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Crisis-Induced Fiscal Restructuring in Europe

Vigorous debate over the effectiveness of the fiscal adjustment programmes for the crisis-stricken countries in the eurozone has grown quite polarised. In this Forum, several experts use analytical, evidence-based approaches to gauge the effectiveness of these programmes. The role played by the estimates of the fiscal multipliers that the Commission, IMF and ECB used to structure the adjustment programmes is crucial to this debate. If these multipliers were underestimated, as the IMF itself claims, then the negative impact of the fiscal restructuring on already fragile economies would also have been underestimated. Several authors examine the available evidence to determine whether the adjustments programmes were flawed from the outset. Another contribution analyses the effectiveness of structural reforms when monetary policy rates are near the zero lower bound. A final paper uses a case study of Ireland's recovery thus far to examine the actual effects that the programmes have had on the crisis-stricken countries' economies.

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Revisiting the Fiscal Consolidation Debate

The question of whether and how fiscal consolidation has affected economic growth has been at centre stage of the European economic policy debate of the last four years. The debate has seen both economists and policy makers on both sides taking strong and principled stances, resulting in a highly polarised debate.

A key issue in the debate has been the size of the so-called "fiscal multipliers", i.e. the per cent change in demand (and thus output) one could expect from a change in the fiscal stance (in the same direction), usually measured as a change in the government budget balance expressed as a percentage of GDP.

The debate around fiscal multipliers has a long tradition. It dates back to the 1930s, when Richard Kahn, a student of John Maynard Keynes, first attempted to measure them numerically.[1] During the over 80 years since then, the economic literature has continued to expand, with countless numbers of theoretical and empirical studies investigating the size of the fiscal multiplier. No consensus has ever been reached on the size of the multipliers, but it is generally accepted that the multiplier could be influenced by factors such as the nature and the speed of the fiscal consolidation, its composition (changes in expenditures and/or revenues), the structural elements of the economy (level of public debt, trade openness, propensity to save and propensity to import), and other monetary and financial conditions.[2]

When the global financial crisis plunged the global economy into a deep recession, governments on both sides of the Atlantic (and indeed in most OECD countries) reacted by enacting expansionary fiscal policy. This resulted in increases of their deficits, which sometimes reached unprecedented levels. In 2009-10, as the recovery appeared to get underway (at least in the US), a key policy issue was at what pace deficits had to be reduced. This issue became particularly important in the euro area, where in 2010 the crisis returned with strength, especially in some of the peripheral countries, where financial market conditions deteriorated dramatically and risk premia on sovereign debt reached alarming levels. In order to stabilise the level of debt, and given the high cost of borrowing, fiscal consolidation was widely deemed as unavoidable in these countries.

Quickly, the debate grew to be dominated by two opposed schools of thought. The first one argued that the return of the crisis was due to a loss of confidence in the markets and that deficits should be cut quickly in order to regain their support.[3] The other contended that a fast reduction of deficits would have negative impacts on de-

1 B. Snowden, H.R. Vane: Modern macroeconomics: its origins, development and current state, Cheltenham 2005, Edward Elgar.

2 For a detailed review of the literature see, among others, A. Baum, M. Poplawski-Ribeiro, A. Weber: Fiscal Multipliers and the State of the Economy, No. 12-286, International Monetary Fund, 2012.

3 See, among the others, R. Perotti: The 'Austerity Myth': Gain Without Pain?, NBER Working Paper No. 17571, 2011.

mand and output of such magnitudes that it would be self-defeating, leading to the risk of aggravating the confidence crisis in the markets.[4]

While the risk premia started to abate in 2013 and have stabilised in 2014 at levels comparable to the pre-crisis period, the policy issue of how quickly to reduce deficits continues to remain at the centre of the policy debate in Europe. This is explained by the fact that the existing fiscal rules in the euro area impose, in principle, the obligation on all member countries to respect defined fiscal deficit thresholds; if some countries cannot fulfil this agreement, they must consolidate their (cyclically adjusted) budget deficit by at least one half of a percentage point of GDP per year.

This piece does not intend to enter into the debate by providing better estimations of the fiscal multiplier. Instead, it examines whether the evidence used to buttress the case for a more expansionary fiscal policy during the euro area debt crisis is robust, given that a few years have passed since it was first presented.

Moreover, this piece shows that the link between fiscal consolidation and growth is a complex one. It cannot be accurately portrayed by making a simple comparison of the paths of the US and euro area deficits and growth rates, as is often done. The "vignettes" presented below suggest that the notion that a fast fiscal consolidation leads to lower economic growth is far less clear-cut than seemed likely only a few years ago.

Fiscal consolidation in Europe: the growth nexus

The standard Keynesian argument is that a fiscal contraction (in a model with sticky prices and wages, or with cash-constrained consumers) has a (temporary) contractionary effect on GDP through an aggregate demand channel.[5] While there is general agreement that such Keynesian effects exist, there has been no agreement on the size of such impact. The large number of empirical studies available at the height of the crisis (2011-12) generally suggested that the multiplier was of uncertain size but was almost certainly below one.

In the context of the renewed debate on fiscal policy, several additional econometrical studies were undertaken to estimate the size of these multipliers.[6] But these studies had one problem: they relied mainly on past data that provided little insight on the new conditions created by the crisis-induced Great Recession. This is why large and complex econometric studies from the past had little influence in the debate. By contrast, more recent research, which relied on the very limited number of observations covering the financial crisis, was used to shape part of the policy debate.

In 2012-13 two papers became particularly influential, as they purported to show a strong negative impact of

4 See, among others, D. Holland, J. Portes: Self-defeating austerity?, National Institute Economic Review 222, 2012; and R. Cherif, F. Hasanov: Public Debt Dynamics: The Effects of Austerity, Inflation, and Growth Shocks, IMF working paper 12/230, 2012.

5 A. Alesina, R. Perotti: Fiscal Adjustments in OECD Countries: Composition and Macroeconomic Effects, NBER Working Paper No. 5730, August 1996.

6 For instance A. Auerbach, Y. Gorodnichenko: Measuring the Output Responses to Fiscal Policy, in: American Economic Journal: Economic Policy, Vol. 4, No. 2, 2012, pp. 1-27.

