

FISCAL MULTIPLIERS AND THE TIMING OF CONSOLIDATION

ARTICLES

Fiscal multipliers and the timing of consolidation

This article seeks to link the debate surrounding short-term fiscal multipliers (defined as the change in real GDP that follows a unitary fiscal shock) with the medium and longer-term impact that fiscal consolidation has on debt sustainability and output. It recalls that there is considerable uncertainty surrounding the size of short-term fiscal multipliers. Notably, multipliers may be larger in deep recessions or financial crises, but the negative impact of fiscal consolidation is mitigated when public finances are weak. Nevertheless, there is a strong case for frontloading fiscal consolidation also in difficult times – particularly for countries that are under market pressure – and frontloading is advisable in view of political economy considerations. Simulations using plausible values for multipliers suggest that any increase in the debt ratio following episodes of fiscal consolidation is likely to be short-lived at most and reversed over the medium term. Furthermore, backloading fiscal consolidation would generally require a larger overall fiscal effort to reduce debt ratios. Finally, there is evidence that multipliers are positive (i.e. that fiscal consolidation is conducive to higher output) in the long term. Overall, when determining the fiscal adjustment path and the composition of fiscal consolidation, both the short-term costs and the longer-term benefits need to be taken into account.

I INTRODUCTION

Since the start of the sovereign debt crisis, many EU countries have embarked on fiscal consolidation in order to restore the sustainability of public debt and safeguard or regain access to market financing. Looking at the euro area as a whole, fiscal consolidation is projected to continue in 2014 – albeit more slowly, after considerable efforts thus far. According to the European Commission’s projections, average public debt in the euro area is expected to peak in 2014 as a share of GDP, and output is expected to recover, albeit slowly.¹

There is a broad consensus that the medium to longer-term benefits derived from well-designed fiscal consolidation are typically accompanied by short-term costs in the form of output losses. The recent debate among academics and policy-makers has tended to focus on these short-term output costs and their implications for the desired pace of fiscal consolidation. Some have even argued (see Section 3) that if the negative impact on short-term economic growth is sufficiently large, frontloading fiscal consolidation may prove to be self-defeating and result in higher public debt-to-GDP ratios. Against that backdrop, this article seeks to move beyond the debate about the short-term impact that fiscal consolidation has on output and discuss its medium to longer-term effects on output and debt sustainability. It also assesses recent literature on state-dependent fiscal multipliers. Finally, the article concludes by providing recommendations regarding the design of fiscal consolidation.

2 REVIEW OF LITERATURE ON STATE-DEPENDENT SHORT-TERM FISCAL MULTIPLIERS

Fiscal multipliers capture the effect that fiscal shocks (whether positive or negative) have on output and can be defined as the percentage change in real GDP that follows a fiscal shock totalling 1% of GDP.² Before the onset of the global financial crisis, most literature tended to estimate fiscal multipliers that were time-invariant and independent of the state of the economy. That literature employed a variety of empirical models (mostly vector auto-regressions (VARs)) and structural, micro-founded models (mostly dynamic stochastic general equilibrium (DSGE) models) that focused on linear dynamics. The fiscal multipliers estimated in those studies can be regarded as weighted averages of the various

¹ See European Commission, “European Economic Forecast – Autumn 2013”, *European Economy*, No 7/2013, November 2013.

² The definition of fiscal multipliers varies across studies. Some studies look at the impact that fiscal shocks have on the level of output, while others look at the impact on output growth. Both types of study are reviewed in this article.

multipliers seen during periods of economic expansion and downturns.³ More recent literature extends that analysis to allow for state-dependent multipliers.

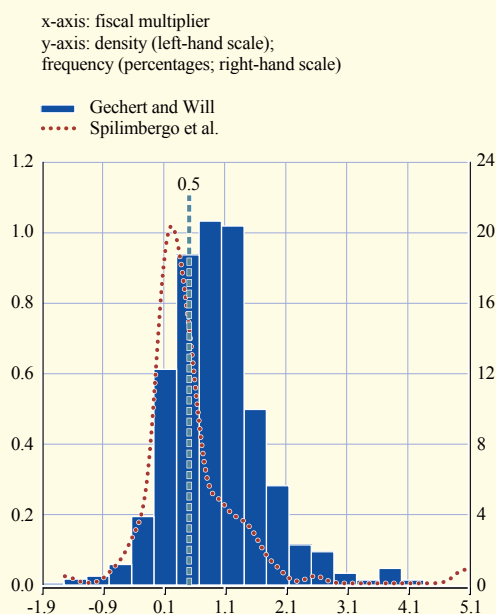
Estimates of fiscal multipliers generally vary depending on the countries and time period considered and the methodology used in the study. The range of estimates is large, as shown in the chart, which presents the distributions published in two specific papers reviewing literature.⁴ In the paper by Spilimbergo et al., the average multiplier (in terms of absolute value) is 0.5 (see the vertical dashed line in the adjacent chart), and the most frequently observed values are positive, but below the average. In the study by Gechert and Will (which is more recent), the average multiplier is between 0.5 and 1.0, depending on the revenue or expenditure instrument which is used to achieve consolidation and the estimation method.

The remainder of this section reviews recent literature on state-dependent fiscal multipliers, focusing on the economic conditions that characterised or preceded the euro area's sovereign debt crisis.⁵ It also presents relevant simulations using the ECB's macroeconomic models.

FISCAL MULTIPLIERS DURING RECESSIONS

It has been claimed that the negative impact that fiscal consolidation has on output may be stronger during recessions than it is during boom periods. For instance, the effect of nominal price and wage rigidities may be greater during recessions than it is during boom periods, as prices and wages tend to adjust downwards more slowly on account (among other things) of institutional factors. Greater nominal rigidities generally lead to larger fiscal multipliers, as adjustment to weaker demand occurs through output and employment instead. Several empirical studies based on VARs distinguish between fiscal multipliers in recessions and those seen during periods of growth, using a variety of econometric techniques.⁶ Most of those studies find that short-term spending multipliers are larger

Distribution of fiscal multipliers



Source: Andrés, J. and Doménech, R., "Fiscal Adjustment and Economic Growth in Europe", *Economic Watch*, BBVA Research, 2013. (For details of the two sets of data, see the papers referred to in footnote 4 of the main text.)

Notes: The conventional negative short-term multiplier is presented in terms of absolute value. Negative multipliers denote a positive effect on GDP following an improvement in the budget balance (e.g. through cuts in government spending).

