

AUSTERITY: HURTING BUT HELPING

3.1 Introduction

Since the sovereign debt crisis erupted in the euro area, there has been much discussion about the costs and benefits of fiscal adjustment, or austerity. While several euro area countries have experienced a rapid rise in their public debt, calling for a reduction in government deficits, the crisis has also plunged them into a deep recession. This, in turn, has limited their scope for reducing public deficits, and might even have required short-term deficit increases in some cases. However, the costs and benefits of fiscal policy depend heavily on the nature of the recession. If a recession is caused by a temporary demand shock, fiscal expansion can effectively offset its effect in terms of output and employment. If, however, it is caused by a permanent demand or supply shock, the benefits of fiscal expansion are far more limited. We argue that the shock that triggered the latest recession was of a longer-lasting nature, meaning that the benefits of any fiscal expansion would have been limited. Neither austerity, nor the recession was completely avoidable as a result.

In our previous reports (EEAG, 2012; and EEAG, 2013) we emphasised that the root of the euro area’s current problems lies in the external imbalances between its core and periphery countries.¹ In the run-up to the crises optimistic expectations about income convergence generated an investment boom in the periphery, particularly in construction, accompanied by ballooning current account deficits financed by private capital inflows. This expansion in demand generated a faster rise in prices, including real-estate prices, in the periphery than in the core. The rapid price rise eroded the competitiveness of the periphery countries,

¹ The periphery countries of the euro area are Cyprus, Greece, Ireland, Portugal and Spain. Since Italy was also hit by the sovereign crisis, it is usually lumped together with the other five countries referred to as the GIPSIC countries. However, the roots of the Italian problem are rather different to those of the other five countries, as Italy has been facing serious structural problems and stagnation since the early 1990s.

which reinforced the increase in their current account deficits. Importantly, the boom was also accompanied by a misallocation of resources across different activities and firms. Both relative prices and allocations were therefore misaligned on the eve of the crisis. After its onset, private capital flows stalled, and in some cases even reversed, and the investment boom collapsed, leading to a recession. Since it takes time to reallocate labour, for example from oversized construction industries to other industries, this shock has had a long-lasting impact.

The previous argument implies that some fiscal retrenchment is necessary for the rebalancing process in the periphery. Improving fiscal balances increases domestic saving relative to investment, which helps to improve the current account. Moreover austerity, by improving fiscal balances and raising unemployment levels, also reduces aggregate demand, exerting downward pressure on prices, without which an improvement in competitiveness cannot be achieved. In addition, recession accompanied by relatively high unemployment naturally emerges during a large-scale reallocation of productive resources, particularly of labour across firms and industries. Moreover, recession tends to induce price and wage cuts, and hence leads to the necessary realignment of relative prices without which the competitiveness of the previously overheated economies cannot be re-established.

This chapter explores the notion of austerity and discusses the fundamental trade-offs policymakers are facing when making decisions about the timing and size of fiscal adjustment. It looks at the stylised facts of austerity in the euro area and highlights the macroeconomic conditions that triggered it, examines the degree to which austerity has been implemented to date and its effect on the economy. We discuss why the shock that triggered the crisis, and eventually led to austerity, was more permanent in nature.

3.2 Austerity

There has been a great debate about austerity over the past few years. However, the debate often left it in the

dark what do we mean by austerity and how we measure it. In addition, to evaluate austerity, we should also be aware of the trade-offs governments face. Hence we start our analysis with a brief discussion of the definition of measurement of austerity, and the fiscal policy trade-offs.

3.2.1 Definition and measurement

We use the term “austerity” to describe fiscal policy plans and actions to improve the primary balance of the general government i.e., the balance excluding interest payments. Austerity measures generally include expenditure cuts and tax rises. Since we want to measure actual policy changes, we have to isolate the effect of fiscal policy change on the primary balance from the change caused by the economic cycle, or one-off government measures such as bank bailouts. The most frequently used measure of changes in fiscal policy is the cyclically-adjusted primary balance of the general government (see Box 3.1 for further discussion). This measure aims to correct for business cycle effects, however, it still falls short of fully isolating fiscal policy intents from its outcomes.² This nevertheless remains the best measure available to assess fiscal policy actions.

² This problem can potentially be serious. Riera-Chrichton et al. (2012) build a novel data set of the value added tax rates of 14 industrialised countries. They find that cyclical value added tax revenue changes have very little correlation with actual changes in the value added tax rate.

There are several pitfalls in the measurement of fiscal policy based on narrowly defined fiscal observables.

- The definition of fiscal policy is somewhat more difficult when central banks carry out significant quasi-fiscal activities. In particular, as discussed extensively in our last report (EEAG, 2013) there are significant current account imbalances within the euro area. During the crisis, private capital flows were less and less willing to finance the current account deficits of the euro area periphery. In addition, some countries like Italy experienced capital flight during the crisis. The European Central Bank stepped in to finance these current account deficits, or to compensate for capital flight from these countries. If a country with a flexible exchange rate were to face a similar balance-of-payments crisis, and required external assistance, it would call upon the IMF. In such an instance the financial flows would be more transparently accounted for, and they would appear on the general government accounts.
- Governments also accumulate implicit liabilities in the form of future pension and health care liabilities. Currently these liabilities are not treated as part of government debt, and any action that the government takes to alter them may or may not show up in the government account. For example, the government may nationalise private pensions. The proceeds are viewed as government revenue and can be used to lower government debt, despite

Box 3.1

Measuring cyclically-adjusted government balances and potential output

Cyclically-adjusted government balances measure government balances excluding the effects of the economic cycle and one-off budgetary measures. When the economy is booming, tax revenues are above their long-term sustainable level, and when the economy is in recession, they are below it. Changes in fiscal policy are measured by changes in government balances, excluding these temporary effects, as such changes reflect government intentions more accurately.

However, cyclically-adjusted government balances are not observable directly, they have to be estimated. Firstly, the output elasticity of various tax revenues and the unemployment elasticity of government expenditure are estimated (see Girouard and André, 2005, for more detail). Secondly, estimates of potential output and the natural rate of unemployment are used to estimate cyclically-adjusted revenues and expenditure, which together with unadjusted interest expenditure are used to calculate the cyclically-adjusted government balances.

Potential output represents the level of output that can be maintained if production factors are utilised at their long-term sustainable level. The percentage deviation of actual from potential output is referred to as the output gap. The estimates used here from the European Commission DG ECFIN / AMECO database are based on the production function approach. This approach calculates the capital stock, and the sustainable level of employment. The former is based on actual investment data, while the latter requires an estimate of the non-accelerating inflation rate of unemployment. Finally, a statistically smoothed version of total factor productivity (TFP) is calculated whereby TFP is represented as the difference between actual output and the contribution of capital and labour to output.

As we can see, the estimation of potential output is a rather complicated process marred by several conceptual and statistical issues (see Darvas, 2013; and Graff and Sturm, 2011, for a discussion of these problems). More importantly, estimates of the output gap and potential output often prove highly unstable over time, as the estimates tend to undergo substantial revisions. These problems imply that caution must be exercised when interpreting output gaps or cyclically-adjusted government balances. For example, if the actual deficit is large, and the estimated output gap is small, then the estimated cyclically-adjusted government deficit is close to the actual one, and hence appears to be large, requiring a large fiscal adjustment. However, if the output gap is mis-measured and is actually larger than the measured gap, then policymakers may implement a larger than necessary fiscal adjustment.

We will use these estimates despite the problems discussed above, as they reflect the best knowledge available about fiscal policy stance. Policymakers and researchers are aware of the issues involved. The European Commission set up the “Output Gap Working Group” to address these problems, and to ensure that potential output and output gap estimates are technically robust and transparent.

the fact that the government liabilities, including implicit pension liabilities, did not change.³

- The government can also use non-standard regulatory actions to implement fiscal policy. For example, it can regulate the prices of prescription drugs thereby lowering health care costs in the short run. Similarly, it can stimulate aggregate demand by cutting or freezing the price of utilities supplied by the private sector, thus replacing a subsidy, which would have counted as government expenditure. Governments are more likely to implement measures of this kind if they are under greater pressure to implement austerity measures.

Despite the problems stemming from quasi-fiscal activities, our discussion of austerity will focus exclusively on traditional fiscal variables.

3.2.2 Austerity trade-offs

Governments do not tend to implement austerity measures lightly as they face several trade-offs. The debate about austerity often overlooks these trade-offs, or the costs, benefits and risks that policymakers have to consider. Here we spell out the three major relevant trade-offs that policymakers need to take into account when implementing austerity.