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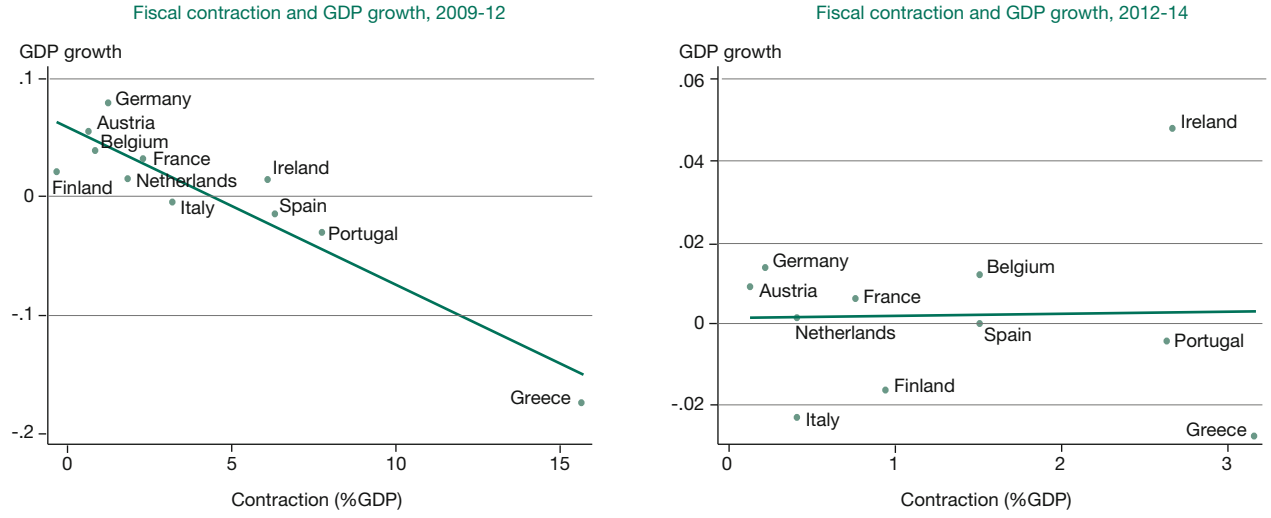
Claire Keane, Economic and Social Research Institute, Dublin, Ireland; and Trinity College Dublin, Ireland.

Michael Savage, Economic and Social Research Institute, Dublin, Ireland; and Trinity College Dublin, Ireland.

John R. Walsh, Economic and Social Research Institute, Dublin, Ireland; and Trinity College Dublin, Ireland.

Brian Colgan, Economic and Social Research Institute, Dublin, Ireland.

Figure 1
Fiscal impulse and economic growth in different "crisis" times



Source: Authors' elaboration on IMF and Eurostat data.

austerity on growth. One was De Grauwe and Ji,[7] which produced a striking negative correlation between fiscal contraction and growth for euro area countries for the 2009-12 period. The other one was prepared by the IMF, which raised a number of eyebrows.[8] By linking planned fiscal consolidation to growth forecast errors, they find a strong negative correlation between fiscal consolidation plans and growth.

The simple correlation exercise

Similar to the left-hand panel of Figure 1, De Grauwe and Ji performed a simple correlation exercise which consisted of plotting the values of fiscal contraction and GDP growth. In normal times, this simple correlation does not hold in a robust way, since GDP is affected by many variables other than fiscal policy and growth itself has an impact on the actual fiscal contraction. However, during the time period chosen (2010-2012), the magnitudes of the changes in fiscal policy had been extraordinary and the correlation between the real growth rate and the austerity measures (measured by change in structural primary balance) was almost perfect at around -90 per cent.

In addition to the standard measure of "austerity", the authors also consider other measures, as elaborated by the Financial Times.[9] Here, the changes in the taxation and expenditure levels are not derived from the actual statistics but from the fiscal plans elaborated by the national finance ministries. Nevertheless, recent history has shown that sometimes the planned changes are more ambitious than the ones actually implemented, which partially weakens the econometric relationship between the two variables.

However, the key issue with such simple correlation exercises is always how stable they are. In order to assess this, we repeat the exercise using data for the period 2012-14. The result is presented in the right-hand panel of Figure 1. It is apparent that the correlation has now disappeared, even though one would be hard-pressed to claim that the crisis has disappeared from the euro area. While in the period 2009-12 the average real economic growth in the sample analysed was 0.4 per cent, it was negative in the period 2012-14, around -0.5 per cent, despite the fact that fiscal contraction in the euro area has been lower during this latter period.

Consolidation plans and growth surprises

Another very influential paper in the policy debate was written by IMF Chief Economist Olivier Blanchard, co-authored by Daniel Leigh.[10] The results of this study became one of the key elements in the debate, because they were

7 P. De Grauwe, Y. Ji: Panic-driven austerity in the Eurozone and its implications, VoxEU.org, 21 February 2013.
8 O. Blanchard, D. Leigh: Growth Forecast Errors and Fiscal Multipliers, IMF Working Paper No. 13/1, 2013.
9 S. Gainsbury, A. Whiffin, R. Birkett: Financial pain in Europe, in: Financial Times, 17 October 2011.
10 O. Blanchard, D. Leigh, op. cit.

Table 1
Forecast errors in growth as a function of fiscal consolidation plans
Dependent variable: forecast error on GDP

	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15
Planned fiscal consolidation	0.217	0.011	-0.029	-0.699***	-1.095***	-0.467	-0.358**	-0.061	-0.031
	(0.277)	(0.887)	(0.640)	(0.185)	(0.255)	(0.450)	(0.147)	(0.118)	(0.167)
Constant	1.870***	-1.257*	-7.262***	0.379	0.775*	-2.163***	-0.246	0.849***	0.661**
	(0.320)	(0.652)	(0.682)	(0.539)	(0.383)	(0.642)	(0.306)	(0.200)	(0.296)
Obs.	18	19	20	26	26	25	28	28	28
R^2	0.025	0.000	0.000	0.208	0.496	0.091	0.194	0.015	0.001

Note: Robust standard errors in parentheses. *** p < 0.01, ** p < 0.05, * p < 0.1.

Source: Author's elaboration on IMF World Economic Outlook data.

endorsed by the IMF, which played an important role in the European debate as well as in the design of the adjustment programmes of the euro area countries hit hardest by the crisis. This paper has also led Olli Rehn, Commissioner for Economic Affairs, to write a letter to the EU finance ministers, copied to the IMF Managing Director and other international economists, in which he tried to defend the Commission's view on multipliers.[11]

Blanchard and Leigh's empirical strategy is not intended to directly address the estimation of fiscal multipliers but rather to understand the relationship between the IMF's forecast errors for GDP growth and the size of the plans for fiscal consolidation. Hence, in this empirical exercise, the dependent variable is not the actual change in the structural balance but the fiscal consolidation effort as estimated before enacted. The authors compute two-year intervals of fiscal consolidation to allow for lagged effects of fiscal policy and study how this relates to the growth forecast errors in the same period.

The paper found a negative relationship between fiscal consolidation and growth forecast errors and concluded that the fiscal multipliers were larger than had been assumed. In other words, austerity had had more negative effects than the IMF had previously assumed, leading to an additional one per cent reduction of growth versus the initial IMF forecast.

This result holds specifically for the 26 European economies which represent the main focus of their analysis and especially in the early period of the crisis. For example, during the time intervals 2009-10 and 2010-11, the estimated coefficients are typically between 0.7 and 1.0. Later in the crisis (2011-12 and 2012-13), the coefficients are between 0.3 and 0.5 and are less statistically significant.

