly stimulate aggregate demand (government consumption and investment) or targeted transfers (i.e. transfers to non-Ricardian households that consume their labour income in each period) lead to higher fiscal multipliers than tax cuts in the short run. The difference in the fiscal multipliers is related to the strength of the implied negative wealth effects. In the case of temporary government spending increases, the negative wealth effect of government spending (i.e. the increase in the present value of future tax payments required to balance the government's budget over time) is small. Hence, the crowding-out of private spending is limited when the fiscal stimulus is short-lived. By the same argument, temporary tax cuts have only small effects on private spending since the implied favourable wealth effect is small.

What affects the fiscal multiplier? Results from the NAWM

Using the NAWM, Table B shows how the fiscal multipliers for the euro area are affected by various assumptions concerning the economic environment as well as by alternative fiscal instruments. These alternative assumptions or instruments reflect, to the extent possible, the various differences in country specific characteristics in the euro area.

Several interesting results emerge in the benchmark case (see Column I), in which the two-year constant nominal interest rate assumption is used in order to reflect the exceptional circumstances of the crisis. First, the NAWM fiscal multipliers tend to be located towards the lower end

Table B Euro area GDP multipliers: results from the NAWM

	Benchmark	Variable nominal interest rate	One-year stimulus	Delayed stimulus	Gradual stimulus removal	More non-Ricardian households	Government bond yield risk premia	More flexible prices	More open economy
	I	II	III	IV	V	VI	VII	VIII	IX
Increases in expenditure									
Government consumption	1.2	0.8	0.6	0.8	0.6	1.2	1.1	1.3	1.1
Government investment	1.1	0.9	0.6	0.8	0.5	1.2	1.0	1.2	1.0
Transfers to all households	0.3	0.1	0.1	0.1	0.3	0.4	0.2	0.4	0.2
Private investment subsidy (tax credit)	2.0	1.0	0.6	1.6	1.4	2.1	2.1	2.4	0.9
Reductions in revenue									
Labour income taxes	0.0	0.1	0.1	0.1	0.0	0.2	-0.1	0.0	0.1
Consumption taxes	0.4	0.3	0.2	0.2	0.2	0.5	0.3	0.5	0.3
Firms' payroll taxes (social security contributions)	0.1	0.3	0.1	0.2	-0.1	0.1	-0.1	-0.4	0.3
Capital income taxes	0.1	0.1	0.0	0.2	0.5	0.2	0.0	0.2	0.1

Notes: This table provides the GDP multipliers for the euro area from the ECB's NAWM for various fiscal instruments and model specifications. The multiplier is calculated as the average percentage deviation of GDP from its baseline during the first two years. The fiscal stimulus is standardised to 1% of baseline GDP and is initially fully debt-financed. After the end of the fiscal stimulus, lump-sum taxes are adjusted to reduce the government debt-to-GDP ratio to its long-run target of 60%. In the benchmark case, the fiscal stimulus lasts for two years with full reversal to the baseline afterwards and the monetary authority keeps the interest rate fixed during the first two years.

of the ranges reported in Table A on account of alternative modelling assumptions (e.g. regarding the importance of liquidity-constrained households and the degree of nominal rigidities). Second, the results confirm the earlier finding that temporary expenditure-based fiscal stimuli generally lead to higher multipliers than revenue-based stimuli. Third, of all the instruments, subsidies for private investment produce the largest multiplier since they provide the strongest incentives to invest in productive capacity, which eventually amplifies the initial stimulus. Fourth, reductions in firms' social security contributions have only a small effect on output, since the temporary nature of the stimulus does not induce firms to lower prices enough to stimulate demand. This is due to the presence of relatively high nominal rigidities in the euro area.

In line with the findings of the IMF model comparison exercise, a variable nominal interest rate (see Column II) reduces the multiplier for expenditure measures owing to the increase in the real interest rate relative to the benchmark case.

If a stimulus of one year instead of two years (see Column III) is assumed, the multiplier falls owing to the presence of nominal and real rigidities, preventing propagation of a shorter fiscal stimulus. On the other hand, Table B also shows that fiscal expansions that go well beyond two years (see Column V) lead to considerably lower output responses, i.e. deliver smaller multipliers. The reason is that more persistent expansions result in a larger increase in the present discounted value of future tax payments, and thus in a larger negative wealth effect.⁴

It has been argued that fiscal stimuli are subject to decision or implementation lags. Column IV of Table B shows that a fiscal stimulus delayed by one year reduces the multiplier as a result of anticipation effects. In particular, consumption smoothing motives, in conjunction with the anticipation of negative wealth effects, induce households to increase savings, which reduces the multiplier.