Firstly, there is a trade-off between the risk of default and the cost of austerity. On the one hand, if public debt is on an explosive path at present, the government may not be able to roll over its debt, forcing it to make an even more costly fiscal adjustment in the future. On the other hand, fiscal adjustment today is costly in terms of output and employment. Hence the primary incentive to carry out austerity measures comes from the anticipated future costs of delaying it. Markets often give incentives not to postpone austerity measures when they demand higher interest rates for rolling over existing government debt. However, the empirical evidence that market pressure induces governments to carry out multi-year fiscal adjustment is weak. In a sample of 17 OECD countries Dell'Erba et al. (2013) find that only about one third of fiscal adjustments between 1980 and 2011 were related to market pressure such as higher interest rates. In the other cases governments were reacting to weak macroeconomic or fiscal fundamentals. The problem with this and similar empirical studies is that they typically measure the outcome of the interaction between fiscal

policy and sovereign debt markets. However, also the potential market pressure imposed by financial markets, even if it never materialises, has an effect on governments' actions. Hence, the existing evidence cannot be interpreted as suggesting that existing or potential market pressure is not a major factor in governments' austerity decisions, nor that these unobservable, but anticipated threats would indeed be carried out in the absence of a fiscal adjustment.

It has to be emphasised that a recession may also have benefits; a fact that is relevant for trading off default risk versus austerity. The important benefit in the context of the euro crisis that we would like to highlight is that austerity supports real devaluation, which is needed by the periphery countries in order to re-establish competitiveness. This may not be an important issue if austerity applies to an entire currency union, which is connected via flexible exchange rates with the rest of the world such as the USA or the entire euro area. However, it is of the utmost relevance when it comes to single countries or regions within a currency union, as austerity helps to achieve relative price adjustment.

Secondly, there is a trade-off between front-loading the fiscal adjustment, with high short-term costs in terms of employment and output, and the credibility of fiscal policy, as back-loading the programme may lead markets to believe that it will not be fully implemented. The benefit from back-loading the programme is that this process is spread out over many years, which lowers the cost in terms of output and employment. The main drawback is that if implementation of the programme is too slow, it may lose credibility, hence market pressure in the form of higher interest rates makes the slower programme more costly. Front-loading the adjustment may prove particularly costly if the output loss generated by austerity leads to a higher, rather than a lower debt-to-GDP ratio. A higher debt-to-GDP, in turn, requires further austerity, leading to a vicious cycle of austerity measures and output loss. The risk of self-defeating austerity is likely to be large if the loss of output due to austerity is persistent. DeLong and Summers (2012) forcefully argued that in the presence of "hysteresis", output loss may well be permanent. One prominent hysteresis effect comes from the labour market. The human capital of workers who are out of work for a prolonged period of time during a deep recession depreciates, leading to a permanent loss of productivity and income. Firstly, it is unclear whether such a displacement of

³ See our country report on Hungary in EEAG (2012), for example.

workers and the accompanying loss of human capital is inefficient, as it may represent a necessary reallocation of resources. We believe that this is likely to be the case in the current recession and will return to this issue later. Secondly, the recent quantitative work of Bi et al. (2013) suggests that only very slow fiscal adjustment is likely to avoid hysteresis effects. But it is unlikely that such a lengthy process of fiscal adjustment can be implemented in a credible fashion. Hence such a program is likely to lead to higher interest on government debt, eventually forcing the government to front-load fiscal adjustment.

Thirdly, there is a trade-off between choosing expenditure cuts and tax rises. On the one hand, the costs and benefits of each measure depend on the associated spending and tax multipliers. The existing evidence suggests that raising taxes is more costly in terms of output than cutting expenditure. In particular, there is the possibility that expenditure cuts can be expansionary as they signal future tax cuts. The resulting wealth effect leads to an increase in demand. However, empirical evidence supporting the case for expansionary austerity has proved rather elusive. Alesina and Ardegnà (2010); and Alesina et al. (2012) present empirical evidence based on assessing the impact of changes in cyclically-adjusted primary deficit on output to support the case for expansionary austerity. By contrast, Guajardo et al. (2011) use an alternative identification method based on a narrative account of actual fiscal intentions, and find no evidence for expansionary austerity. The most recent study by Jordà and Taylor (2013) combines a narrative approach with a novel econometric identification method, and finds no evidence for expansionary austerity. One reason why evidence is proving so elusive may lie in the theoretical mechanism by which such expansion is supposed to work (see Bertola and Drazen, 1993). Fiscal austerity can be expansionary if the private sector's expectations about future taxes are permanently lower. Empirical measures of fiscal consolidation, even if they are complemented by a narrative approach, do not capture all of the factors affecting private sector expectations about future fiscal policy, especially during times of crisis.

3.3 Macroeconomic and fiscal conditions between 2007 and 2009

The financial crisis slowed down the euro area economies. Policymakers in the euro area initially responded with a fiscal expansion to mitigate the recession. However, the fiscal expansion could not prevent the euro area countries falling into recession, and it only set the stage for the sovereign crisis.

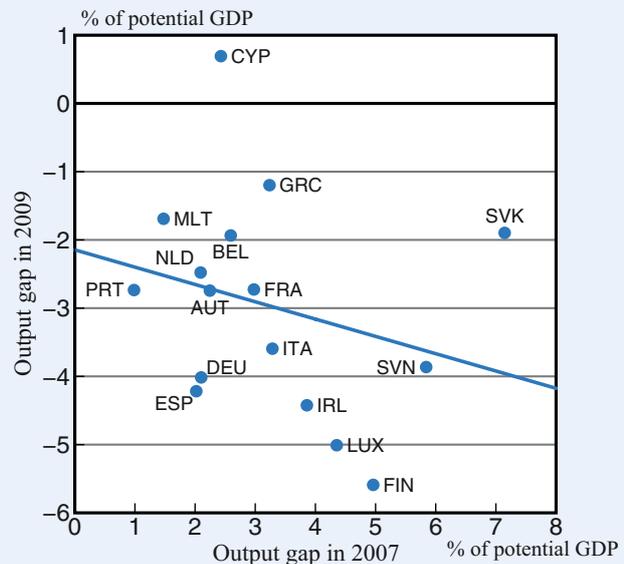
3.3.1 Output, external balances and competitiveness

The member states of the European Union were severely hit by the financial crisis, which triggered sovereign crises in various countries. Figure 3.1 shows the output gaps before the financial crisis in 2007, and in 2009 when the European sovereign crisis started. The figure shows that while all euro area countries were growing above their respective sustainable trend levels in 2007, two years later all but one country were in recession. Countries in which the output gap was the most positive in 2007 tended to suffer larger output losses by 2009. Interestingly, the output gap in 2009 indicates that Finland was most severely hit, while the periphery countries did somewhat better, especially Portugal and Greece. It is quite clear that the euro area was in recession by the end of 2009.

The recession had a differential impact on the euro area countries as far as external balances are concerned. Figure 3.2 shows the external balances, as

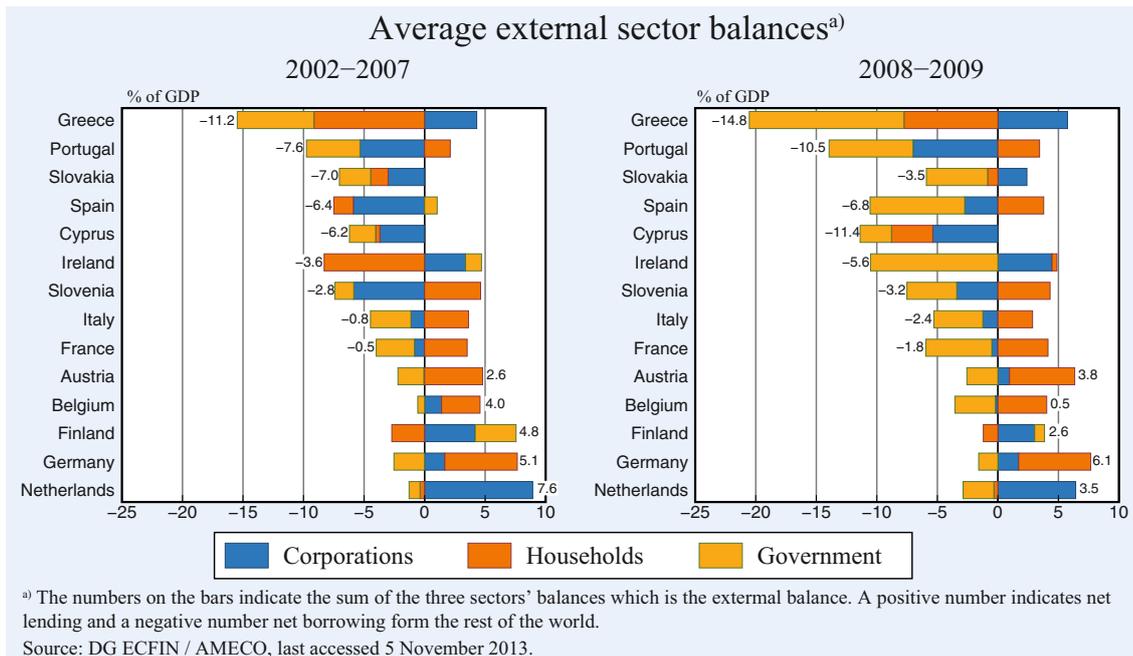
Figure 3.1

Gaps between actual and potential GDP (Output gaps)



Source: DG ECFIN / AMECO and EEAG calculations, last accessed 5 November 2013.