3 See Parker, J., "On Measuring the Effects of Fiscal Policy in Recessions", *Journal of Economic Literature*, No 49, 2011, pp. 703-718.
4 See: Spilimbergo, A., Symansky, S. and Schindler, M., "Fiscal Multipliers", *IMF Staff Position Notes*, No 09/11, IMF, 2009; and Gechert, S. and Will, H., "Fiscal Multipliers: A Meta Regression Analysis", *IMK Working Papers*, No 97, IMK, 2012.
5 It also focuses on the spending multiplier, on which empirical literature is less divided when it comes to the question of size. A broader range of estimates is found for the tax multiplier, with estimates varying depending on the technique used to identify fiscal shocks. For a discussion, see Caldara, D. and Kamps, C., "What are the effects of fiscal shocks? A VAR-based comparative analysis", *Working Paper Series*, No 877, ECB, 2008.
6 These include: time-varying parameter VAR models with stochastic volatility (e.g. Kirchner, M., Cimadomo, J. and Hauptmeier, S., "Transmission of government spending shocks in the euro area: time variation and driving forces", *Working Paper Series*, No 1219, ECB, 2010); threshold VAR models (e.g. Baum, A. and Koester, G., "The impact of fiscal policy on economic activity over the business cycle – evidence from a threshold VAR analysis", *Discussion Papers*, No 03/2011, Deutsche Bundesbank, 2011; and Batini, N., Callegari, G. and Melina, G., "Successful Austerity in the United States, Europe and Japan", *IMF Working Papers*, No 12/190, IMF, 2012); Markov switching (smooth transition) VAR models (e.g. Auerbach, A. and Gorodnichenko, Y., "Measuring the Output Responses to Fiscal Policy", *American Economic Journal: Economic Policy*, No 4(2), 2012, pp. 1-27); and panel regression and VAR techniques applied to sub-groups of countries in accordance with predetermined thresholds (e.g. Ilzetki, E., Mendoza, E. and Vegh, C., "How big (small?) are fiscal multipliers?", *Journal of Monetary Economics*, No 60(2), 2012, pp. 239-254).

in recessions than they are in periods of growth. However, the size of the difference between the two varies widely. There are also several drawbacks associated with such empirical studies. First, most suffer from a lack of data on deep recessions.⁷ Second, the models used for such analysis tend to be simple and prone to omitting other important determining factors.⁸ Finally, threshold VAR studies typically use potential output as the threshold variable when identifying periods of recession, and the uncertainties surrounding estimates of potential output are well known.

DSGE models, in turn, can be calibrated to mimic recessionary conditions (for instance, by increasing the percentage of liquidity-constrained households), albeit most are unable to capture non-linear behaviour.⁹ The associated increase in the multiplier is generally smaller for DSGE models than it is for empirical models.

FISCAL MULTIPLIERS IN TIMES OF FINANCIAL CRISIS

Given that binding liquidity constraints are thought to strengthen the impact of a fiscal shock, the health of the financial system is another potential determinant of the size of fiscal multipliers. Financial frictions – which increase in size during recessions and are exacerbated in times of financial crisis – can lead to larger fiscal multipliers, as they limit private agents' ability to use credit to smooth consumption over time in response to a contractionary fiscal shock. The restrictive effects of consolidation may be stronger during or in the aftermath of financial crises, given the increase in the number of liquidity-constrained households. Though results vary across empirical literature, there is evidence that, overall, short-term fiscal multipliers are larger in economies that are suffering a financial crisis.¹⁰

FISCAL MULTIPLIERS UNDER CONSTRAINED MONETARY POLICY

A monetary policy that has little room for manoeuvre – something that is often seen during recessions and financial crises – may lead to larger fiscal multipliers, as interest rates do not react (or react only weakly) to declines in aggregate demand. In DSGE model-based analyses, the zero lower bound for monetary policy is generally found to be one of the most important factors in a larger than normal short-term multiplier.¹¹ Models calibrated using US data have found that the size of the government spending multiplier substantially exceeds 1 when the nominal monetary policy interest rate is fixed at zero.¹² However, none of these models capture the effect of non-standard monetary policy measures, which can provide additional accommodation even when central bank interest rates have effectively reached the lower bound (to the extent that a lower bound can be properly identified).

7 As pointed out by Parker (op. cit., footnote 3).

8 The reduced-form VARs that are generally used to estimate fiscal multipliers are prone to omitted variable bias and other estimation challenges, such as the “fiscal foresight problem” (see Leeper, E.M. et al., “Fiscal foresight: analytics and econometrics”, *NBER Working Papers*, No 14028, 2008). Omitting debt feedback from VARs can also result in incorrect estimates of the dynamic effects of fiscal shocks (as shown in Favero, C. and Giavazzi, F., “Debt and the effects of fiscal policy”, *NBER Working Papers*, No 12822, 2007).

9 For a review of factors affecting the size of fiscal multipliers in DSGE models, see Coenen, G. et al., “Effects of fiscal stimulus in structural models”, *American Economic Journal: Macroeconomics*, No 4(1), 2012, pp. 22-68.

10 In this respect, a recent study has found short-term fiscal multipliers of around 2 in OECD countries suffering a financial crisis (see Corsetti, G., Meier, A. and Müller, G., “What Determines Government Spending Multipliers?”, *Economic Policy*, No 27, 2012, pp. 521-565). Using a threshold VAR, another study has provided evidence for Germany, Italy, the United States and the United Kingdom that is consistent with larger multipliers during periods of financial stress, albeit those multipliers remained well below 1 even in the presence of financial stress – e.g. 0.4 (versus 0.2) in Germany and 0.7 (versus 0.3) in Italy (see Afonso, A., Baxa, J. and Slavik, M., “Fiscal developments and financial stress: a threshold VAR analysis”, *Working Paper Series*, No 1319, ECB, 2011). Finally, a third study has concluded that the spending multiplier is slightly larger in Spain during banking crises (see Hernández de Cos, P. and Moral-Benito, E., “Fiscal multipliers in turbulent times: the case of Spain”, *Working Paper Series*, No 1309, Banco de España, 2013).

11 As was pointed out in a recent review of DSGE studies looking at fiscal multipliers (see Leeper, E.M., Traum, N. and Walker, T.B., “Clearing up the fiscal multiplier morass”, *NBER Working Papers*, No 17444, 2011), the monetary policy regime and (albeit to a slightly lesser extent) the percentage of liquidity-constrained households are the most important factors influencing the size of short-term multipliers.

12 See, for example, Christiano, L., Eichenbaum, M. and Rebelo, S., “When is the Government Spending Multiplier Large?”, *Journal of Political Economy*, Vol. 119, No 1, 2011, pp. 78-121.

FISCAL MULTIPLIERS IN THE PRESENCE OF WEAK PUBLIC FINANCES

There is a general consensus that the short-term output costs of fiscal consolidation are lower when consolidation is implemented during a rapid deterioration in public finances.¹³ This is, among other things, the result of confidence effects, which materialise via reduced sovereign spreads. Determined action by governments can restore fiscal sustainability and thus contribute to macroeconomic stability and a recovery in output. The credibility of government announcements can also influence the size of fiscal multipliers through direct supply-side effects. For instance, fiscal consolidation is generally associated with smaller short-term multipliers if markets are convinced that the measures announced will be implemented in full and remain in place. In the presence of full credibility, markets' anticipation of tax cuts in the longer term following consolidation measures today may result in favourable supply-side effects, including an increase in labour supply even in the short term. Several recent studies have found evidence that positive short-term multipliers may decline or even turn negative in the presence of high debt ratios.¹⁴ On the other hand, when several countries facing fiscal problems consolidate simultaneously, the overall negative impact on the domestic economy may be compounded. For analysis of the significance of fiscal spillover effects in the euro area, see Box 1 below.