Empirical evidence suggests that the financial and economic crisis has increased the share of liquidity or credit-constrained (non-Ricardian) households. Assuming a share of non-Ricardian households of 50% (see Column VI) instead of 25% increases the multiplier since fiscal measures directly or indirectly increase the disposable income of these households. Quantitatively, however, the effect is rather limited, which suggests that the effect of the higher proportion of non-Ricardian households is offset by the behaviour of Ricardian households.

Column VII in Table B shows that the multiplier falls if government bond yield risk premia are taken into account in the analysis. The fiscal stimulus is initially financed by government debt. On account of risk premia, households save more in anticipation of a higher stock of outstanding government debt that needs to be repaid by increased future taxes. This reduces the multiplier.

In countries with more flexible prices (see Column VIII), the expenditure-based multipliers increase if the nominal interest rate is kept constant. The stronger increase in inflation in response to the stimulus translates into a more pronounced fall in the real interest rate, which eventually stimulates aggregate demand more effectively.

Finally, a higher degree of openness (Column IX) decreases the multiplier as some of the domestic fiscal stimulus spreads to the rest of the world via trade and capital markets.

⁴ See also the box entitled "The effectiveness of various fiscal measures to stimulate the economy" in the March 2009 issue of the Monthly Bulletin, pp. 78-80.

Overall, these results suggest that spending multipliers are, on average, most sensitive to assumptions regarding whether the nominal interest rate is kept constant or not, and to the length of the fiscal stimulus. Tax multipliers, in turn, are most sensitive to assumptions concerning government bond yield premia and the degree of price stickiness. In a few cases, reductions in taxes can be counter-productive (negative multiplier). The reason is that with a fixed nominal interest rate, lower taxes imply a reduction in inflation and hence a higher real interest rate, which crowds out private demand. This again reflects the importance of the real interest rate channel in transmitting the fiscal response to private spending.

Finally, the highest spending multiplier is associated with investment tax credits, while the highest tax multiplier is associated with consumption taxes. The lowest spending and tax multipliers are found for transfers to all households and reductions in labour taxes, respectively.

5 COSTS AND BENEFITS OF FISCAL CONSOLIDATION

Expansionary fiscal policies and the operation of automatic stabilisers, together with strong revenue shortfalls, have contributed to a sharp deterioration of euro area public finances and have endangered the long-term sustainability of public finances. The rapid deterioration of the fiscal outlook is illustrated in Chart 1. After having been close to balance in 2007, the euro area general government budget is

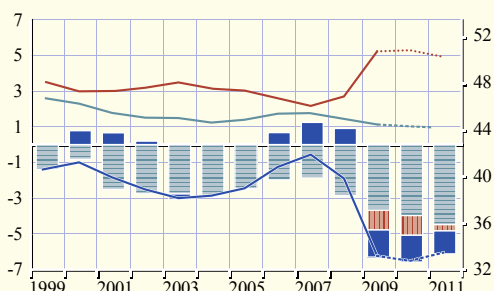
projected by the Commission to show a deficit of 6.1% of GDP in 2011, as a result of an upward shift in the spending ratio and a steady decline in revenues relative to GDP.

Against this background, the euro area government debt-to-GDP ratio, also affected by government support to stabilise the financial sector, continues to rise even as the recovery takes place and the temporary fiscal stimulus measures fade away (see Chart 2). Indeed, after having declined from roughly 72% of GDP

Chart 1 Euro area budget balance and its components over the period 1999-2011

(as a percentage of GDP)

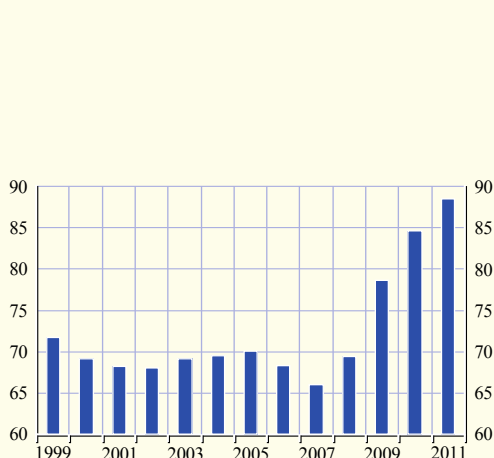
- cyclical component of budget balance (left-hand scale)
- fiscal stimulus packages (left-hand scale)
- cyclically adjusted budget balance (excluding fiscal stimulus) (left-hand scale)
- government budget balance (left-hand scale)
- total government expenditure (right-hand scale)
- total government revenue (right-hand scale)