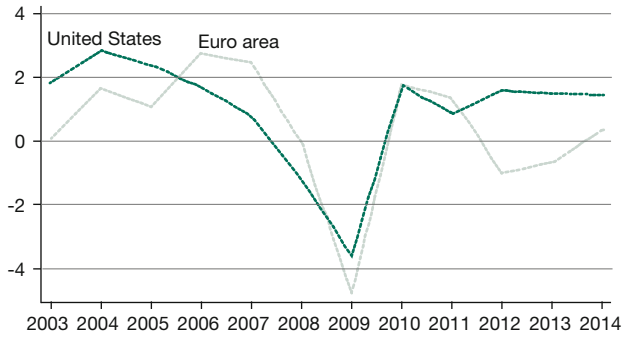
Blanchard and Leigh, writing in 2013, could of course only use data available at the time, i.e. the 2012 IMF World Economic Outlook. The key question is whether the relationship they uncovered would hold up subsequently using the data contained in the 2013 and 2014 World Economic Outlooks. Using their methodology to re-estimate the significance and the magnitude of this relationship, the results are striking: over a longer time period, the results are very different (see Table 1). Planned fiscal consolidations seem to be followed by lower GDP growth (in terms of forecast errors) in just three of the nine periods considered.

How should one interpret the smaller size of the coefficient and the gradual reduction in its statistical significance? Blanchard and Leigh acknowledge that it could either reflect smaller multipliers or gradual learning by forecasters regarding the effect of fiscal policy on economic activity. It remains striking, however, that the relationship breaks down most of the time and that the correlation between consolidation plans and growth (forecast errors) is significant only during those years when the constant in the regression is not significant. This may suggest that the apparent relationship between consolidation plans and growth, in those years when it is significant, is actually catching the impact of a third, common variable, which affects growth. The global financial crisis and then the euro crisis which reached its peak in 2012-13 might very well have represented this common factor during the three periods during which the relationship is statistically significant.

The conclusion that the fiscal multipliers were simply higher than anticipated is thus not warranted on the basis

11 Accessible at http://ec.europa.eu/commission_2010-2014/rehn/documents/cab20130213_en.pdf.

Figure 2
Per capita real GDP growth: Euro area vs. United States



Source: Authors' elaboration on IMF and Eurostat data.

of this approach if extended beyond the few years during which it seemed to yield significant results.[12]

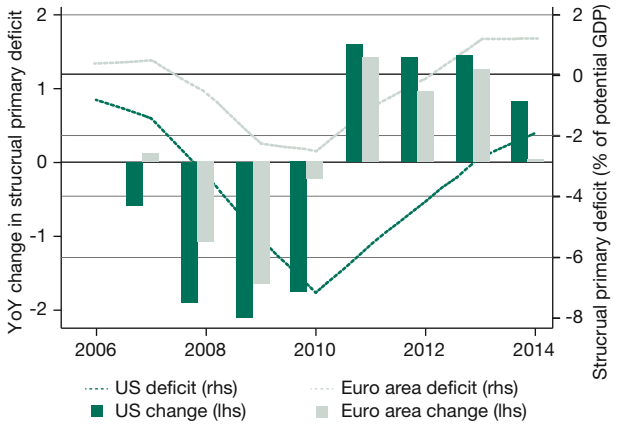
Fiscal impulse: Euro area vs. United States

The fiscal policy debate of the last few years has seen the two sides of the Atlantic take opposite tacks, with Europe (in particular the euro area) going for austerity and the US less concerned about its fiscal deficit. When the global financial crisis erupted in 2008, it seemed at first to affect the United States more than Europe; but economic performance tanked in both continents in 2009 before starting to recover in 2010. However, as the financial crisis mutated into the euro crisis, a substantial gap opened between the growth performances of the US and the euro area.

On a cumulative basis, the US economy (real GDP) grew by about six percentage points more than the euro area between 2011 and 2013. Even taking into account different demographic trends, which account for 1.5 percentage points of this growth over the three years, the US economy has been growing at a more rapid pace than the euro area – about 4.5 percentage points more, as illustrated in Figure 2. This trend is expected to continue in the coming years.

One widely accepted interpretation of this divergence says that the American economy is growing because it did not rely on austerity policies, while the other side of the Atlantic is not growing because its budgets have been too austere for too long. However, a closer look at the figures does not support this conclusion.

Figure 3
Fiscal impulse and structural deficit: Euro area vs. United States



Note: Negative values refer to deterioration of the structural primary balance.

Source: Authors' elaboration on IMF data.

A retrenchment in the fiscal position actually subtracted more demand in the US (0.8 percentage points between 2011 and 2013) than in the euro area (0 points).[13] While this seems in stark contrast to the European debate on austerity, data show that public expenditure in the euro area has remained fairly constant at the aggregate level (despite differences across countries) over the last three years, whereas it has declined in the US.

This suggests that in the debate about austerity, careful attention should be paid to differences between the deficit and fiscal impulse. The latter refers to a change in the structural budget, and it is what affects growth. Stable deficits, even if large, would not have an effect on growth. In this respect, the current US structural deficit is indeed much higher than that of the euro area (estimates for 2014 are five per cent of GDP for the US and one per cent of GDP for the euro area). However, as shown in Figure 3, data on the structural primary budget suggest that US fiscal policy (in terms of impulse) was much more expansionary (more negative values) than that of the euro area between 2008 and 2010. For 2011-12 there was little difference between the two economies, and more recently (2013-14), the US has tightened more than the euro area.

When comparing the fiscal impulse to GDP growth, it also emerges that US growth was lower than that of the euro ar-

12 New results by Belke et al. point to the same conclusion. Cross-section analysis and dynamic panel estimates suggest multipliers have only been underestimated for 2011. By contrast, for 2010 evidence is pretty scarce, as results become unstable when indicators of tensions on sovereign debt markets are included, and no evidence is found for 2012 and 2013. See A. Belke, D. Kronen, T. Osowski: Planned fiscal consolidation and growth forecast errors: New Panel Evidence on Fiscal Multipliers, Mimeo, 2014.

13 Authors' elaboration on OECD and ECB data.

ea at the time when the fiscal impulse was stronger. Moreover, US growth has outpaced eurozone growth since the start of its fiscal retrenchment. This is possibly due to a lag in the fiscal policy effect, yet the timing of the fiscal impulse and the growth differential makes it difficult to argue that "austerity" is responsible for the weak economy in the euro area. The smoother curve for the euro area suggests that the impulse coming from fiscal policy was weaker than in the US – both in the expansionary and tightening phases.

Similar trends could have been observed at the level of public investment on the two sides of the Atlantic, though this component represents such a small proportion of GDP that transatlantic differences could not have had a large impact on the overall output growth over a three-year horizon.