Figure 3.2



measured in national accounts, disaggregated into the balances of the three domestic sectors: households, corporations and the government.⁴ The left panel of the figure shows, as discussed in our previous reports (EEAG, 2012; and EEAG, 2013), that the periphery countries of the euro area operated large current account deficits. The figure also reveals that although government balances contributed significantly to this deficit in Greece and Portugal, private sector net borrowing was even more important, which is consistent with the credit boom during the pre-crisis period.⁵

The 2008–2009 period, on the other hand, seems rather different. In the first phase of the recession, before the sovereign crisis, the external balances of the periphery countries deteriorated, but this time the deteriorating balances of the government were a major contributing factor. In particular, the household sector went from being a net borrower to a net lender in Ireland and Spain as households repaired their balance sheets. For example, households' net borrowing amounted to about 8 percent of GDP on average prior to 2008 in Ireland, which turned into net lending by 2009. This reflected a huge adjustment on the part of the household sector. However, there was little sign that such adjustment was happening in Greece at the time. Greek

households reduced their borrowing slightly, but government borrowing increased significantly.

As we discussed in our previous two reports (EEAG, 2012; and EEAG, 2013), the deteriorating external balances went hand in hand with worsening competitiveness in the periphery. Figure 3.3 shows the evolution of the price levels in the euro area countries. The increase in the price levels in the periphery significantly outstripped the price increases in the core prior to 2007. However, the first phase of the recession between 2008 and 2009 already induced some adjustment in the periphery, with the exception of Greece. Households turned from net borrowers into net lenders in Ireland and Spain, where price levels also rose more slowly than in Germany. Ireland, where households carried out the largest adjustment, experienced a decrease in its price level.

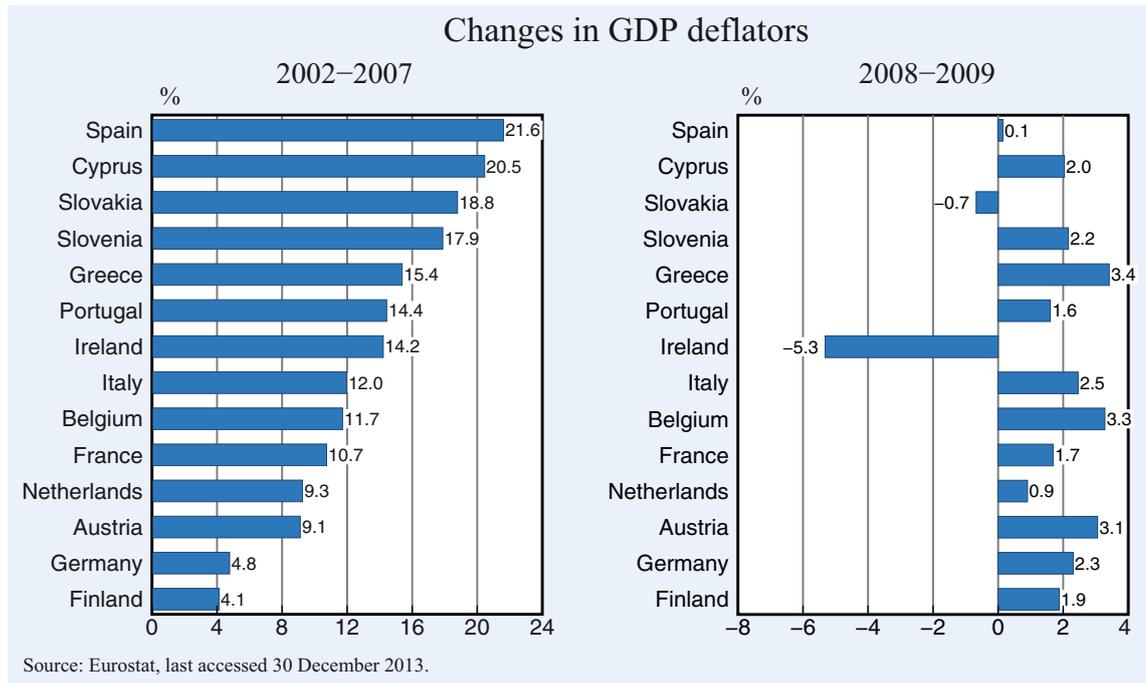
3.3.2 The fiscal expansion of 2008 and 2009

The euro area countries carried out a fiscal expansion in the wake of the financial crisis. This was already suggested by Figure 3.2, which showed that the net borrowing of the euro area governments increased between 2008 and 2009 relative to pre-crisis levels. Figure 3.4 gives a more precise description of the change in fiscal policy, as it shows the cyclically-adjusted primary balance of the governments in 2007 and 2009. Government balances deteriorated in all

⁴ Loosely speaking, these balances measure the difference between saving and investment in each sector. The sum of these balances corresponds to the difference between aggregate saving and investment. This equals net lending in the national accounts, which is conceptually the same as the current account.

⁵ It is important to emphasise that sector balances are mere identities, thus they do not imply causal relationships.

Figure 3.3



but one country. In some countries like Germany and Italy it changed very little, while in others such as Greece, Ireland⁶ and Spain it deteriorated in a dramatic fashion. The cyclically-adjusted primary balance deteriorated by more than 8 percent of potential GDP in Ireland and Spain, and by about 6 percent in

Greece. Interestingly, Italy behaved very conservatively in terms of fiscal policy, having maintained an almost unchanged primary surplus during 2008 and 2009 relative to 2007.

⁶ We replaced the government expenditure figures, excluding the interest payments of Ireland for 2009, with the average of 2010 and 2011 to eliminate the effect of the bank bailout on Irish government expenditure. Using this figure, we also recalculated the deficit figure for Ireland for 2009.

The crucial question, particularly in terms of the current austerity debate, is how effective was the fiscal expansion of 2008 and 2009 in mitigating the recession? Figure 3.5 plots the change in the cyclically-adjusted

Figure 3.4

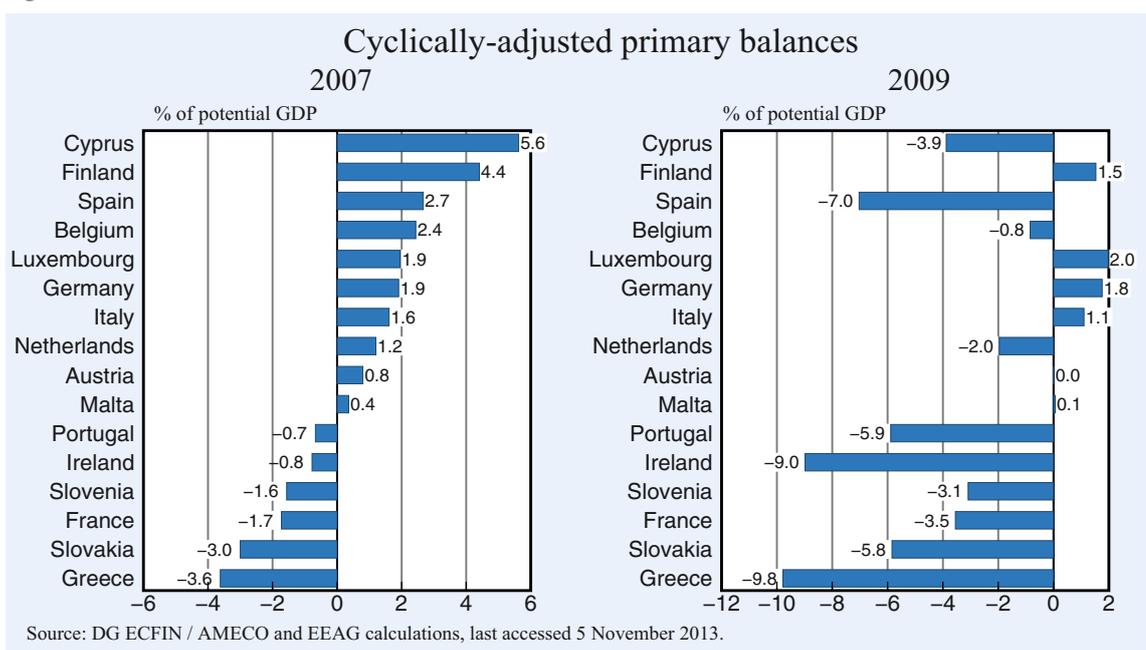
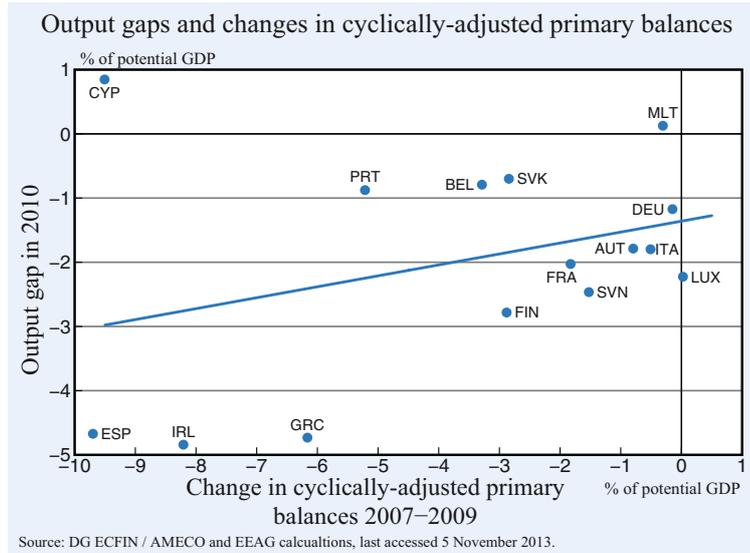