Sources: European Commission, European Economic Forecast – Spring 2010.
Notes: Data for 2010 and 2011 are projections. It is assumed that one-third of the 2010 fiscal stimulus remains in 2011.

Chart 2 Euro area general government debt, 1999-2011

(as a percentage of GDP)



Sources: European Commission, European Economic Forecast – Autumn 2009 for 1999 and 2000 and European Economic Forecast – Spring 2010 for the remaining years.
Note: Data for 2010 and 2011 are projections.

in 1999 to 66% of GDP in 2007, the euro area government debt-to-GDP ratio increased to 69.4% in 2008 and is projected to rise further to 88.5% in 2011.

Given the size of the accumulated fiscal imbalances, ambitious fiscal consolidation efforts over a longer horizon must clearly be an integral part of the exit strategy to bring public finances in line with the provisions of the Stability and Growth Pact. This section addresses the macroeconomic effects of fiscal adjustment with a particular focus on the short-run costs and potential long-run benefits with respect to euro area real GDP. In order to facilitate comparability with the results provided in the previous section, the term “short-run” refers to the deviation of real GDP from its initial level during the first two years. The term “long-run” refers to the deviation of real GDP relative to its initial level after full adjustment has taken place.

As a natural starting point, the question arises whether fiscal stimulus and fiscal consolidation output multipliers are symmetric. If fiscal consolidation programmes aimed to achieve only temporary reductions of government

deficits, then the resulting short-run output costs could be considered as mirror images of fiscal stimulus programmes. In other words, if a temporary fiscal stimulus increases real GDP by 1% , a temporary consolidation should reduce real GDP by 1%. Thus, the fiscal multiplier analysis discussed in Box 2 could be interpreted as a fiscal consolidation analysis with the signs of the real GDP responses reversed.

However, it should be emphasised that fiscal consolidation programmes, when appropriately designed, aim to achieve permanent rather than temporary improvements in fiscal balances. Permanent improvements in fiscal balances, in turn, when anticipated by households and firms, can lead to positive expectation effects that mitigate the short-run costs of fiscal consolidation, as discussed in Section 2.

Using the ECB’s NAWM, Table 3 illustrates the short-run and long-run effects of fiscal consolidation under various assumptions on how the consolidation is achieved.²⁶ The simulations are not intended to give an

²⁶ For a related analysis see G. Coenen, M. Mohr and R. Straub, “Fiscal consolidation in the euro area: long-run benefits and short-run costs”, *Working Paper Series*, No 902, ECB, 2007.

Table 3 Costs and benefits of fiscal consolidation: NAWM simulation results

(percentage; percentage points)

	Without confidence effects			Including confidence effects		
	Short-run real GDP	Long-run real GDP labour tax		Short-run real GDP	Long-run real GDP labour tax	
Permanent reductions in expenditure						
Government consumption	-0.6	0.4	-4.0	-0.4	1.8	-4.3
Government investment	-0.7	-1.7	-2.6	-0.5	-0.3	-3.0
Transfers to all households	0.3	1.6	-4.4	0.5	3.0	-4.7
Transfers to non-Ricardian households	0.6	2.2	-4.8	0.8	3.6	-5.1
Permanent increases in revenue						
Labour income taxes	-0.3	0.5	-1.8	-0.1	1.9	-2.2
Consumption taxes	-0.1	0.9	-4.0	0.1	2.3	-4.3
Firms’ payroll taxes (social security contributions)	-0.6	0.5	-3.0	-0.4	1.9	-3.3
Capital income taxes	-0.4	-1.1	-3.9	-0.2	0.4	-4.1