Overall, in cases of large systemic risks when governments' ability to honour their debt obligations is called into question and the financial stability of monetary union is threatened, the benefits of fiscal consolidation are likely to be larger than those captured by standard model simulations.

13 The expectation channel may even prompt short-term increases in private consumption – and thus output – when fiscal consolidation is implemented to address high levels of government indebtedness, as explained in Blanchard, O., “Comment”, *NBER Macroeconomics Annual*, 1990, pp. 111-116 (“... by taking measures today, the government eliminates the need for larger, maybe much more disruptive adjustments in the future and this may in turn increase consumption.” (p. 111); “... the longer the government waits to consolidate, the higher the required tax increase when it does.” (p. 112)). See also Sutherland, A., “Fiscal Crises and Aggregate Demand: Can High Public Debt Reverse the Effects of Fiscal Policy?”, *Journal of Public Economics*, No 65(2), 1997, pp. 147-162.

14 See, inter alia: Ilzetzki, Mendoza and Vegh, op. cit., footnote 6; Corsetti, Meier and Müller, op. cit., footnote 10; Nickel, C. and Tudyka, A., “Fiscal stimulus in times of high debt: reconsidering multipliers and twin deficits”, *Working Paper Series*, No 1513, ECB, 2013; and Hernández de Cos and Moral-Benito, op. cit., footnote 10.

Box 1

FISCAL SPILLOVER EFFECTS IN THE EURO AREA

Negative effects on growth resulting from domestic fiscal consolidation can be exacerbated when several countries consolidate simultaneously. This box discusses the main international transmission channels for fiscal shocks and, using illustrative model-based simulations, assesses the potential size of fiscal spillovers in the event of several euro area countries tightening their fiscal policies simultaneously.

Transmission channels for fiscal shocks in a monetary union

In a monetary union, where member countries have a common interest rate and the same nominal exchange rate, trade links between countries are the main transmission channel for fiscal shocks. Fiscal consolidation in one member country affects other member countries via reduced domestic activity and demand, some of which translates into reduced demand for foreign goods.¹ The demand effect of fiscal consolidation can translate into lower domestic inflationary

1 See, for example, Hebous, S. and Zimmermann, T., “Estimating the effects of coordinated fiscal actions in the euro area”, *European Economic Review*, Vol. 58(C), 2013, pp. 110-121.

pressures, which can lead to the depreciation of the real effective exchange rate, improving the competitiveness of the home country and possibly triggering further negative spillover effects for the other members of the monetary union.

Fiscal spillovers in the euro area: illustrative model-based evidence

This section presents an illustrative simulation, using the ECB's New Multi-Country Model (NMCM)² to assess the size of fiscal spillovers across the five largest euro area countries (Germany, France, Italy, Spain and the Netherlands) and a group of "small countries" comprising the remaining members of the euro area.

In this simulation, countries are assumed to implement permanent fiscal consolidation totalling 1% of GDP, with that consolidation being equally balanced between revenue and expenditure. The model accounts for the downward impact that fiscal consolidation has on domestic sovereign risk premia, which are assumed in the simulation to be fully transmitted to the financing conditions of the domestic private sector (via the "sovereign risk channel").³ In this situation, fiscal spillovers operate mainly via the trade channel, the interest rate is exogenous and there are no confidence-related spillover effects affecting sovereign risk premia.⁴

The table overleaf shows the spillover effects obtained from NMCM simulations. The main diagonal values indicate the cumulative domestic fiscal multipliers after three years which result from permanent fiscal consolidation totalling 1% of GDP that is implemented in the first year. The size and sign of the country-specific fiscal multipliers are in line with the average findings of the literature on fiscal multipliers (see chart in main text). Off-diagonal values indicate the cumulative effect over a three-year period that fiscal consolidation in the originating country (rows) will have on the GDP of the recipient country (columns). Germany causes the largest spillover effects for other countries (as well as the euro area as a whole). For example, fiscal consolidation in Germany (first row) totalling 1% of GDP is found to reduce domestic GDP by 0.45%. The negative spillover effect on the GDP of other countries ranges from 0.03% for France to 0.06% for the group of small countries. The negative impact on the euro area excluding Germany totals 0.05% of GDP.

The evidence presented in the table shows that when all countries consolidate simultaneously, the drag on domestic growth is stronger than if a country consolidates alone (see last two rows). The size of the additional drag on domestic GDP stemming from simultaneous fiscal consolidation is fairly similar across Italy, Spain, the Netherlands and the small countries (averaging around 0.14%). Overall, the largest drag on growth comes from domestic consolidation.

2 For a full description of this model, see Dieppe, A., González Pandiella, A., Hall, S. and Willman, A., "The ECB's New Multi-Country Model for the euro area: NMCM – with boundedly rational learning expectations", *Working Paper Series*, No 1316, ECB, 2011.

3 See Corsetti, G., Kuester, K., Meier, A. and Müller, G., "Sovereign risk, fiscal policy and macroeconomic stability", *The Economic Journal*, Vol. 123, Issue 566, 2013, pp. F99-F132.

4 In addition to the spread effect, NMCM simulations may account for positive spillovers of confidence resulting from consolidation in other countries (i.e. the declines in sovereign risk premia in the consolidating country – the spread effect – are reflected in lower risk premia in the other countries in the model). Empirical evidence on spillovers of confidence is provided in Amisano, G. and Tristani, O., "The euro area sovereign crisis: monitoring spillovers and contagion", *Research Bulletin*, No 14, ECB, 2011.

Spillover effects on GDP of fiscal consolidation totalling 1% of GDP implemented in the first year

(cumulative values after three years; deviation from baseline domestic GDP; percentages)

Country originating fiscal shock	Recipient country					Small countries	Euro area aggregate	
	DE	FR	IT	ES	NL		Excluding country of origin	Including country of origin
DE	-0.45	-0.03	-0.05	-0.05	-0.06	-0.06	-0.05	-0.15
FR	-0.03	-0.43	-0.04	-0.05	-0.03	-0.04	-0.03	-0.12
IT	-0.01	-0.01	-0.22	-0.01	-0.01	-0.01	-0.01	-0.05
ES	-0.01	-0.02	-0.02	-0.54	-0.02	-0.02	-0.02	-0.08
NL	-0.01	-0.01	-0.01	-0.01	-0.42	-0.02	-0.01	-0.04
Small countries	-0.02	-0.01	-0.02	-0.02	-0.03	-0.43	-0.02	-0.09
Country acts alone	-0.45	-0.43	-0.22	-0.54	-0.42	-0.43		
Simultaneous consolidation	-0.52	-0.51	-0.35	-0.68	-0.55	-0.58		

Source: ECB calculations based on NCMC simulations.