Figure 3.5



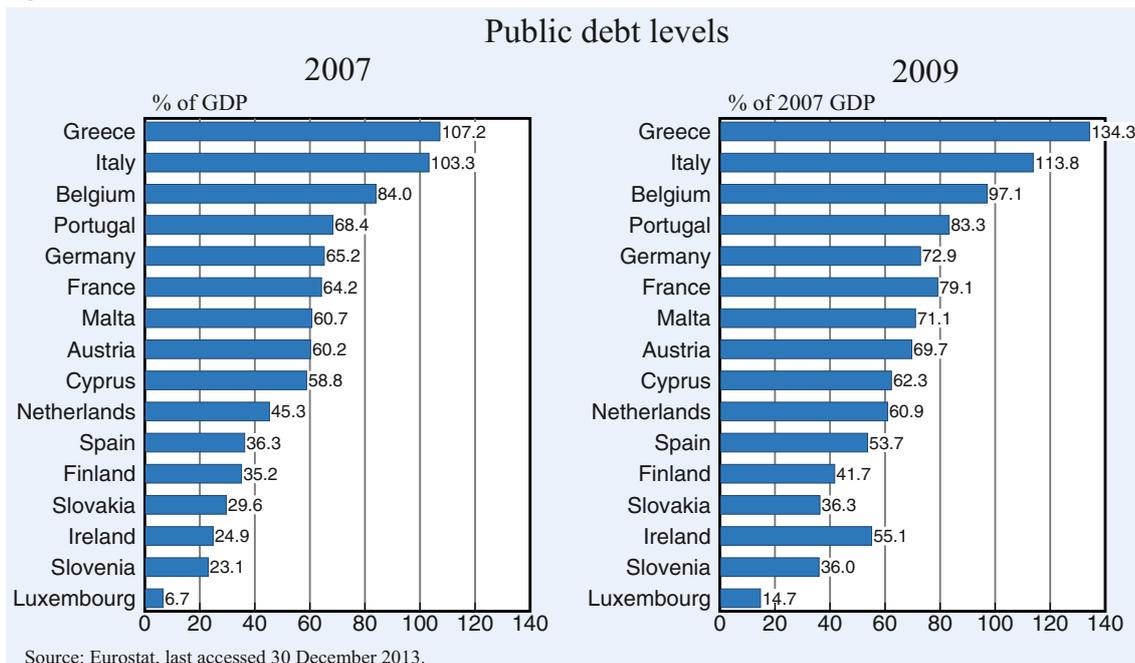
primary deficit between 2007 and 2009 against the output gap in 2010 and reveals that it was not particularly effective. If anything, greater fiscal expansion tended to be accompanied by a deeper recession. Greece, Ireland, and Spain engaged in a fiscal expansion of over 6 percent of potential GDP between 2007 and 2009, and these countries still experienced a negative output gap of over 4 percent in 2010. With the exception of Cyprus and Malta, all of the euro area countries had fallen into recession by 2010. Some countries, like Germany, experienced a relatively mild recession, but in Finland and Luxembourg the recession was deeper.

The effect of fiscal expansion on output in a recession depends on what type of shock caused the recession. If it was due to a temporary demand shock, fiscal expansion is effective in mitigating the recession. If, on the other hand, the demand shock is longer-lasting or the recession was caused by a supply shock, fiscal policy is much less effective in dealing with it. Policymakers interpreted the financial crisis of 2007–2009 as a temporary demand shock. They therefore engaged in a fiscal expansion to mitigate the recessionary effect of the financial crisis, but achieved relatively little. The fiscal expansion only seemed to

lead to a rapid increase in the indebtedness of euro area governments as Figure 3.6 illustrates. Greek public debt was already above 100 percent of GDP in 2007, but increased by over 25 percentage points during the following two years relative to 2007 GDP. Ireland’s public debt more than doubled during these two years, while public debt in both Spain and Portugal increased by over 10 percentage points.

In short, the first two years of the Great Recession in the euro area were characterised by worsening macroeconomic conditions, and by attempts to mitigate the

Figure 3.6



Source: Eurostat, last accessed 30 December 2013.

adverse effect of the financial crisis on output and employment via expansionary fiscal policy. However, these attempts were unable to change the course of the euro area economies, indicating that the shock that hit the economy was not a temporary demand shock. The euro area economies fell into a recession. The main outcome of fiscal expansion was rapidly accumulating public debt levels in the periphery, setting the stage for the subsequent European sovereign crisis.

3.4 The fiscal retrenchment of 2009–2012

Fiscal expansion of 2007–2009 was followed by fiscal austerity of 2009–2012. Firstly, we discuss the stylised facts of austerity, then assess whether the austerity measures achieved one of their basic goals, namely, ensuring public debt sustainability. Secondly, we analyse the macroeconomic consequences of austerity.

3.4.1 Size of austerity

The sovereign crisis forced the hand of the euro area periphery countries. Ireland, Portugal and Greece were shut out from the bond markets; in other words they were unable to sell bonds on the market at an interest rate that was consistent with debt sustainability. If a country is unable to issue debt, its government faces the difficult decision of whether to try to solve the problem alone or seek external assistance. If a country decides to solve its problem alone, the solution amounts to front-loading fiscal adjustment, as it has to eliminate its primary deficit overnight since it cannot borrow. Moreover, the country is likely to default on its existing debt, as it is unable to service this debt unless fiscal adjustment leads to a significant reduction in the interest premium on it.⁷ Thus, in the absence of external assistance, a major fiscal adjustment is required if the country runs a primary deficit.

As fiscal adjustment is very costly in terms of employment and output, the governments of the periphery decided to seek external assistance from the Troika (ECB, IMF and European Commission). This external assistance enabled them to back-load the fiscal

adjustment required.⁸ The assistance was, however, conditional to highly criticised austerity measures, which actually reduced the cost of fiscal adjustment relative to the cost that the markets would have imposed on these countries. In fact, the Troika represented the community of states that offered public credit at more favourable conditions than markets would have provided private credit. What critics of austerity often fail to realise is that the Troika did not impose constraints on borrowing at market conditions, but constraints on public or publicly guaranteed credit provided at the risk of other countries. However, this does not mean that the Troika, or other agencies providing external assistance, should not carefully consider both the scope and the time path of their austerity-mitigating measures.