Conclusions

The policy debate over the role of fiscal policy in the aftermath of the global financial crisis has been substantially affected by new empirical findings in the economic literature suggesting a stronger positive correlation between fiscal consolidation and GDP growth than initially foreseen.

Using the same methodology but covering a larger time span, we propose some new findings that indicate such a relationship is not robust. This suggests that the conclusion that the fiscal multipliers were simply higher than anticipated is not warranted on the basis of the approaches proposed by this literature.

We also emphasise that the difference in the economic performances of the US and the euro area, which is often too simplistically attributed to differences in fiscal policy, is more complex. The evidence that austerity in the euro area is responsible for the feeble recovery is weak, especially in light of the fact that since 2011 the US structural primary balance has tightened more than that of the euro area.

Lukas Vogel*

Are Structural Reforms Contractionary at the Zero Bound?

Hit by the financial and debt crisis and the unravelling of intra-euro area imbalances, several member states have undertaken far-reaching structural reforms in recent years to strengthen their economies' supply side, regain competitiveness vis-à-vis trading partners and improve the state of their public finances. The reforms have occurred in an economic environment characterised by depressed demand and by monetary policy rates close to the zero bound. This raises the question of how structural reforms affect economic activity in an environment in which the zero bound on monetary policy rates is binding, thereby ruling out the standard monetary accommodation of supply-enhancing reforms. The answer to this question has significant implications for the design and sequencing of economic policy at the current juncture.

The case for structural reforms

The main rationale for structural reforms in product and factor markets is the expected output, income and employment gains in the medium and long term. Recent policy analysis using the European Commission's QUEST model points to significant medium- and long-term efficiency and income gains that can be achieved by product market reforms, reforms in education and training, and tax reform. The macroeconomic models of other international institutions provide similar results. Looking at experiences from the past, empirical analysis also finds positive long-term effects from structural reforms.[1]

In addition to positive medium- and long-term effects, structural reforms also influence economic dynamics in the shorter term. Theory and econometric evidence suggest that some structural policies strengthen macroeconomic resilience by reducing the persistence of cyclical fluctuations and by lowering the cumulative output loss in the aftermath of contractionary shocks. In the context of external rebalancing inside the euro area, models of aggregate supply and demand suggest that the gain in trade competitiveness associated with supply-side reforms

* This article is based on the author's contribution to the European Commission's Quarterly Report on the Euro Area, Vol. 13, No. 3, October 2014. The views are personal views of the author.

1 For QUEST results: J. Varga, W. Roeger, J. in't Veld: Growth effects of structural reforms in southern Europe: the case of Greece, Italy, Spain and Portugal, European Economy Economic Papers 511, 2013. For analyses with the IMF's GIMF and the ECB's EAGLE models: L. Lusinyan, D. Muir: Assessing the macroeconomic impact of structural reforms: the case of Italy, IMF Working Papers 13/22, 2012; and S. Gomes, P. Jacquinot, M. Mohr, M. Pisani: Structural reforms and macroeconomic performance in the euro area countries: a model-based assessment, in: International Finance, Vol. 16, No. 1, 2013, pp. 23-44. For a summary of econometric results on the impact of structural reforms: R. Bouis, R. Duval: Raising potential growth after the crisis: a quantitative assessment of the potential gains from various structural reforms in the OECD area and beyond, OECD Economics Department Working Papers 835, 2011.

mitigates the decline in output associated with (necessary) domestic demand contraction.[2]

What difference does the zero lower bound make?

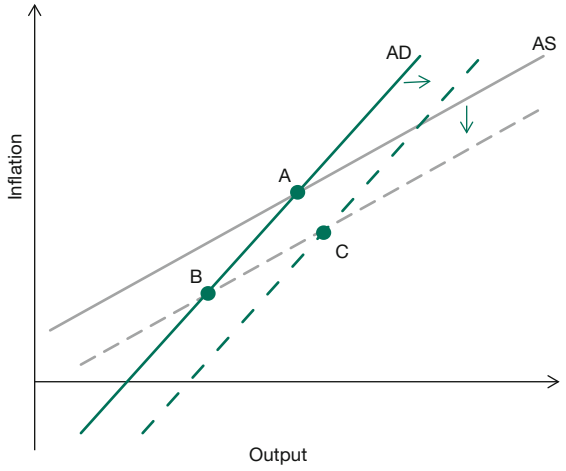
The short-term effects of structural reforms depend on the accompanying macro policies. The impact of reforms that increase the economy's potential output is more favourable when monetary or fiscal policy is available to stimulate aggregate demand. Stimulating demand in order to match the shift in the aggregate supply curve accelerates the transition to the new, higher level of potential output and counteracts the deflationary impact of the supply expansion. However, when nominal policy rates are at, or close to, the zero bound, monetary policy lacks the traditional instruments to accommodate the supply expansion.

Against this background, the benefits of structural reforms in an environment of depressed demand have been questioned in recent contributions to academic and policy debates. While the positive impact of reforms on long-term activity and debt sustainability remains undisputed, concern is with the short-term effects. In particular, it has been argued that structural reforms become counter-productive, namely contractionary, in the short- to medium-term if monetary policy is constrained at the zero lower bound (ZLB) and, hence, unable to accommodate supply expansion by the standard means of lowering policy rates.[3]

The concern that structural policies may have contractionary short-term effects at the ZLB derives from the reform-related increase in the real interest rate. Reforms that put downward pressure on prices increase the real interest rate when nominal rates are stuck at zero. If such a real rate increase dampens aggregate demand, economic activity will fall rather than increase.

The diagram of aggregate supply (AS) and aggregate demand (AD) in Figure 1 illustrates this argument. Contrary to the AS-AD diagram of "normal times", the AD is upward-sloping, reflecting the real interest rate effect of inflation at the ZLB: lower (higher) inflation increases (reduces) the real rate and dampens (strengthens) interest-sensitive demand.

Figure 1
Aggregate supply and demand at the zero bound



Source: G. Eggertsson, A. Ferrero, A. Raffo: Can structural reforms help Europe?, in: Journal of Monetary Economics, Vol. 61, 2014, pp. 2-22.

Product and labour market reforms that shift the level of potential output have two effects in the stylised diagram. (1) The AS curve shifts down, indicating less upward pressure on production costs and prices for given levels of output. (2) The AD curve shifts right, because expected increases in wealth and investment profitability strengthen consumption and investment demand for given levels of current inflation and real interest rates. The standard AS shift (1) is contractionary in the ZLB environment, as it raises real interest rates and, hence, weakens aggregate demand. The shift of the modified AD curve (2) is inflationary. The relative strength of the two effects is ultimately a quantitative question. Thus, reforms may be either contractionary or expansionary in the short term at the ZLB, depending on how that question is answered.