Notes: The main diagonal values are cumulative domestic fiscal multipliers, while off-diagonal values represent the effect of fiscal consolidation in the originating country (rows) on the GDP of the recipient country (columns). All are expressed as the deviation from baseline domestic GDP in percentage terms.

These NCMC simulations are broadly in line with most other model-based predictions regarding fiscal spillovers.⁵ However, some recent studies⁶ have found larger spillover effects. Differences across models stem from the large number of assumptions employed, such as those regarding the percentage of liquidity-constrained households, the mechanism underlying the formation of expectations and the composition of the shock. More generally, the size of fiscal spillovers depends on a number of factors, including the analytical method employed, trade elasticities and any confidence effects in financial markets that reduce sovereign risk premia.

5 See Wieland, V., "Monetary policy targets and the stabilisation objective: a source of tension in EMS", *Journal of International Money and Finance*, No 15(1), 1996, pp. 95-116.

6 A recent study has found that a temporary increase in government investment in Germany totalling 1% of GDP and lasting two years increases real GDP in other countries by between 0.2% and 0.3% (see in 't Veld, J., "Fiscal consolidations and spillovers in the euro area periphery and core", *Economic Papers*, No 506, European Commission, 2013). Meanwhile, the IMF, using three different structural models, has found that a two-year increase in expenditure in Germany totalling 1% of GDP will boost real GDP in the rest of the euro area by a maximum of 0.2% (see IMF, *Germany: 2013 Article IV Consultation*, Country Report No 13/255, 2013). The effect varies depending on the model used and is smaller for revenue-based fiscal stimulus and in the absence of monetary policy accommodation.

SIMULATIONS CONDUCTED USING THE ECB'S NEW AREA-WIDE MODEL

Looking at the euro area aggregate, DSGE simulations conducted using the ECB's New Area-Wide Model (NAWM; see Box 6 of the December 2012 issue of the Monthly Bulletin) provide illustrations of how some of the factors discussed above could affect the size of fiscal multipliers. They also indicate that the composition of fiscal consolidation matters. Overall, these simulations largely suggest that short-term fiscal multipliers are (in terms of absolute value) considerably smaller than 1 (see table opposite).¹⁵ The short-term multiplier rises above 1 when consolidation is based purely on the reduction of government investment and/or government consumption, and at the same time (i) consolidation plans are imperfectly credible and implemented in the presence of constrained monetary policy (see column 1), and (ii) the percentage of liquidity-constrained (non-Ricardian) households increases (see column 5).

The NAWM simulations, which are independent of the state of the economy (like most empirical models), indicate that government spending is usually associated with larger short-term multipliers than taxes.

15 Overall, fiscal multipliers derived from structural models tend to be smaller than those suggested by empirical models. However, such results are not fully comparable, as the treatment of fiscal shocks (e.g. transitory versus permanent shocks) may differ across studies. For a review, see also European Commission, "Report on Public Finances in EMU – 2012", *European Economy*, No 4/2012, July 2012.

Short-term multipliers in the ECB's New Area-Wide Model

(percentages)

Fiscal instrument	Imperfect credibility and fixed monetary policy rate (1)	Imperfect credibility (2)	Full credibility (3)	Full credibility and lower risk premia (4)	More non-Ricardian households (5)
Government consumption	-1.13	-0.95	-0.59	-0.45	-1.18
Government investment	-1.40	-1.28	-0.71	-0.56	-1.45
General transfers	-0.14	-0.06	0.02	0.16	-0.31
Labour tax	-0.10	-0.18	-0.52	-0.37	-0.21
Consumption tax	-0.70	-0.55	-0.31	-0.17	-0.75
Expenditure package	-0.94	-0.78	-0.36	-0.22	-1.01
Revenue package	-0.40	-0.37	-0.42	-0.27	-0.48
Expenditure and revenue package	-0.67	-0.57	-0.39	-0.24	-0.75

Source: ECB calculations.

Notes: These short-term multipliers show the average effect on real GDP over the first two years of a permanent fiscal consolidation shock totalling 1% of initial GDP. The baseline scenario for the last column in the table is column 1.

The expenditure (revenue) package is based solely on reductions in expenditure (tax increases), distributed evenly across government consumption, investment and transfers (labour tax and consumption tax). The revenue and expenditure package consists of one-half each of reductions in expenditure and increases in revenue.

The imperfect and full credibility scenarios assume that monetary policy is not constrained by the zero lower bound and is thus able to partially offset the drag on short-term growth that stems from the consolidation measures. In these scenarios, the short-term nominal interest rate is allowed to respond to economic conditions in accordance with the monetary policy rule embedded in the NAWM (whereby the monetary authority temporarily lowers the policy rate, by contrast with the fixed policy rate under the scenario in column 1), thereby reducing the size of the negative effects on real GDP in the short term relative to a situation where the policy rate remains fixed. In the full credibility scenario, that consolidation creates budgetary room after ten years, and the simulations assume that this is used to reduce the labour tax rate. Agents' anticipation of such tax cuts results in favourable supply-side effects, including an increase in labour supply even in the short term. This, in turn, mitigates the negative short-term impact that the consolidation efforts have on GDP. The scenario with full credibility and lower risk premia also assumes that the medium-term reduction in the government debt-to-GDP ratio following consolidation is associated with a decline in the sovereign risk premium. As regards the scenario with more non-Ricardian households, it should be borne in mind that in this model, those households' liquidity constraints do not rule out the intertemporal smoothing of consumption through the adjustment of their money holdings. This might explain the relatively modest effect on the multiplier.

Changes in government consumption and investment are likely to have a more direct impact on aggregate demand than increases in taxes (and transfers to households), which feed through to output via changes in consumption and saving behaviour. This is the case, in particular, for cuts in productive government investment, which also affect the marginal product of private capital and thus the supply side of the economy.

As pointed out above, the credibility of government announcements is also important for the size of multipliers in the NAWM simulations. In the presence of imperfect credibility – when markets do not initially believe that the government is committed to fully implementing the announced consolidation measures – multipliers are larger. Conversely, multipliers are smaller if markets are convinced that government plans will be carried out in full. The short-term fiscal multiplier may be even smaller if credible consolidation plans are associated with a reduction in the sovereign risk premium (see column 4 of table). This lowers the government's debt servicing costs and reduces the private sector's financing costs, thereby stimulating private investment.