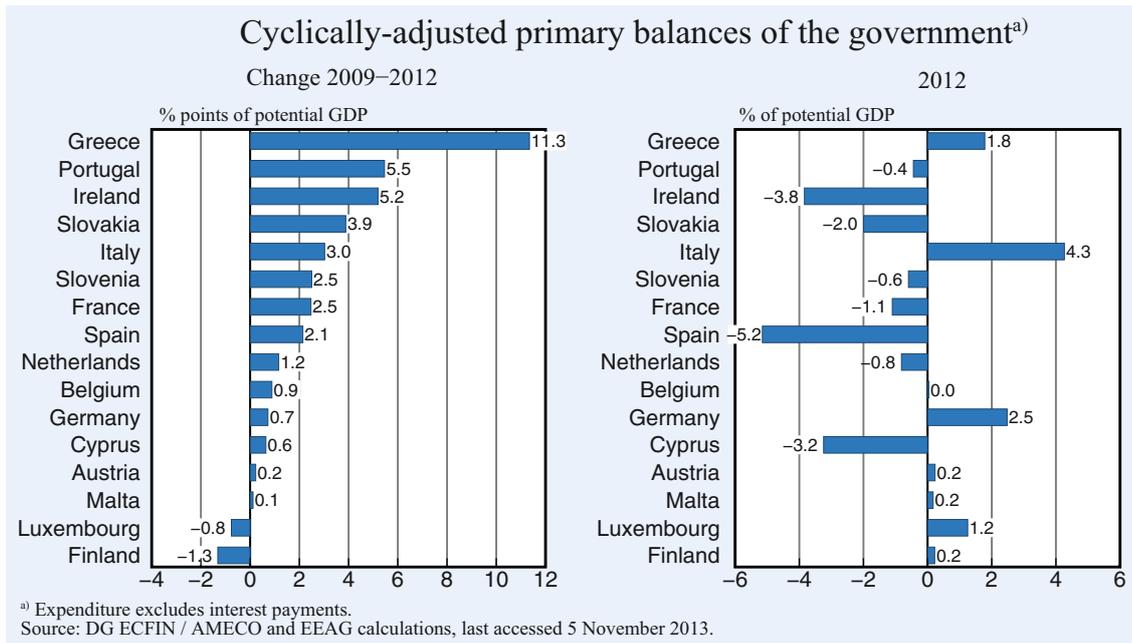
Figure 3.7 shows the changes in cyclically-adjusted primary balances relative to potential output between 2009 and 2012 and the size of the primary deficit in 2012. Firstly, with the exception of Finland and Luxembourg, all of the euro area countries implemented austerity measures. Greece stands out with a 10+ percentage point improvement in its cyclically-adjusted primary balance. As many observers have noted, Greece implemented a very large adjustment, which deserves applause, as do the efforts of Ireland and Portugal. However, these austerity efforts have to be seen in context, given that the very same countries carried out a fiscal expansion in the preceding two years. The Spanish and Irish austerity measures, in particular, did not even reverse the previous expansion, while Portugal's austerity measures were about the same size as the fiscal expansion implemented during the two years previously. Greece's austerity measures did indeed exceed the size of the previous two years' fiscal expansions by about 5 percent of GDP, which is significant. On the other hand, no other euro area country had lived beyond its means to a similar degree in terms of public debt and current account deficits relative to GDP as Greece. Finally, it should also be pointed out that the only non-periphery country hit by the sovereign crisis, Italy, acted with fiscal prudence: carrying out very little fiscal expansion in 2007 and 2009, and implementing austerity measures of 3 percentage points of GDP between 2009 and 2012.

The size of the improvement in fiscal balances in the euro area between 2009 and 2012 seemed to be large,

⁷ The situation is somewhat different if the government runs a primary surplus. In such instances, a default does not require a fiscal adjustment in the short run. However, the cost here is that the country will potentially be shut out from the international sovereign bond markets for a long time, which may prove costly in the future when the country wishes to borrow again.

⁸ Greece received its first bailout in May 2010, and its second in February 2012. Ireland, Portugal and Cyprus received bailouts in November 2010, May 2011 and in March 2013, respectively. The Spanish government was not bailed out directly, but it received a bailout package in June 2012 to rescue its ailing banks, which would otherwise have had to have been bailed out by the Spanish government.

Figure 3.7



particularly in Greece and Portugal. However, one crucial question remains: Was this improvement enough? As we discussed earlier, there are two implications of austerity that can help to evaluate the success of the policy. The first is whether it made public debt sustainable, and the second is whether it contributed to reducing the external imbalances of the euro area periphery. A discussion of the debt sustainability problem in this section is followed by an analysis of the imbalances issue in the next section.

3.4.2 Public debt sustainability

Testing for sustainability is usually an elaborate empirical exercise. However, a simple indicator can be calculated that allows us to assess how much austerity has been achieved in terms of stabilising public debt levels. We can calculate the cyclical primary balance that is required to stabilise a given level of debt, and then compare it with the actual primary balance. It must be emphasised that calculations of this nature rely on several assumptions, hence the results should be interpreted with caution.⁹

The starting point of this calculation is the accounting identity that describes the evolution of nominal government debt. We denote the level of nominal government debt at the end of the period t by D_t , the nominal primary balance by S_t and the nominal inter-

est rate by i_t . Then the level of debt at the end of period t is given by

$$D_t = (1 + i_t)D_{t-1} - S_t.$$

Dividing both sides by the nominal GDP, we get after some manipulation

$$d_t = \frac{1 + i_t}{1 + \gamma_t} d_{t-1} - s_t,$$

where the lower case letters denote variables relative to nominal GDP, and γ_t denotes nominal GDP growth. Rearranging the equation further gives us the following relationship:

$$d_t - d_{t-1} = \frac{i_t - \gamma_t}{1 + \gamma_t} d_{t-1} - s_t.$$

If the right hand side is zero, the debt-to-GDP ratio is constant and we have the following relationship between the level of debt, nominal interest rate on the debt, nominal GDP growth and the primary balance at which the level of debt is constant:

$$s_t^* = \frac{i_t - \gamma_t}{1 + \gamma_t} d_{t-1}.$$

We set i_t equal to the average effective interest rate on the government debt between 2005 and 2012, which, in turn, is calculated in each year by dividing interest expenditure by the nominal gross government debt of the previous period. Similarly, γ_t is calculated as the average growth of nominal potential GDP between 2004 and 2012. Finally d_{t-1} is set equal to nominal government

⁹ For a more elaborate calculation see Kanda (2011), for example.

debt over the nominal potential GDP in 2012.¹⁰ The numbers used for the effective nominal interest rate, and nominal GDP growth are meant to capture some longer-term interest rate and growth rates. We will also briefly discuss some alternative scenarios.

The results from the sustainability calculations are shown in Figure 3.8. The interpretation of the calculations is straightforward: Without achieving the required primary balance debt is not sustainable at its current level. Bearing this in mind, we see that the current level of debt is sustainable in Italy, Germany and Luxembourg. Since in all three countries the primary balance is better than the required one, the debt level is actually falling in these countries. In Spain, Ireland, Portugal and Greece, by contrast, current primary balances are not sufficient to sustain existing levels of debt. Debt levels in these countries are actually still rising. More specifically, the difference between the required and actual primary deficits is very large for Portugal, Cyprus, Spain and Ireland; interestingly, it is smaller in the case of Greece.

Two remarks need to be made about these calculations. Firstly, there is a great degree of uncertainty about the expected future path of nominal interest rates and nominal GDP growth, the two key variables that determine the sustainability condition. For example, using the average growth rates over a period, which includes three years of strong pre-crisis growth, may be viewed as over-

¹⁰ Data from the DG ECFIN / AMECO Database, last accessed on 5 November 2013, is used for the sustainability calculation.

ly optimistic. Hence one should interpret these figures as indicative. The periphery countries probably face a more, rather than a less serious sustainability problem than Figure 3.8 suggests, as it is unlikely that the nominal interest rate will be lower and/or the nominal GDP growth higher than the average between 2005 and 2012. Secondly, the debt sustainability problem may have been exacerbated by the realignment of relative prices. Rebalancing requires an improvement in competitiveness i.e., a slower rise of prices in the periphery than in the core. Hence, unless real growth is significantly higher in the periphery than in the core, it will be hard to maintain sustainable levels of public debt and improve competitiveness at the same time without further improvement in the primary balance. Faster real growth than the 2005–2012 average, however, is not very likely.