Some results with the QUEST model

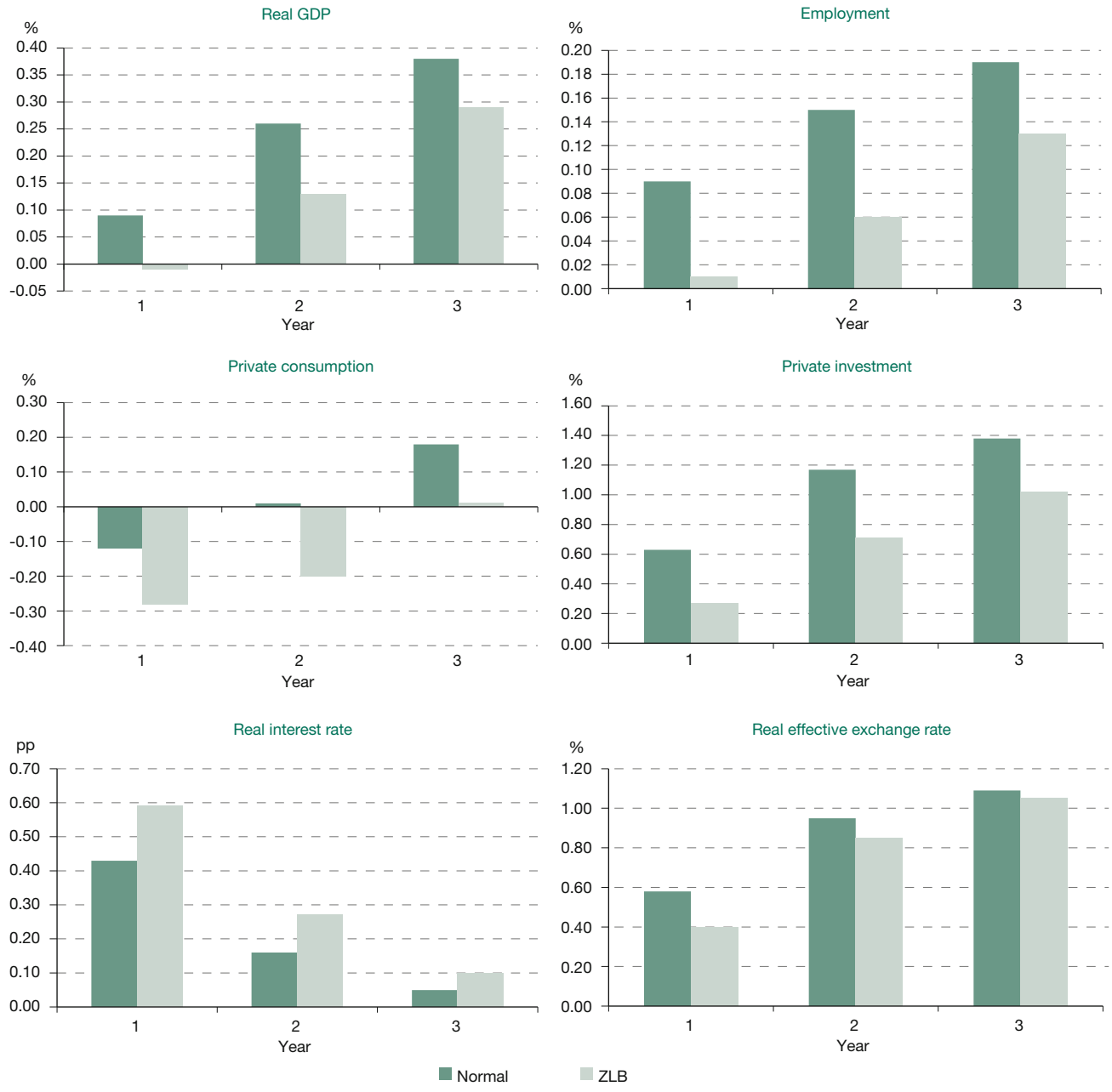
Policy simulations with structural macroeconomic models are a tool to provide quantitative answers to this question. They illustrate the transmission channels, their determinants and their quantitative importance. Eggertsson et al. use a small-scale dynamic general equilibrium model to substantiate their argument that reforms may be counterproductive at the ZLB.[4] In particular, they look at price and wage mark-up reduction in the non-tradable (service) sector in a macroeconomic environment of depressed

2 For the impact of structural policies on economic resilience: R. Duval, J. Elmeskov, L. Vogel: Structural policies and economic resilience to shocks, OECD Economics Department Working Papers 567, 2007. For a model-based analysis of structural policies and rebalancing: L. Vogel: Structural reforms, fiscal consolidation and external rebalancing in monetary union: a model-based analysis, in: Economic Modelling, Vol. 29, No. 4, 2012, pp. 1286-1298.

3 See the influential article by G. Eggertsson, A. Ferrero, A. Raffo: Can structural reforms help Europe?, in: Journal of Monetary Economics, Vol. 61, 2014, pp. 2-22.

4 Ibid.

Figure 2
Impact of reforms in "normal times" and at the zero lower bound



Note: The panels display results for the block of reforming countries. Results are shown as deviations from the no-reform baseline. An increase in the real effective exchange rate indicates real effective depreciation.

Source: Simulation results from European Commission: Quarterly Report on the Euro Area, Vol. 13, No. 3, October 2014, pp. 21-26.

demand and binding ZLB. The model implies downward price adjustment in response to the reform, leading to a significant increase in the real interest rate and amplifying the recession. Hence, they conclude that structural reforms of this kind may do more harm than good in the current environment.

The policy experiment of wage and price mark-up reduction in the non-tradables sector can be replicated in a two-sector (tradables and non-tradables), multi-region version of the European Commission's QUEST model. The model regions are a group of reforming euro area member states, the rest of the euro area, and the rest

of the world. The region of reforming euro area member states accounts for 30 per cent of euro area GDP. The 30 per cent share is purely illustrative, but it corresponds approximately to the proportion of euro area GDP accounted for by Greece, Italy, Portugal and Spain combined, i.e. by countries that have made particular efforts to reform in response to the euro area crisis.[5]

Results for the combination of a one percentage point price mark-up and wage cost reduction in the non-tradable (services) sector are shown in Figure 2 for real output, employment, consumption, investment, the real interest rate and the real effective exchange rate.[6] The results point to small but positive short-term GDP effects in "normal times", i.e. away from the ZLB. Responding to increasing potential output and falling inflation, the central bank reduces nominal interest rates in this case, although the reduction remains moderate given the limited weight (30 per cent) of the region in the euro area's aggregate output and inflation. Consequently, the real interest rate in the reforming region of the euro area increases temporarily even without the binding ZLB constraint.[7]

At the ZLB, the short-term output effect of the deflationary reform is slightly negative, because interest-sensitive domestic demand reacts to the increase in the real rate (constant nominal rate minus the negative expected inflation). But the negative impact is limited to the first year and an order of magnitude smaller than in Eggertsson et al. for the same reform package.[8]