In conclusion, there is considerable uncertainty surrounding the size of short-term fiscal multipliers. In the case of the euro area, several recent institutional developments aimed at strengthening fiscal and macroeconomic governance may help to enhance the credibility of fiscal consolidation, thereby reducing its short-term costs. In addition, in situations where fiscal consolidation is necessary to avoid a large systemic sovereign debt crisis, one should be cautious when drawing conclusions regarding the costs of fiscal consolidation on the basis of estimated short-term fiscal multipliers. In such situations, the costs of not undertaking fiscal consolidation are likely to be significantly higher than those of returning fiscal policy to a sustainable path.

3 RELEVANCE OF FISCAL MULTIPLIERS FOR DEBT DYNAMICS AND THE PACE OF CONSOLIDATION

As indicated above, several academic papers have recently suggested that fiscal multipliers may be larger in crisis situations than they are in normal times. Some commentators have used this evidence to argue that frontloaded consolidation should be avoided in countries that do not face an imminent risk of losing access to market financing.¹⁶ Of course, evidence that fiscal multipliers are large in the current environment is not sufficient to argue that fiscal consolidation should be postponed. If multipliers remain similarly large in the future, postponing fiscal consolidation will only delay the negative short-term effects on growth. However, if those fiscal multipliers are expected to be smaller in the future, backloading consolidation may reduce the negative impact on short-term growth. This may be the case in countries that are currently experiencing a large degree of economic slack, countries where monetary policy's ability to cushion demand is constrained and countries where poorly functioning banking systems restrict households' ability to smooth consumption in the face of fiscal policy shocks.

A related (but separate) argument suggests that frontloaded consolidation could exacerbate hysteresis effects in the economy.¹⁷ This concerns situations where cyclical downturns in economic activity have the capacity to permanently damage the long-term productive potential of the economy. These hysteresis effects may be more pronounced during deep recessions, when high unemployment rates and the long duration of unemployment increase the risk of a permanent loss of skills for some workers, and when low levels of investment threaten a permanent decline in the stock of productive capital. Even if the fiscal multiplier is not expected to be smaller in the future, concerns about hysteresis effects could still favour backloaded fiscal adjustment.

Some commentators have even argued that, in certain circumstances, frontloaded fiscal consolidation can be self-defeating. That is to say, in the presence of sufficiently large short-term fiscal multipliers and hysteresis effects, the short-term drag on growth resulting from fiscal consolidation can more than offset the reduction in debt stemming from lower government borrowing, causing the public debt-to-GDP ratio to increase. Countries with a high initial debt-to-GDP ratio are at the greatest risk of self-defeating consolidation.¹⁸ While the sustainability of public finances is a long-term concept, there may be situations, according to this view, where financial markets focus excessively on the short-term dynamics of public debt. In such cases, a temporary increase in the debt-to-GDP ratio could weaken market confidence and trigger negative second-round effects through rising interest rates.¹⁹

However, there are strong arguments in support of frontloaded fiscal consolidation.²⁰ Countries that are under market pressure will face higher sovereign borrowing costs, which will lead to larger fiscal deficits, owing to the increased debt servicing costs. Rising sovereign spreads can also be passed on to private sector borrowing costs, with negative implications for economic growth and the dynamics of public debt. Countries that find themselves in these positions often have little choice but to frontload fiscal adjustment. In situations of financial market stress,

16 This argument is summarised in Blanchard, O. and Leigh, D., *Fiscal consolidation: At what speed?*, VoxEU, 3 May 2013. For supporting literature, see, inter alia: Corsetti, Meier and Müller, op. cit., footnote 10; De Grauwe, P. and Ji, J., *Panic-driven austerity in the Eurozone and its implications*, VoxEU, 21 February 2013; and Blanchard, O. and Leigh, D., "Growth Forecast Errors and Fiscal Multipliers", *IMF Working Papers*, No 13/00, IMF, 2013.

17 See DeLong, J.B. and Summers, L.H., "Fiscal policy in a depressed economy", *Brookings Papers on Economic Activity*, spring 2012.

18 See Eyraud, L. and Weber, A., "The Challenge of Debt Reduction during Fiscal Consolidation", *IMF Working Papers*, No 13/67, IMF, 2013.

19 See Cottarelli, C. and Jaramillo, L., "Walking Hand in Hand: Fiscal Policy and Growth in Advanced Economies", *IMF Working Papers*, No 12/137, IMF, 2012.

20 See, for example: Buti, M. and Pench, L., *Fiscal austerity and policy credibility*, VoxEU, 20 April 2012; Gros, D., *Can austerity be self-defeating?*, VoxEU, 29 November 2011; and Padoan, P., Sila, U. and van den Noord, P., "Avoiding debt traps: financial backstops and structural reforms", *Economics Department Working Papers*, No 976, OECD, 2012.

multiple equilibria are more likely to emerge. In the presence of high levels of uncertainty, it is crucial that governments establish credibility, in order to prevent “bad equilibria”. This may require a sizeable frontloaded adjustment.

Even in the absence of market pressures, there may be merits to frontloaded adjustment. Taking early action to correct fiscal imbalances allows a country to achieve a primary surplus more quickly, so it delivers a larger reduction in public debt over a given period of time. Gradual consolidation also carries political risks related to the timing of electoral cycles and the potential for “adjustment fatigue” to derail consolidation if it is spread over a long period of time. Governments may find it more difficult to implement reforms with sometimes painful short-term costs towards the end of their mandates when seeking re-election. Moreover, gradual consolidation postpones the day when the public is able to observe the benefits of adjustment in terms of lower public debt, lower private sector borrowing costs and sustained economic growth. The risk is that, in the interim, the perception takes hold that reforms are not delivering the expected results and should therefore be abandoned. Moreover, when fiscal institutions are weak and medium-term budgetary frameworks are not binding, it may be more difficult for governments to convince the markets or the public that the fiscal consolidation which is approved today will actually be implemented in the future. The tendency of financial markets to focus on short-term growth in countries undergoing fiscal adjustment may reflect a belief that a country facing a sizeable decline in GDP is unlikely to sustain its fiscal adjustment effort over time.²¹

Finally, turning to the risk of self-defeating consolidation, how large do fiscal multipliers need to be in order to lead to such an outcome? In general, consolidation is considered to be self-defeating where the resulting debt-to-GDP ratio is higher than it is in the baseline scenario (where there is no consolidation). The results for the euro area (see Table A in Box 2) show that the fiscal multiplier must (in terms of absolute value) be significantly higher than 1 to lead to a self-defeating scenario after five years, and it must be very large (i.e. more than 3) to lead to a self-defeating scenario after ten years. Overall, as pointed out in similar studies,²² multipliers have to be unrealistically large for consolidation to be self-defeating, especially over longer periods of time.