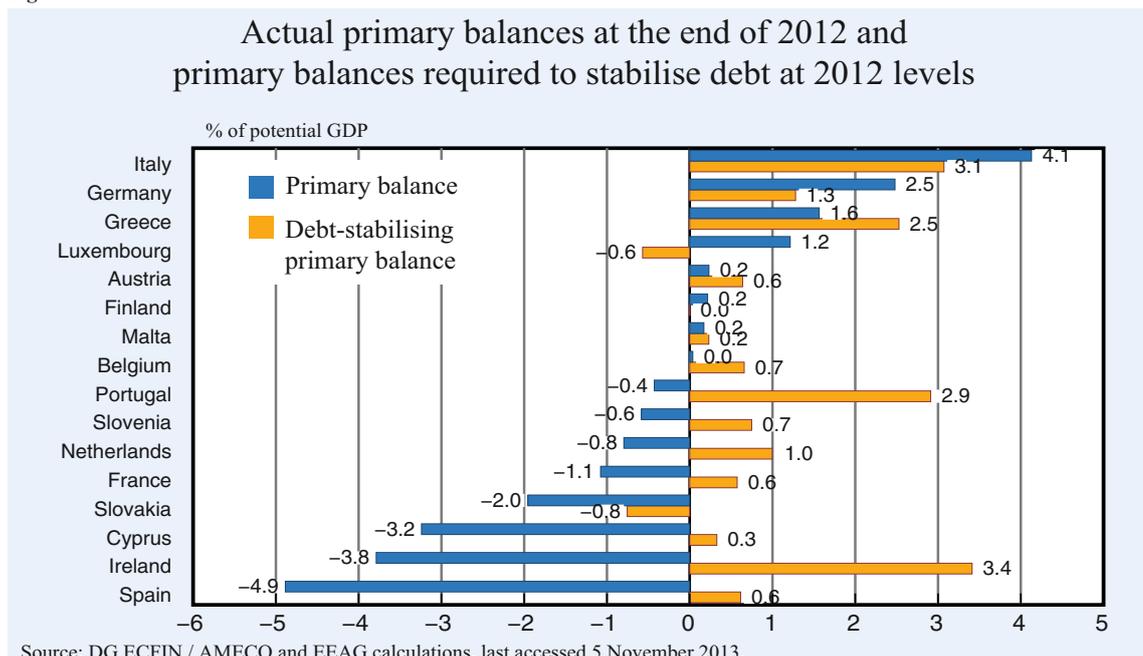
3.4.3 Macroeconomic consequences

The debate about the macroeconomic effect of austerity is essentially a debate about the size of the fiscal multiplier. Firstly, we review the literature about the size of the multiplier before turning to the analysis of the austerity in the euro area.

3.4.3.1 The multiplier

There is a fierce debate among economists about the macroeconomic effects of austerity. In recent years sig-

Figure 3.8



nificant research efforts have been devoted to understanding the theoretical mechanism by which fiscal policy measures affect the aggregate economy, and to measuring their effect. This line of argument asks a relatively simple question: How large is the fiscal multiplier?

The multiplier is typically less than one in the standard frictionless neoclassical model; see Baxter and King (1993). The reason for this is that an increase in government consumption makes households poorer since they expect future tax increases. They therefore reduce their consumption. As households lower their consumption of leisure, they increase their supply of labour, which leads to a rise in output. Since the second effect typically dominates, the multiplier is positive, but less than one. However, the multiplier can be larger in the presence of price rigidities; see Christiano et al. (2011). The initial effect in a model with price rigidities is similar to that of the neoclassical model. Households increase their labour supply in response to a rise in government expenditure, as they feel poorer. There is, however, an amplifying effect on labour supply in the presence of price rigidities. Namely, those firms who cannot raise their prices due to price rigidities face higher demand, hence they hire more labour. The higher demand for labour drives up wages, as wages tend to be rigid only downwards, which induces households to supply even more labour, leading to a further increase in output.

The multiplier may be even larger in recession when the nominal interest rate is at the lower boundary of zero. The rise in government expenditure raises demand. Higher demand leads to higher expected inflation, which generates a negative real interest rate as we are at the lower boundary. This induces households to save less and to consume more, which leads to a further rise in output. The size of the multiplier then ranges between 1.5 to 2.5, according to Christiano et al. (2011) and it varies across recessions and expansions, as was also confirmed by the recent empirical study of Auerbach and Gorodnichenko (2013). Generally, empirical estimates of the multiplier vary between 0.5 to 3.5; see Ramey (2011) for an overview. After carefully reviewing the evidence, she concludes that a plausible range of estimates is between 0.8 and 1.5. If indeed the size of the multiplier is large, and 1.5 is already significant, then austerity measures have a strong negative effect on output and employment during a recession.

We have already seen, however, that fiscal expansion was not particularly effective in mitigating the recessionary effects of the financial crisis between 2008 and 2009 as the shock was probably a combination of a longer-lasting supply and demand shock. After reviewing the stylised facts about euro area austerity, we will discuss why fiscal policy may prove less effective if there is a large misallocation of resources at the beginning of the recession, if there are large external imbalances to correct, and if there is significant risk of a break-up of the euro area.

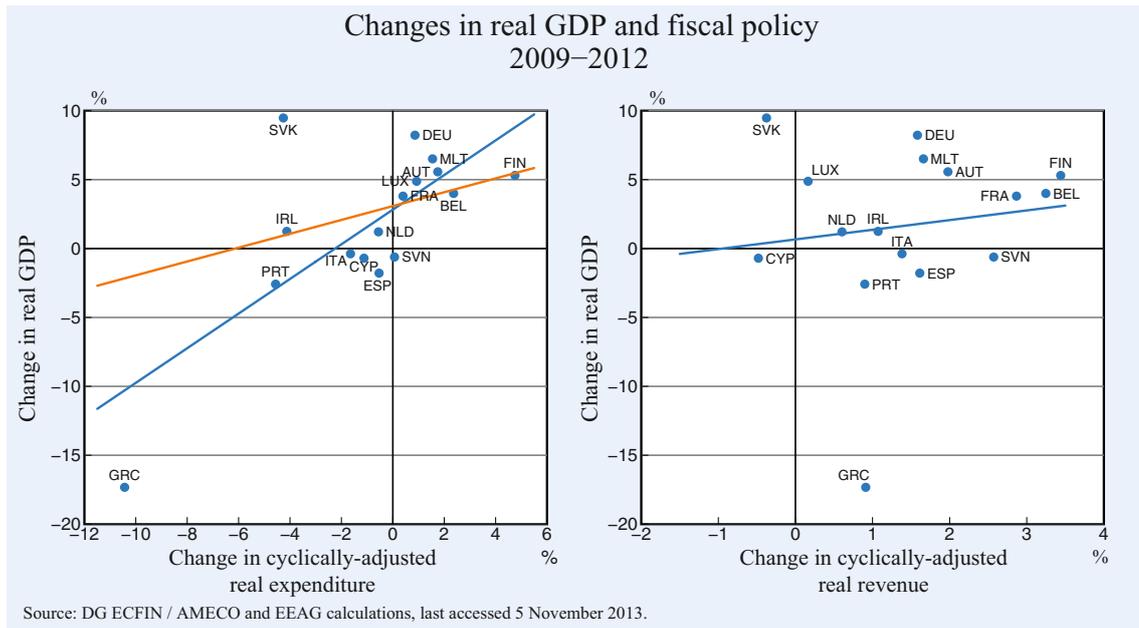
3.4.3.2 Austerity in the euro area between 2009 and 2012

3.4.3.2 Austerity in the euro area between 2009 and 2012

We turn now to a few stylised facts about the recession in the euro area between 2009 and 2012. Figure 3.9 provides us with more clues about how austerity measures affected the economy. Here we plot the actual change in real GDP between 2009 and 2012 against the change in cyclically-adjusted non-interest expenditures and revenues of the government, respectively. The left part of the figure shows the standard effect of expenditure cuts: They have a negative effect on output. However, the strong negative effect of expenditure cuts on output again is primarily driven by Greece. Without Greece the effect still appears to be negative, but is much more muted, as shown by the orange line in the diagram. An additional observation we can make is that the loss of output over these three years was relatively modest, except for Greece. Over this period, GDP declined by about 3 percent in Portugal, by less than 2 percent in Spain, and increased by about 2 percent in Ireland. Among the periphery countries only Greece's GDP declined dramatically, by over 15 percent. In Italy, the only crisis-hit country from the core, GDP remained more or less at the same level. This means that the automatic stabilisers did work, and offset the negative effects of austerity to some extent.

Given the relatively modest size of output loss, with the exception of Greece, it is rather puzzling why the impression arose that the periphery of the euro area had been plunged into a deep recession. The answer is provided by the next graph, Figure 3.10, which plots changes in real GDP against changes in employment. Here we can see dramatic changes both between Q3 of 2007 and Q3 of 2009, and between Q3 of 2009 and Q3 of 2012. Over these two periods employment fell by over 15 percent in Greece, by about 15 percent in Spain and Ireland, and around 10 percent in Portugal.

Figure 3.9



Moreover, the graph also reveals another difference between the euro area core and periphery. The change in output was larger than the change in employment in the core countries both between Q3 of 2007 and Q3 of 2009 when output fell, and between Q3 of 2009 and Q3 of 2012 when output rose. By contrast, the change in output was smaller than the change in employment in the periphery countries during both periods with the exception of Greece, where employment only changed more than output between Q3 of 2009 and Q3 of 2012. In other words, labour productivity ap-

pears to be pro-cyclical in the core countries, but counter-cyclical in the periphery.