The smaller and only short-lived contraction in economic activity can be explained by additional and countervailing transmission channels that are omitted in simpler models. First, stronger competition and the related expected increase in economic activity strengthen economy-wide corporate investment in the short term, even at the ZLB. Second, the presence of liquidity-constrained households in the economy weakens the impact of the real interest rate on consumption decisions. These households lack access to capital markets that would allow them to smooth consumption over time and, instead, simply consume their current disposable income. From the perspective of liquidity-constrained households, falling goods prices and higher employment raise the level of real income and translate into higher consumption. Third, the price competitiveness of tradables from the reforming countries improves relative to the rest of the euro area and the rest of the world. Export volumes increase and import volumes decline, adding a positive contribution from trade to output growth. The competitiveness gain occurs even though reforms target the non-tradable sector in the example. Lower prices for non-tradable intermediates and the dampening of nominal wage claims following the increase in the purchasing power of given nominal wages also translate into lower tradable production costs.[9]

Hence, while the short-term response of economic activity is certainly more favourable when monetary policy is available to accommodate the supply expansion by lower interest rates, the QUEST results suggest a more positive assessment of the short-term effects of structural reforms at the ZLB than other contributions that have been based on smaller, less encompassing models of the economic structure.

Additional factors that are not captured by the QUEST model simulations may further improve outcomes in the shorter term: non-standard measures of monetary policy at the zero bound should mitigate negative demand and output effects to the extent that they reduce financing costs and improve credit availability. The impact of structural reforms on, in particular, the cost of investment depends on their impact on lending rates and the availability of credit. The (risk-free) short-term real interest rate is only one factor in this respect. Another one is the spread between short-term policy rates and financing costs. To the extent that structural reforms strengthen confidence in the economic outlook, they may also reduce the spread between the short-term policy rate and lending rates in the economy, which would strengthen demand.

A further channel through which reforms may support demand in the short term is the value of collateral. Structural reforms that improve economic prospects and the valuation of assets may be able to relax credit constraints and shorten the duration of deleveraging by improving the value of collateral. The endogenous shortening of private

5 See, e.g., M. Buti, A. Turrini: Slow but steady? External adjustment within the Eurozone starts working, http://www.voxeu.org, 12 November 2012. G. Eggertsson et al., op. cit. shows that the impact of reforms on domestic economic activity at the ZLB is largely independent of the reforming region's size.

6 A more detailed breakdown of the results can be found in European Commission: Quarterly Report on the Euro Area, Vol. 13, No. 3. Short-term effects are substantially smaller than the expected long-term gains in the model due to nominal and real rigidities in goods and factor markets. For an empirical characterisation of the sluggish pass-through, see R. Bouis, O. Causa, L. Demmou, R. Duval, A. Zdzienicka: The short-term effects of structural reforms: an empirical analysis, OECD Economics Department Working Papers 949, 2012.

7 Hence, the situation of a small country in monetary union is similar to that of a country with independent monetary policy at the ZLB. Small unilateral reformers in monetary union are constantly in a quasi-ZLB environment.

8 G. Eggertsson et al., op. cit.

9 See L. Vogel: Nontradable sector reform and external rebalancing in monetary union: A model-based analysis, in: Economic Modelling, Vol. 41, 2014, pp. 421-434.

demand compression would also tend to shorten the duration of ZLB episodes, adding to the gains from structural reforms.[10]

Debt deflation, on the other hand, can be a negative force in the shorter term. While the growth of the denominator in debt-to-GDP or debt-to-income ratios should also facilitate debt sustainability and lead to lower debt-elastic risk premia in financing costs in the medium and long term, nominal GDP may decline and the debt-to-GDP ratio may increase initially due to the deflationary impact of reforms. The negative impact of debt deflation on demand should, however, be less pronounced when debt is predominantly long-term debt.

Last but not least, short-term and long-term effects of structural reforms depend obviously on the precise nature of the implemented measures. The short-term costs in Figure 2 rest on the contractionary real interest rate effect of deflationary reforms at the ZLB. Reform packages that increase price and wage flexibility in addition to reducing the mark-up could mitigate contractionary short-term effects of deflationary reforms at the ZLB. In particular, they should accelerate the speed at which enhanced competition translates into gains in the purchasing power of wages, lower investment prices and improved price competitiveness.

Less deflationary policy measures are less exposed to the adverse real interest effect at the ZLB. These measures include particular tax reforms, e.g. a shift from labour to consumption taxation, R&D policies and policies to improve labour market matching.[11] Other policies, on the other hand, such as reducing job protection or benefit generosity, tend to increase the short-term costs of recessions even under normal monetary conditions.

Would it be better to postpone reforms?

Economists that have warned against the contractionary effects of deflationary reforms at the current juncture have tended to advocate a delay in their implementation. A credible commitment to future reforms, the argument goes, raises expectations of future output and income levels, generating a positive wealth effect. Intertemporally optimising agents will step up demand immediately in response to higher expected future wealth, thus stimulating current economic activity. The positive impact of the wealth effect might even be larger at the ZLB, where it will not be mitigated by monetary tightening that would typically occur in normal times.[12]

The idea of a credible commitment to future reforms appears problematic already on political grounds. It would require economic agents to have correct expectations about a fully credible commitment to reform. A lack of credibility would substantially weaken, or even invalidate, the argument. Full ex-ante legislation of future reforms may provide a partial remedy, but the general reversibility of decisions in the democratic process remains.

Even if a credible commitment was feasible, however, the advantage of delaying reforms would rest on the presumed strength of the wealth effect and of intertemporal substitutability. Turning again to the more complex representation of the economy in the QUEST model shows that the factors which mitigate the negative short-term effects of structural reforms at the ZLB also reduce the *current* benefits from *future* reforms.

Figure 3 shows QUEST simulation results for a scenario with a credible commitment to future reforms. More precisely, in the "future" scenario, the same wage cost and price mark-up reductions used in Figure 2 are announced in year one but implemented only in year three. The "current" scenario replicates the reform implementation at the ZLB in year one from Figure 2. The announcement of reforms in the "future" scenario is assumed to be fully credible, i.e. the reforms are fully anticipated by the private sector.