The simulations in Box 2 address the wider issue of the relative merits of front- and backloaded consolidation. As Table B shows, even with reasonably large multipliers in crisis situations and normal times, frontloaded consolidation reduces the cumulative consolidation effort that is required to achieve a particular debt-to-GDP ratio. That is because frontloading reduces the compounding effect that (growth-adjusted) interest payments have on the debt-to-GDP ratio (the “snowball effect”) relative to backloading, so a lower long-term primary balance is required to achieve a given debt-to-GDP ratio. Frontloading also achieves faster stabilisation of the debt-to-GDP ratio for all variants of the multiplier (by one to two years) and delivers lower debt-to-GDP ratios in the medium term. As explained above, the negative impact that consolidation has on GDP is likely to fade over time, while the structural improvements in the budget balance that result from well-designed consolidation are permanent. Stabilising debt more rapidly can also help to reduce sovereign borrowing costs and ensure market access in situations where financial markets are focusing on the short-term dynamics of debt when assessing a sovereign’s solvency.

21 See Cottarelli and Jaramillo, *op. cit.*, footnote 19.

22 See, for example, European Commission, *op. cit.*, footnote 15.

FISCAL MULTIPLIERS AND THE DYNAMICS OF DEBT

This box proposes a stylised framework to assess the relevance of fiscal multipliers for the dynamics of debt and the pace of consolidation.

Stylised modelling framework

The dynamics of public debt are modelled using the standard debt accumulation equation

$$\Delta d_t = \underbrace{\frac{i_t - g_t}{1 + g_t}}_{\text{snowball effect}} d_{t-1} - pb_t + dda_t$$

where d is the debt-to-GDP ratio, i is the effective interest rate, g is the (nominal) GDP growth rate, pb is the primary balance-to-GDP ratio and dda is the deficit-debt adjustment. As can be seen, the accumulation of debt depends on the relative size of the interest rate-growth differential $i - g$ and the primary balance pb . Assuming that dda is zero, a decrease in the growth rate requires an increase in the primary balance to stabilise the path of the debt-to-GDP ratio.

The future path of the debt-to-GDP ratio is modelled here using a simple endogenous framework. GDP growth depends on its own lag, the potential GDP growth rate and the speed with which the output gap closes. The growth framework also includes hysteresis effects¹ and the impact of interest rate changes. Interest rates include a risk premium that rises when the fiscal deficit and public debt exceed 3% and 60% of GDP respectively.² The impact that fiscal consolidation has on GDP (i.e. the fiscal multiplier) is introduced as an exogenous parameter in the growth equation. This framework also includes feedback from GDP growth to the budget balance via automatic stabilisers.³

Threshold multipliers that would lead to self-defeating consolidation

This stylised framework can be used to simulate the impact that a permanent consolidation effort totalling 3% of GDP in the first year has on the dynamics of public debt. Consolidation is described as “self-defeating” if the resulting debt-to-GDP ratio is higher than it is in the baseline scenario (where there is no consolidation). The results of these simulations show that, given the actual level of debt in the euro area at end-2012, the fiscal multiplier must (in terms of absolute value) be significantly higher than 1 to lead to a self-defeating scenario after five years, and it must be very large (i.e. more than 3) to lead to a self-defeating scenario after ten years (see Table A).

1 The hysteresis parameter is based on the estimate of 0.241 produced by DeLong and Summers (op. cit., footnote 17).

2 The sensitivity of interest rates to fiscal deficits and public debt is based on Laubach, T., “New Evidence on the Interest Rate Effects of Budget Deficits and Debt”, *Journal of the European Economic Association*, Vol. 7(4), 2009, pp. 858-885.

3 The parameter for cyclical budgetary effects is set at 0.5 (i.e. for every 1% gap between output and its estimated potential, the corresponding cyclical component of the budget balance is 0.5). This is in line with the overall budgetary semi-elasticities used by the European Commission for fiscal surveillance. (Budgetary semi-elasticities average 0.54 for the euro area as a whole, ranging from 0.48 in Spain to 0.56 in Germany and 0.57 in the Netherlands.) For details, see Mourre, G. et al., “The cyclically-adjusted budget balance used in the EU fiscal framework: an update”, *Economic Papers*, No 478, European Commission, March 2013.

Table A Threshold multipliers at which fiscal consolidation has an adverse impact on the debt-to-GDP ratio in period t

(percentages)

Initial debt-to-GDP ratio in euro area		$t=1$	$t=3$	$t=5$	$t=10$
Actual (2012)	93	-0.8	-1.1	-1.6	-3.2
Hypothetical higher debt level	120	-0.6	-0.9	-1.4	-3.0
Hypothetical lower debt level	60	-0.9	-1.2	-1.7	-3.4

Sources: European Commission forecasts (autumn 2013) and ECB calculations.

Notes: Figures assume permanent consolidation totalling 3% of GDP in the first year. The hypothetical debt ratios do not imply changes to the stylised model's parameters. The period t is measured in years.

The initial level of debt plays an important role in the simulations.⁴ For a given interest rate-growth differential, the higher the level of debt is, the more difficult it is to stabilise that debt and place it on a downward trajectory. Consequently, with higher levels of debt, smaller multipliers will make consolidation self-defeating.⁵ Hypothetical scenarios with larger and smaller initial debt ratios for the euro area (which imply smaller and larger threshold multipliers respectively) are also presented in Table A.

Overall, the results suggest that if the fiscal multiplier falls within the range normally regarded as plausible for a consolidation package with a balanced composition, fiscal consolidation initially has an adverse effect on the debt ratio, which is reversed within a few years.⁶ Thus, in all cases, fiscal consolidation results in a more favourable trajectory for the debt ratio.

Comparison of front- and backloaded consolidation

The analysis presented in Table A assumes that fiscal consolidation is implemented in full in the first year. In this second exercise, the differences between the effects of front- and backloaded consolidation are assessed. Here, frontloading means that fiscal consolidation takes place in the first three years, while backloading means that consolidation is delayed by two years, before also being implemented over a three-year period. In the interests of comparability, it is important that both paths eventually achieve the same consolidation effect. To this end, the debt-to-GDP ratio is assumed to reach a target of 60% after 20 years.

Table B also shows that frontloading stabilises the debt-to-GDP ratio faster (by one to two years) for all variants of the multiplier and delivers lower debt ratios over the medium term.

4 Other factors account for some of the differences between the scenarios with and without consolidation, since the framework is not fully linear. Hysteresis effects, the role of the closing of the output gap and lagged growth (all of which are determinants of current nominal GDP growth) and the fact that interest rate risk premia are dependent on deficit/debt thresholds introduce non-linear effects of consolidation into the stylised framework. Thus, the initial debt-to-GDP ratio is not the only determinant of the threshold multiplier in this framework.

5 The higher the debt ratio, the larger the primary surplus that is needed to stabilise it for a given interest rate-growth differential. Thus, the higher the debt ratio, the larger the consolidation effort – and, accordingly, the larger the negative impact on output. In terms of the effect on the debt ratio, that larger consolidation effort entails both a numerator effect (through the smaller ex post improvement in the budget balance) and a denominator effect (through the lower GDP). Hence, in the simulations, there is a smaller difference between the debt ratios in the consolidation and non-consolidation scenarios, especially at shorter horizons.