Labour productivity tends to be pro-cyclical in general. The degree of pro-cyclicality diminished over the three decades, but it did not become counter-cyclical.¹¹ This fact is significant because it suggests that this recession in the periphery countries is unusual as labour productivity has increased. The standard explanation

¹¹ See Galí and van Rens (2010) on vanishing pro-cyclical productivity.

Figure 3.10

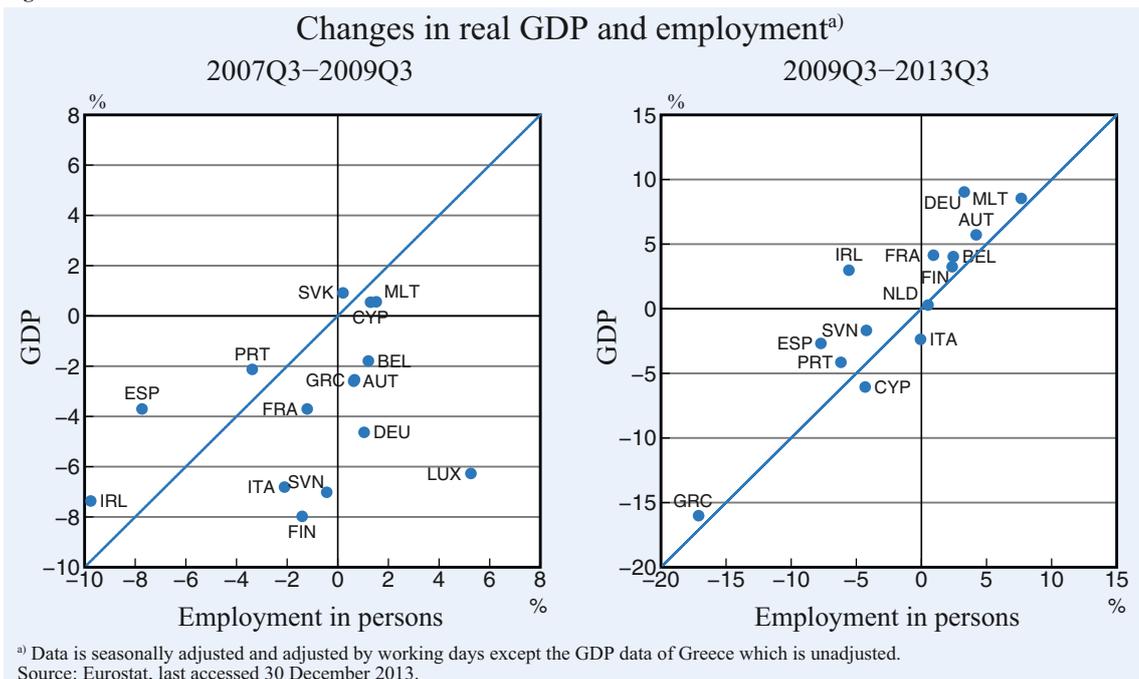
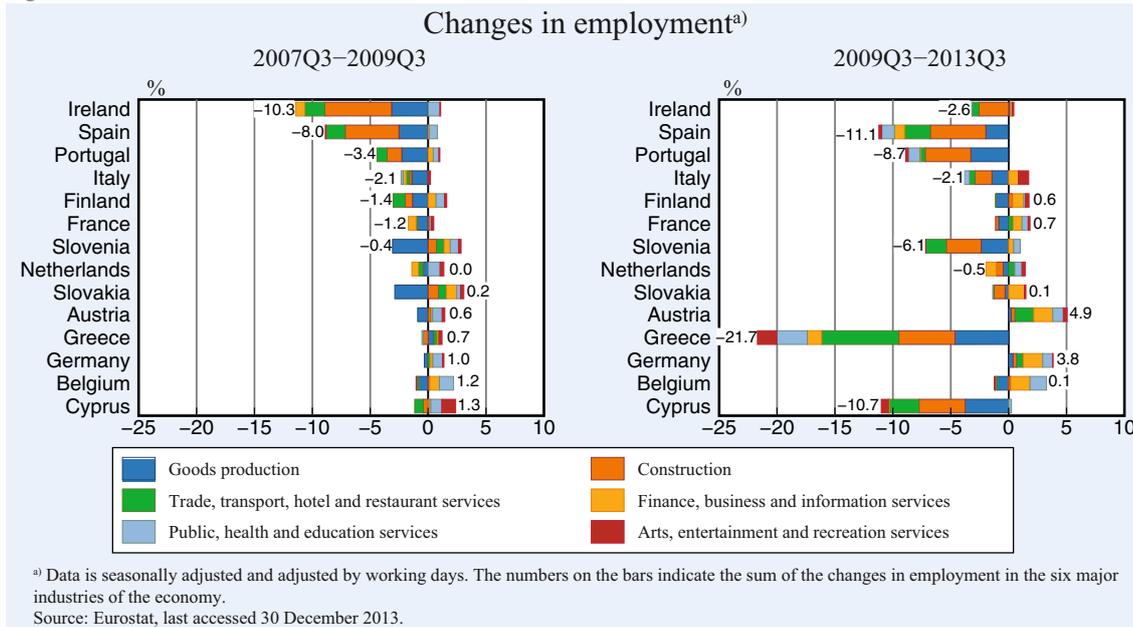


Figure 3.11



of why labour productivity may fall during recessions is that firms facing a temporary demand shock retain more workers than they need to produce their current level of output (labour hoarding). They do so to minimise the cost of laying-off workers in a recession and rehiring them in a recovery. The fact that labour productivity has risen in the periphery may suggest that firms did not expect their output to return to pre-crisis levels any time fast. In other words, they realised early on that they faced a more persistent demand and/or supply shock and laid off workers even faster than their output fell as a result.¹²

Reasons why firms in the periphery thought that they face more permanent shocks, can be gauged from Figure 3.11. This shows the changes in employment between Q3 of 2007 and Q3 of 2009 and between Q3 of 2009 and Q3 of 2013 across six major industries of the economy. Firstly, the fall in employment in both periods occurred primarily in goods production, in construction, and in trade and transport. About half of the overall employment loss in Spain and Ireland, about one third in Portugal and about one fifth in Greece occurred in the construction sector. As we discussed earlier, the investment boom that started in early 2000 collapsed, hitting the construction sector particularly strongly. Secondly, the rise in employment in

¹² It is worth noting that the observed increase in labour productivity during the latest recession is unlikely to be caused by the fact that less productive firms and jobs are eliminated first in a recession, thus raising the productivity of the remaining market players. This is improbable because this happens in all recessions, but labour productivity is still pro-cyclical and more recently a-cyclical. Hence something else has to have happened this time.

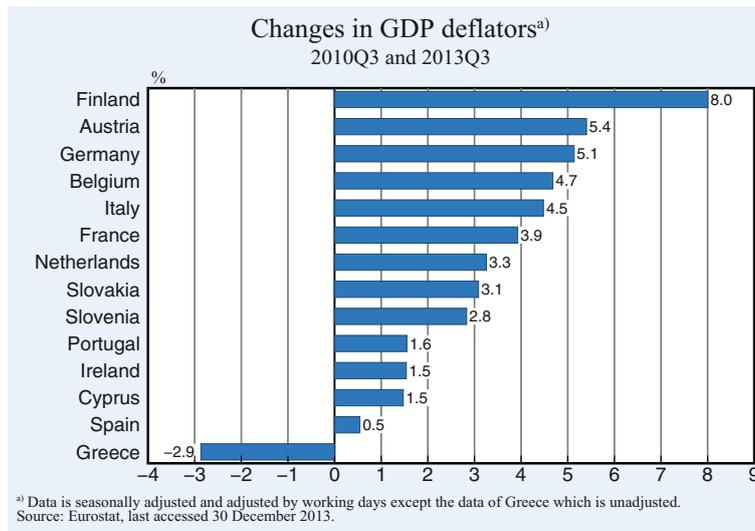
both periods occurred in the service industries, excluding trade and transport. More specifically, the rise in employment in some industries occurred at the same time as the fall in employment in others.

One interpretation of these facts is that the investment boom in the periphery was accompanied by a massive misallocation of capital and labour across sectors. Once the crisis hit, many firms realised that the previous employment levels in their industries were not sustainable, and employment levels in their particular industries would be permanently lower. This induced a massive reallocation of labour (and capital) across industries in the periphery countries. For workers, changing industries is costly, and usually takes a long time, hence employment levels are likely to recover only gradually and over time.