Notes: This table shows the effects of a permanent reduction in the euro area debt-to-GDP ratio from 90% to 60%, implemented through various fiscal instruments, using the ECB’s NAWM. Each fiscal instrument is assumed to be adjusted by 1% of the initial steady-state GDP. The budgetary room created by the consolidation is, starting after ten years, partly used to reduce distortionary labour income taxes. Real GDP is measured in terms of percentage deviations from its initial steady state. The labour tax rate is measured in terms of percentage point deviations from its initial steady state. “Short-run” refers to the average percentage deviation of real GDP from its initial steady state during the first two years. “Long-run” refers to the percentage/percentage-point deviation of variables at their new steady states relative to their initial steady states. The panel “Including confidence effects” shows the effects when the equilibrium long-term interest rate falls permanently by 30 annual basis points in response to the permanent consolidation.

exact quantitative account of fiscal consolidation, but merely illustrate key factors that matter for the determination of its long-run benefits and short-run costs.

Reflecting the foreseen increase in the debt-to-GDP ratios in the euro area countries, the simulations consider the effects of a permanent 30 percentage point reduction in the debt-to-GDP ratio (from 90% to 60%) in line with the reference value for the debt ratio in the Treaty.²⁷ The permanent reduction in the debt-to-GDP ratio, implemented through a standardised 1% change in a particular fiscal instrument, creates budgetary room, which is allocated over the medium to longer term to reductions in distortionary labour income taxes.^{28, 29}

Table 3 shows that several fiscal instruments result in sizeable long-run benefits, measured in terms of real GDP, which are triggered by a reduction in distortionary labour income tax rates in the long run. This is a consequence of the newly available budgetary room and of the dynamic gains resulting from higher productivity and capital accumulation. For reasons that will be explained below, the assessment of the short-run costs (first two years) and long-run benefits of fiscal consolidation depends on whether confidence effects are taken into account or not. As suggested in Section 2, in the analysis below, positive confidence effects are accounted for via a permanent reduction in the long-term interest rate and hence lower government debt financing costs.

WITHOUT CONFIDENCE EFFECTS

Starting with the case in which the long-term interest rate is unaffected by the permanent fiscal consolidation (labelled “Without confidence effects” in Table 3), it turns out that long-run benefits are in the range of 0.4-2.2% of initial steady-state real GDP. Two exceptions are noticeable: reductions in government investment and increases in capital income taxes lead to long-run declines in real GDP. Both measures have a negative impact on economy-wide public and private capital stocks so that the productive capacity of the economy diminishes.

Interestingly, the fall in the labour tax rate, which has a positive effect on employment, cannot fully compensate for the fall in economy-wide capital, which means that a negative long-run impact on real GDP remains.

The short-run costs of fiscal consolidation are typically small relative to the permanent gains. In some cases (reductions in transfers), there may even be positive short-run effects on account of a strong negative wealth effect that gives rise to an increase in labour supply.

The reduction in the government debt-to-GDP ratio is endogenous and evolves gradually. For instance, in the case of a permanent reduction in government consumption of 1% of initial steady-state GDP, the government debt-to-GDP ratio is reduced by about 10 percentage points after ten years, 15 percentage points after 15 years and 20 percentage points after 22 years.

INCLUDING CONFIDENCE EFFECTS

Table 3 also provides results for the case in which positive confidence effects (labelled “Including confidence effects”) are accounted for, by giving rise to a permanent reduction in the long-term interest rate and hence the financing costs of government debt. A permanent reduction in financing costs makes the long-run benefits of fiscal consolidation considerably

27 For a record of successful historical debt reductions of similar or even larger size, see, for example, the box entitled “The Greek economic and financial adjustment” in the May 2010 issue of the Monthly Bulletin.

28 The budgetary room created by the consolidation is used exclusively to reduce government debt within the first ten years. Thereafter, labour income taxes are allowed to adjust in response to deviations of the government deficit from its long-run target (which is in line with a 60% debt-to-GDP ratio).