6 A sensitivity analysis looking at the parameter values used in the stylised modelling framework shows that the overall conclusions of the basic analysis remain valid. The parameters that most affect the size of the multiplier – particularly by lowering the threshold for the self-defeating consolidation scenario – are the speed with which the output gap closes and budgetary elasticity in respect of the output gap. Slower closing of the output gap (i.e. closing the gap in approximately seven years, as opposed to five) – which depends, in turn, on the initial size of the output gap and the hysteresis effects of the additional consolidation – would lead to slower growth dynamics and, in combination with other factors, increase the negative effects that consolidation had on the debt ratio. Similarly, greater budgetary elasticity in respect of the output gap weakens the improvements in debt ratios that stem from the additional consolidation and thus reduces the size of the threshold multiplier somewhat.

Table B Comparison of the effects of front- and backloaded consolidation in the euro area

Euro area indicators	(a) Constant multipliers		(b) Multipliers fall in third year		(c) Multipliers fall in fifth year	
	Frontloading	Backloading	Frontloading	Backloading	Frontloading	Backloading
Cumulative consolidation effort (% of GDP)	2.6	3.0	2.7	3.0	2.8	3.2
Number of years to stabilise the debt ratio	3.0	4.0	3.0	4.0	3.0	5.0
Debt-to-GDP ratio after five years (end of consolidation; %)	94.0	97.6	97.0	97.6	98.4	100.6

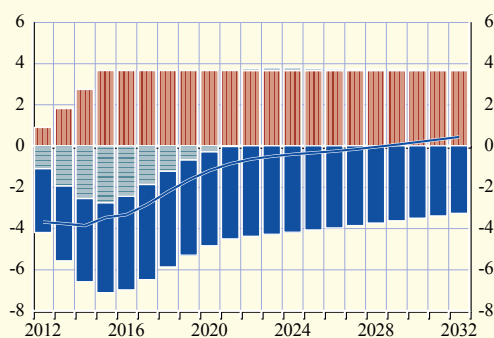
Sources: European Commission forecasts (autumn 2013) and ECB calculations.
 Notes: Figures assume that a debt-to-GDP ratio of 60% is achieved after 20 years. In column (a), the multiplier is 0.8 in all five years. In column (b), the multiplier is 1.3 in the first two years and 0.8 as of the third year. In column (c), the multiplier is 1.3 in the first four years and 0.8 in the fifth. In the frontloading scenario, consolidation with equal yearly amounts takes place in the first three years. In the backloading scenario, consolidation with equal yearly amounts takes place in the third, fourth and fifth years.

Breakdown of simulated debt dynamics in the euro area

(percentages of GDP for frontloading; percentage points of GDP for backloading)

Nominal budget balance

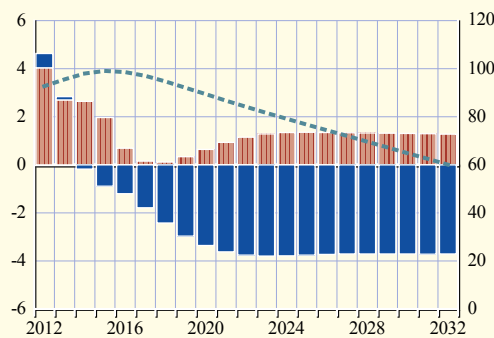
■ interest
 ■ cyclically adjusted primary balance
 ■ cyclical component
 — overall balance



Debt-to-GDP ratio

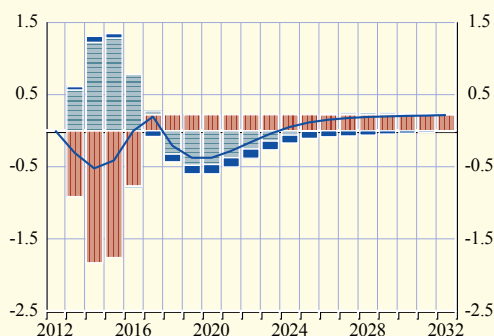
■ primary balance (left-hand scale)
 ■ snowball effect (left-hand scale)
 - - - debt (right-hand scale)

Frontloaded consolidation

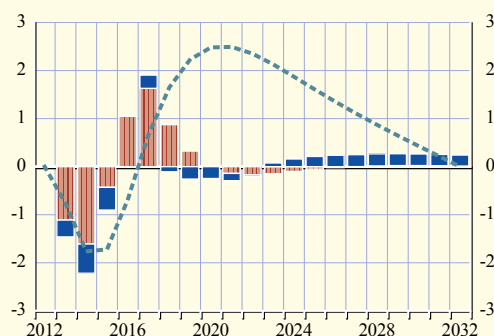


Backloaded consolidation: deviation from frontloaded consolidation

■ interest
 ■ cyclically adjusted primary balance
 ■ cyclical component
 — overall balance



■ primary balance
 ■ snowball effect
 - - - debt



Sources: European Commission forecasts (autumn 2013) and ECB calculations.

The first line of Table B shows that frontloading reduces the cumulative consolidation effort that is required to meet the 60% debt-to-GDP target after 20 years in the euro area. Frontloading reduces the compounding effect that growth-adjusted interest payments have on the debt-to-GDP ratio (the “snowball effect”) relative to backloading, so a lower long-term primary balance is required to achieve a given debt-to-GDP ratio. This applies to all three variants in terms of the size and time profile of the fiscal multiplier. Compared with the baseline scenario (which has time-invariant multipliers), the difference between the overall consolidation efforts for front- and backloading is only slightly smaller (around 0.1 smaller) where the multipliers fall in later years.

A closer examination of these simulations shows how debt dynamics differ between the front- and backloaded consolidation paths where the multiplier declines from 1.3 to 0.8 in the third year (see charts). With frontloaded consolidation starting in 2013, the cyclically adjusted primary balance reaches its steady-state level of 3.6% of GDP in 2015, while the impact of the economic cycle on the primary balance disappears by 2020. By 2016, the primary surplus is larger than the “snowball effect” stemming from the interest rate-growth differential, so the debt-to-GDP ratio starts to decline, reaching 60% by 2032. With backloading, the cyclically adjusted primary balance does not reach its (higher) steady-state level of 3.9% of GDP until 2017. The primary balance does not exceed the “snowball effect” and place the debt-to-GDP ratio on a downward trajectory until 2017.

4 LONGER-TERM IMPACT OF FISCAL CONSOLIDATION ON OUTPUT

The stylised simulations above do not take account of the positive medium to longer-term effect that consolidation has on the supply side of the economy. In the longer term, well-designed fiscal consolidation programmes have sizeable benefits, not only in terms of fiscal sustainability, but also in terms of GDP. In general, the literature²³ finds that the longer-term benefits of fiscal consolidation in terms of output are likely to be larger when (i) fiscal consolidation is mostly implemented on the expenditure side, but avoids cuts in productive government spending, (ii) the government sector is already large and (iii) the debt-to-GDP ratio is high and the sustainability of public finances is at risk.