As productive resources are reallocated across industries, the periphery countries are making slow, steady progress in realigning their relative price levels. Figure 3.12 shows that the price level in all periphery countries grew more slowly than in the core between Q3 of 2010 and Q3 of 2013. In particular, the price level in Greece fell during this three year period. However, Italy, the only core country that was hit by the sovereign crisis, and had a competitiveness problem, did not improve the latter much relative to Germany.

The dangers of deflation in the euro area cannot be discussed without taking into account the realignment of

Figure 3.12



relative prices. As the price levels of the periphery countries have to fall to support the reduction in their external deficits, during such a process average inflation in the euro area is likely to be low, suggesting that deflation may well occur on average. However, unlike in the United States, deflation in the euro area would be desirable if inflation would be negative in the periphery while remaining at 2 percent in the core, (Sinn 2013).

We now turn to the actual external balances of the euro area countries, which can be disaggregated across the three sectors of the economy as shown in Figure 3.13. All periphery countries improved their external balances. The improvements were accompanied by a large in-

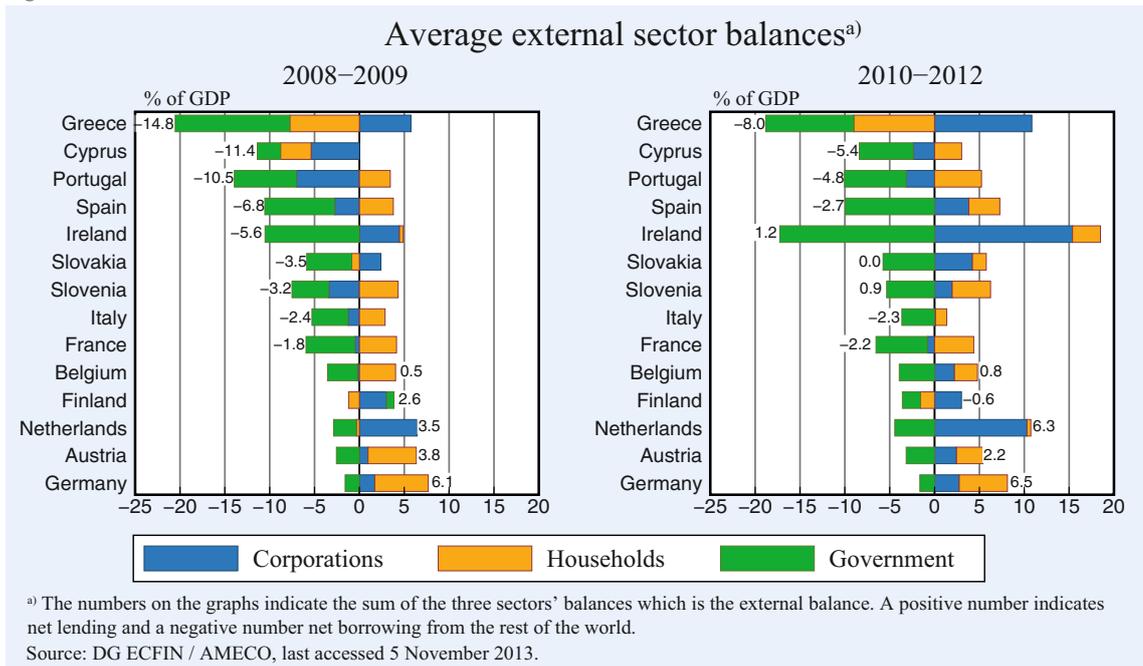
crease in the private sector's net lending i.e., increased saving over investment of the sector. In all periphery countries, the corporate sector's net lending position improved as the corporate sector repaired its balance sheet by borrowing less and saving more between 2010 and 2012 than between 2008 and 2009.¹³ Households also improved their net lending positions in Ireland and Portugal, but not in Spain. More worryingly, Greek households were still net borrowers of almost 10 percent of GDP at the end of 2012. A sustainable improvement in external balances requires that both domestic prices and domestic demand are consistent with this improvement. In the case of Greece, domestic private savings can be interpreted as showing that the household sector's net lending position is still too low.

3.4.4 Austerity and external adjustment in the euro area

The euro area periphery has been in recession since 2008, and austerity is increasingly blamed for eco-

¹³ It is important to note that the improvement in corporate sector net lending was partially due to the bailout of banks in Ireland and Spain.

Figure 3.13



conomic sluggishness. However, our analysis suggests a more intricate relationship between austerity and recession. Although austerity undoubtedly contributed to the recession, it was also driven by the massive reallocation of production factors needed to correct the pre-crisis misallocation. Finally, both austerity and the recession have contributed to the realignment of relative prices, which is a prerequisite for the reduction of external imbalances in the periphery.¹⁴

During the boom years prior to the crisis, the periphery countries experienced exuberant investment activity and private capital inflow, but lost their competitiveness, accumulated large current account deficits, and suffered the misallocation of their productive resources. Private capital flows stalled, and in some cases even reversed, after the financial crisis, resulting in the collapse of the investment boom and leading to a recession.

Initially policymakers in the periphery perceived the financial crisis as a temporary demand shock and, with the exception of Ireland, reacted with fiscal expansion in 2008 and 2009 to offset the recessionary effects of the crisis. However, the shock turned out to be a combination of longer-lasting negative demand and a supply shock. The negative demand shock in the periphery was more permanent than in a normal recession because households in the periphery downwardly revised their expectations regarding the speed of convergence with the euro area core. A more permanent supply shock originated from the pre-crisis misallocation of production factors. Once the crisis erupted, many firms realised that the employment levels of the boom years would prove unsustainable not only in the short run, but also in the long term. Thus, production factors, particularly labour, had to be reallocated across firms and economic activities, resulting in sharply falling employment levels.

The financial crisis led to the sovereign crisis in three ways. Firstly, the tax revenues of the boom years, particularly from the construction industry, were not sustainable in the long run. The sharp decline in these tax revenues had a negative effect on government balances. Secondly, the collapse of the

construction boom led to rising delinquency rates on loans at the periphery banks. As the quality of the loan portfolio of the periphery banks deteriorated, governments had to bail out some of them, which lead to a further worsening of fiscal positions. Thirdly, the initial efforts of the periphery governments to offset the recessionary effects of the financial crisis turned out to be ineffective as they faced a longer-lasting demand and supply shock, instead of a temporary demand shock. But the expansion itself led to a further deterioration in the fiscal balances.

The on-going adjustment in the euro area periphery is characterised by slowly declining prices relative to the core, by the reallocation of resources across activities, and by slowly improving fiscal and external balances. The adjustment in prices is crucial both for external balances and labour reallocation. However, it is hampered by several factors. Firstly, prices are sticky, hence shocks are absorbed by a fall in output and employment to a larger extent. Secondly, extensive credits by the national central banks and fiscal rescue funds reduce pressure to implement the austerity measures and hence slow the speed of reforms. Thirdly, expectations regarding the future path of prices were influenced by expectations of the break-up of the euro area. If the euro area breaks up, periphery countries' exchange rates will devalue, and their prices will rise relative to the core countries. When such a break-up is expected, then prices in the periphery rise faster (fall slower) than in the absence of such expectations. In other words, the expectation of a break-up slows down internal devaluation in the periphery countries. Fourthly, labour market rigidities in the periphery countries make labour reallocation particularly slow, leading to a prolonged recession.

The adjustment towards a labour allocation and relative prices that are consistent with smaller external balances is accompanied by a recession, as is usually the case with any large-scale reallocation of labour. The recession provides incentives for periphery firms to reduce their prices and wages, which induces the reallocation of labour. Consequently austerity did not cause the recession in itself, but it contributed to it. How much austerity was really needed, or what combination of austerity and debt forgiveness was and is required, are issues that remain open to debate. In particular, a credible long-term fiscal framework could have given credibility to a fiscal policy, thereby reduc-

¹⁴ Austerity or fiscal consolidation does indeed contribute to the improvement in the current account. In their careful empirical study based on a narrative approach to identifying fiscal shocks, Bluedorn and Leigh (2011) find that 1 percentage point of GDP fiscal consolidation raises the current account balance-to-GDP ratio by about 0.6 percentage points. This is a fairly large effect.

ing the need for front-loading the programme (see Blanchard and Cotarelli, 2010).

3.5 Conclusion

Since the sovereign debt crisis erupted in the euro area, there has been much discussion about the costs and benefits of fiscal adjustment, or austerity during a recession. However, it also has to be emphasised that austerity and recession are part of the adjustment process. During this process the external imbalances of the euro area periphery countries are reduced, relative goods prices fall to compensate for the excessive inflation before the crisis and the production factors that were misallocated in these countries during the pre-crisis boom get reallocated to their long-term sustainable use. Hence, neither austerity nor the recession was completely avoidable.

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