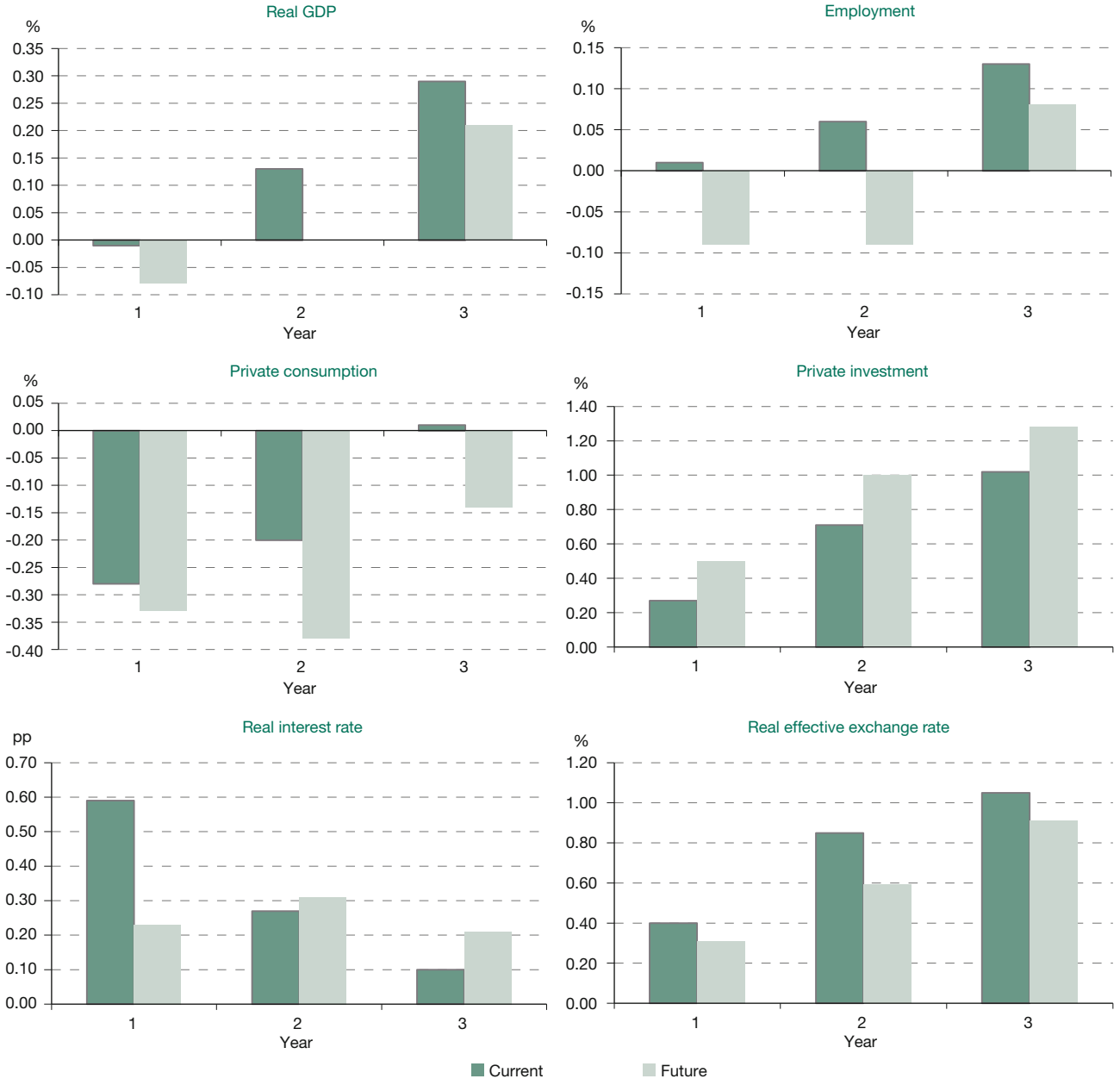
Comparing the effect on economic activity of currently implemented (present) and credibly announced (future) reforms in Figure 3 does not support the idea that postponing reforms would improve economic conditions in the short term. Instead, the delay deteriorates the short-term economic outlook compared to current implementation. On the positive side, the delay dampens the real interest rate increase at the ZLB in the short term, which stabilises the consumption demand by intertemporally

10 See J. Andrés, Ó. Arce, C. Thomas: Structural reforms in a debt overhang, Banco de España, Documentos de Trabajo 1421, 2014.

11 See J. Varga et al., op. cit. for a comparison of short-, medium- and long-term effects of different structural measures in QUEST. Differences in the price effect of particular reform measures in a dynamic model are also stressed by M. Cacciatore, R. Duval, G. Fiori: Short-Term Gain or Pain? A DSGE model-based analysis of the short-term effects of structural reforms in labour and product markets, OECD Economics Department Working Papers 948, 2012. See R. Bouis, O. Causa et al., op. cit. for an empirical analysis of the effects of various labour and product market reforms over different time horizons.

12 In the words of G. Eggertsson et al., op. cit., p. 19, delayed implementation "retains the long-run benefits of structural reforms without imposing the short-term costs in terms of deflation." The argument is also made in J. Fernández-Villaverde, P. Guerrón-Quintana, J. Rubio-Ramírez: Supply-side policies and the zero lower bound, NBER Working Papers 17543, 2011.

Figure 3
Impact of current versus future reforms at the zero lower bound



Note: The panels display results for the block of reforming countries. Results are shown as deviations from the no-reform baseline. An increase in the real effective exchange rate indicates real effective depreciation.

Source: Simulation results from European Commission: Quarterly Report on the Euro Area, Vol. 13, No. 3, October 2014, pp. 21-26.

optimising households;[13] short-term investment demand is stronger, too, given the weaker counteracting real interest rate effect.

This advantage of a pre-commitment to future reforms at the ZLB is outweighed by additional factors, however. Future reforms do not raise the purchasing power of current income to the same extent, so that the growth in consumption demand by liquidity-constrained households is delayed. Postponing the implementation of reforms also

13 Even in the case of *future* reforms, the real interest rate increases somewhat at the ZLB. The reason is the presence of price and wage stickiness in the model. The households and firms anticipate the impact of future reforms on future wage and price levels. With wage and price stickiness (due either to binding wage and price contracts or a desire to smooth price and wage adjustments over time), current wage and price setting already incorporates these expectations and leads to a partial downward adjustment of wages and prices already in the pre-reform period.

delays the improvement in price competitiveness and the resulting switch in expenditure from imported towards domestic goods. Hence, the results in Figure 3 do not support the idea that postponing reforms to the future is better than implementing them at the ZLB.

Conclusions

This article has discussed the impact of structural reforms at the ZLB based on simulations with the European Commission's QUEST model, with a particular focus on the potential negative short-term effects on economic activity. The binding ZLB tends to reduce short- and medium-term gains from structural reforms compared to a situation in which monetary policy responds with an expansionary interest rate reduction to absorb the increase in potential output. Small countries in a monetary union that implement structural reforms unilaterally face a very similar situation.

Simulations with the QUEST model suggest that short-term effects can be negative, but the negative short-term impact is small. The small-scale economic models that suggest significant contractionary short-term effects tend to neglect a number of mitigating channels which dampen the negative effect of rising real rates on economic activity. These channels include the impact of reforms on the profitability of investment, the disposable income of liquidity-constrained households and the competitiveness effect in external trade.