As regards the implementation of spending cuts, empirical literature contains evidence that multipliers of spending shocks tend to decline and change sign over the medium term. That is to say, cuts in unproductive government expenditure in particular are associated with positive output effects over the medium to longer term. There are signs that governments are now increasingly aware of the need to implement spending cuts in an efficient manner. For example, “expenditure reviews” aim to free up resources by cutting unproductive expenditure, while protecting the types of public expenditure that are best able to promote longer-term growth. That is the case, for example, with expenditure that (i) supports the creation of physical or human capital (e.g. investment in infrastructure, research and development, health and education),²⁴ (ii) makes efficient use of public

23 Theoretical literature is divided on whether fiscal policy has an impact on the level or growth rate of GDP per capita. Exogenous (neo-classical) growth models allow only for an impact on levels, not for long-term effects on growth stemming from changes in fiscal policy variables, while endogenous growth models (see next footnote) predict effects on the growth rate, at least along the transition path to the steady state.

24 For example, Lucas maintains that public investment in education increases the level of human capital and that this can be regarded as the main source of long-term economic growth (see Lucas, R., “On the mechanism of economic development”, *Journal of Monetary Economics*, No 22, 1988, pp. 3-42). Barro argues that productive government expenditure (e.g. investment in infrastructure) can, up to a point, promote economic growth (see Barro, R., “Government Spending in a Simple Model of Endogenous Growth”, *Journal of Political Economy*, No 98(5), 1990, pp. 103-125). Romer makes the case for the relevance of spending on research and development (see: Romer, P., “Increasing Returns and Long-Run Growth”, *Journal of Political Economy*, No 94, 1986, pp. 1002-1037; and Romer, P., “Human Capital and Growth: Theory and Evidence”, *Carnegie-Rochester Series on Public Policy*, No 32, 1990, pp. 251-286).

resources in undertaking such activities and (iii) underpins macroeconomic stability by being medium term-oriented, predictable and sustainable. Indicators of the quality of public finances and commonly used assessment methodologies and international comparators can be illustrative and helpful when assessing the quality of public expenditure.²⁵

The positive impact of cuts in government spending is likely to be greater in the longer term when the government sector is large and/or fiscal sustainability is at risk. In general, large government sectors may weaken long-term growth. To be sustainable, they require high taxes, which may create disincentives to work and invest.²⁶ Conversely, financing high levels of expenditure through borrowing will lead to higher (and potentially unsustainable) debt levels, with a negative impact on macroeconomic stability, borrowing costs and, ultimately, growth.

As illustrated by the simulations using the ECB's NAWM in Box 6 of the December 2012 Monthly Bulletin, fiscal consolidation is associated with positive effects on long-term GDP growth for all revenue and spending instruments apart from government investment. Consolidation reduces the debt level in the medium term, and the simulations assume that the resulting budgetary room is used to reduce the distortionary tax burden on labour. Consequently, initial increases in taxes (both direct and indirect) may be associated with positive effects on output – albeit effects that are more limited than those resulting from cuts to unproductive spending. Consolidation also lowers sovereign risk premia, leading to lower government financing costs and creating room for further reductions in taxes on labour. At the same time, the reduced financing costs of the private sector result in an increase in the capital stock across the economy and higher levels of output.

Overall, fiscal consolidation should avoid any bias against spending cuts: although cuts to unproductive spending may have a larger negative impact than revenue measures (with the exception of general transfers) in the short term, they tend to be the most beneficial in terms of medium to long-term growth prospects. Moreover, expenditure-based consolidation measures are most favourable to longer-term growth when they are accompanied by supply-side reforms (including the deregulation of goods and labour markets) and wage moderation.²⁷

5 CONCLUSIONS

The review of relevant literature presented in this article indicates that there is no one short-term multiplier associated with fiscal consolidation. Multipliers are country, time and episode-specific. Generally, fiscal consolidation can be expected to have a negative impact on output in the short term. This impact is larger not only during recessions and/or periods of financial stress, but also when monetary policy is constrained and when consolidation takes place in many countries simultaneously. The fiscal multiplier is found to be smaller in the presence of weak public finances, particularly when the sustainability of government debt is at risk. The multiplier also differs depending on the fiscal instrument used.

25 See, in this respect, work by the OECD and the European Commission on the quality of public finances.

26 Even in the case of productive government spending, the literature points to the existence of non-linear responses in terms of long-term growth: increasing the stock of public capital above a certain optimal level will eventually hurt output and growth (see Barro, *op. cit.*, footnote 24).

27 See: Alesina, A., Favero, C. and Giavazzi, F., “The Output Effect of Fiscal Consolidations”, *NBER Working Papers*, No 18336, 2012; and Tsibouris, G.C., Horton, M.A., Flanagan, M.J. and Maliszewski, W., “Experience with Large Fiscal Adjustments”, *IMF Occasional Papers*, No 246, IMF, 2006.

It is, however, important to move beyond this narrow short-term focus. There is a broad consensus that well-designed fiscal consolidations have positive medium to longer-term effects. Consolidation implies a permanent improvement in the structural balance, while the deterioration in growth is only temporary. Even in the event of a large fiscal multiplier, fiscal consolidation could initially lead to a higher debt ratio, but this effect will typically be reversed within a few years. For countries with high debt levels, while the adverse short-term effect on the debt ratio may be more prolonged, fiscal consolidation eventually returns debt to a more sustainable path.

Simulations using plausible assumptions suggest that frontloading consolidation reduces the total consolidation effort and stabilises the debt ratio more quickly (although it does imply larger short-term reductions in output). However, in many cases, avoiding such short-term costs is not a viable option. Countries that are under fiscal stress are forced to frontload fiscal consolidation in order to meet financing needs and rapidly restore fiscal soundness to avoid abruptly negative market reactions. Supporters of the backloading of fiscal consolidation often point to the lower multipliers expected in the future, once a recovery has taken place. This may, however, be a dangerous strategy, especially given that a recovery is unlikely to materialise where the postponement of fiscal consolidation implies the further deterioration of fiscal positions. In such a situation, backloading will require greater cumulative consolidation efforts. Overall, when designing a fiscal adjustment path, the arguments above in favour of frontloaded adjustment often outweigh those which stress the costs of short-term output losses, not least when it comes to political economy.

In all cases, the credibility of the fiscal consolidation process, which appears to be crucial to reducing the short-term costs of consolidation, should be supported by establishing well-designed medium-term plans that are based on detailed and permanent measures. It is also essential that fiscal consolidation is based on cuts to unproductive government expenditure, as this strategy will be the most beneficial for medium-term growth and will have a lasting impact on the deficit. Confidence in governments' consolidation programmes is further enhanced when these are accompanied by structural reforms that have positive supply-side effects over the longer term.