29 Note that the set-up for the permanent consolidation simulation is different from the one for the temporary fiscal stimulus measures. In the latter, the temporary increase in government debt to finance the stimulus initially is reversed by means of increases in lump-sum taxes in the medium term. As argued in the previous section, this anticipated temporary consolidation (i.e. rise in future lump-sum taxes) induces a negative wealth effect and thereby reduces the GDP multiplier. By contrast, in the case of the permanent consolidations examined in this section, individual fiscal instruments such as government consumption, investment, consumption taxes, etc., are changed permanently in order to achieve a permanent reduction in the government debt-to-GDP ratio.

higher. The permanent reduction in financing costs provides more room for budgetary manoeuvre, which is used to lower labour income taxes, so that tax distortions are reduced even further. Confidence effects also imply moderately lower short-run costs of consolidation, as lower financing costs boost domestic demand directly and more sizeable long-run economic gains are anticipated by households and firms. For example, in the case of government consumption, in comparison with the case in which the confidence effects are not accounted for, a permanent 30 basis point reduction in the financing costs of government debt provides an additional long-run real GDP gain of 1.4% and 0.2% lower short-run real GDP costs of fiscal consolidation.^{30,31} The relative gains from confidence effects for the other fiscal instruments are also within the same order of magnitude.

A comparison with the analysis of temporary fiscal multipliers from Table B in Box 2 suggests that short-run costs are typically only about half as large if permanent expenditure-based consolidation is considered. Further simulation results suggest that long-run gains can be even higher if the additional budgetary room created by the fiscal consolidation is used to lower the capital income tax, instead of the labour income tax.

Overall, the simulations illustrate that fiscal consolidation, when appropriately designed to take full advantage of long-run economic gains, can be achieved with moderate short-run costs, while at the same time providing a pivotal step towards the restoration of long-run fiscal sustainability in the euro area.

6 CONCLUSIONS

The global financial and economic crisis has put the effectiveness of fiscal policy at centre stage of the economic policy debate throughout the world. Governments in the euro area have responded to the prospect of a deep recession with a range of counter-cyclical fiscal stimulus measures within the framework of the EERP.

There is considerable uncertainty about the degree to which governments can stimulate the economy with temporary counter-cyclical fiscal measures. The evidence reviewed in this article shows that the efficacy of fiscal policy is conditional on many factors, such as the fiscal instrument chosen, the persistence of the fiscal stimulus, the initial level of government indebtedness, whether the nominal interest rate is kept constant or not, and price flexibility.

Against this background, and taking into account the specific features of the 2008-09 crisis, the evidence available so far suggests that the fiscal measures implemented have been broadly supportive for output, with the focus primarily being on short-lived fiscal stimulus.

At the same time, however, accommodating the impact of automatic stabilisers and the implementation of counter-cyclical fiscal policies during the crisis has come at a high cost for euro area public finances. Having been close to balance in 2007, the euro area general government budget is projected to show a deficit of 6.1% of GDP in 2011 and debt-to-GDP ratios are projected to rise significantly to 88.5% in 2011. These trends are clearly unsustainable, and undermine confidence in the long-term sustainability of public finances.

In the light of these developments, many euro area countries have been too slow to implement fiscal exit and consolidation strategies, giving rise to increased risks to financial stability. This underlines the utmost importance of restoring fiscal balances in the aftermath of the crisis. Fiscal consolidation will need to exceed substantially the annual structural adjustment of 0.5% of GDP set as a minimum requirement by the Stability and Growth Pact.

30 The 30 basis point reduction in the financing costs of government debt is based on empirical evidence on the relationship between the level of government debt and government bond yields. See, for example, T. Laubach, "New evidence on the interest rate effects of budget deficits and debt", *Journal of the European Economic Association*, 7(4), 2009, pp. 1-28.

31 In this particular case, real GDP reaches its initial level after about eight years, and half of the long-term benefit level is reached after about 20 years.

The main issue on the fiscal side in the euro area is the total neglect by some countries of the fact that they have had no room for fiscal manoeuvre at all. Countries that delay fiscal consolidation contribute to the fiscal problems in the euro area as a whole. The longer the fiscal correction is postponed, the higher the risk of reputation and confidence losses, the more painful the short-run adjustment, and the further away the long-run benefits of fiscal consolidation.

This article has offered an illustrative analysis of permanent fiscal consolidation programmes in the euro area aimed at restoring long-run fiscal sustainability. The results clearly suggest that the long-term economic gains of restoring sound fiscal positions in the euro area far outweigh the short-run costs.

The simulation results also suggest that the bulk of the fiscal adjustment should be borne on the expenditure side, in line with the empirical evidence available, which points to a higher degree of success for expenditure-based fiscal consolidation. Moreover, the additional budgetary room created by the consolidation efforts may be geared in the medium term towards lowering the taxes that are most harmful for labour supply and capital accumulation in the long run (i.e. labour and capital income taxes).