The impact of reforms at the zero bound depends obviously also on the nature of the particular measures. Mark-up reduction as a proxy for competition-enhancing reform is more deflationary than other measures such as fiscal devaluation, R&D-promoting policies and policies to facilitate sectoral adjustment and labour market matching. Hence, the contractionary real interest effect should be less pronounced in the latter cases or in response to reform packages that combine increased competition with faster adjustment. Non-standard measures of monetary policy and positive confidence effects from reforms, none of which is included in the model-based analysis, may furthermore mitigate negative demand and output effects by reducing the spread between policy and lending rates as well as credit availability.

Beyond the practical problem of credible commitment, the QUEST results do not support the idea that delaying reforms to the future would be better than current implementation at the ZLB when assessed in terms of economic activity. Channels that mitigate the costs of reforms at the ZLB also dampen the positive anticipation effect associated with future reforms and income gains.

The policy implication is that recent warnings of adverse effects from structural reforms at the current juncture overemphasise potential short-term costs. While it is certainly true that an accommodative monetary policy stance would facilitate the adjustment in "normal times", reforms do not seem to carry additional significant short-term costs in terms of aggregate economic activity at the ZLB. The results also suggest that postponing reforms is no better alternative.

The focus here on reforms that increase competition and reduce market power does not imply that such measures should dominate the policy agenda. In the long term, economic prospects hinge critically on productivity growth, which emphasises the crucial role of policies that can help stimulate factor productivity growth. In the short term, policies that strengthen aggregate demand would help exit recession. The argument of this paper is that structural reforms are no impediment to economic recovery. Besides their supply-side effects, they also have the potential to support aggregate demand at the current juncture.

Ansgar Belke

Macroeconomic Adjustment Programmes in the Euro Area: An Assessment of the Fiscal Multipliers

The acute phase of the euro crisis seems to be over now, but there is wide disagreement, both in academic and policy circles, whether the adjustment programmes "imposed" by the so-called troika (the ECB, Commission and IMF) have worked. In particular, there is a widespread impression that serious policy errors were made in the case of Greece.

In response to a request by the Committee on Economic and Monetary Affairs (ECON) of the European Parliament,[1] the Centre for European Policy Studies re-

1 See http://www.europarl.europa.eu/news/en/top-stories/content/20140110TST32314/html/Parliament-investigates-thedecisions-that-have-been-made.

cently published a substantial study on this theme.[2] The study reached the conclusion that, in the case of Greece, the initial programme had underestimated the fiscal multiplier and thus the depth of the recession, which was partially unavoidable. However, one element which could not have been anticipated was that Greek exports did not increase, whereas exports increased by about five to six per cent per annum in Portugal, which also faced sluggish markets (Spain is its biggest export market) and a domestic credit crunch. The lack of export growth made the recession in Greece much longer and deeper than it would have been otherwise – and also made the fiscal adjustment much more difficult. One key policy conclusion is that competitiveness and export performance should be more important than balancing the budget. Along with other topics such as distributional effects, this will be a major theme for the policy panel.

Adjustment programmes – a brief history

From the start of the Economic and Monetary Union (EMU) in 1993 until 2008, the euro area, and more broadly the global economy, experienced an unprecedented credit boom. The expansion of credit was particularly strong in Greece, Ireland, Portugal, Spain and Cyprus – all countries which subsequently needed official financial support. This contribution focuses on the analysis of the four countries that implemented fully fledged macroeconomic adjustment programmes: Greece, Ireland, Portugal and Cyprus.

Greece was the first country to lose market access in early 2010, as the catastrophic state of its public finances became gradually known. When the need for an assistance programme (consisting of financial support and a designed adjustment plan) became inevitable, a debate over the involvement of the International Monetary Fund (IMF) began. It became rapidly clear that the IMF's expertise was indispensable and that it could also make a substantial financial contribution to the programme. Moreover, given that the European Central Bank (ECB) had solid expertise in financial markets and that it had extended large amounts of lending to Greek banks and provided de facto substantial balance-of-payments support via its Emergency Lending Assistance (ELA), it was decided that the ECB should also be involved in the assistance process. This led to the creation of what is informally called the "troika", with the European Union, represented by the European Commission, acting as the third pillar of the alliance.

Greece did not qualify for the balance-of-payments assistance the EU offered to Latvia in 2008, because this facility was designed only for non-euro area countries.[3] Moreover, given that the total outstanding amount of loans to be granted to member states under the medium-term financial assistance facility was limited to €50 billion, the resources available would have been insufficient to cope with Greece. Therefore, other means had to be found, and the only possible solution was through bilateral loans from other EU governments, which materialised in the form of the Greek Loan Facility.[4]

At first, it was thought that Greece would remain an isolated case. However, it was soon feared that other governments might also face similar refinancing problems and that a more systematic approach was needed. This led to the establishment of the European Financial Stability Facility (EFSF), a temporary rescue mechanism which was later made de facto permanent in the form of the European Stability Mechanism (ESM). In November 2010, Ireland officially requested financial assistance from the EFSF, followed by Portugal in April 2011.[5]

In early 2012, Greece requested further assistance, which was provided by the EFSF and accompanied by private sector involvement (PSI) to reduce the amount of outstanding public debt. Finally, it was Cyprus's turn to request official support: after a formal request by the country in June 2012, its assistance programme began in mid-2013. A contribution by the ESM of up to €9 billion was announced in return for Cyprus agreeing to close the country's second-largest bank and imposing a one-time bank deposit levy on uninsured deposits above €100,000.

Ex post, it appears that the underlying assumption of the various assistance programmes drafted by the troika was that the countries in question only faced a temporary liquidity crisis. Under this hypothesis, a relatively short and

2 C. Alcidi, A. Belke, L. Coutinho, A. Giovannini, D. Gros: State-of-Play in Implementing Macroeconomic Adjustment Programmes in the Euro Area, Policy Note, Directorate General for Internal Policies, Economic Governance Support Unit, European Parliament, Brussels, February 2014. This article is heavily based on some of the contents of this study.

3 See A. Casale, J. Núñez Ferrer, A. Giovannini, D. Gros, P. Ivan, F. Peirce: The Implications for the EU and National Budgets of the Use of EU Instruments for Macro-Financial Stability, European Parliament Study, May 2012.

4 Under the Greek Loan Facility, the European Commission was not acting as a borrower but was entrusted by the euro area member states with the coordination and administration of the pooled bilateral loans, including their disbursement to Greece.

5 In addition to the financial resources provided by the EFSF and the IMF, the European Financial Stability Mechanism (EFSM) also participated in the assistance programmes, providing €22.5 billion for Ireland and €26 billion for Portugal. For a clear description of the differences between the EFSF, EFSM and ESM, see A. Casale et al., op. cit.

sharp adjustment effort should have been sufficient for them to resolve their fundamental problems, mostly fiscal and external deficits (but not only), thus making it possible to regain access to international capital markets rather quickly. While in the case of Ireland and Portugal this assumption has proved correct, it turned out to be wrong for Greece. Only after debt restructuring through the PSI – which lowered the debt burden – and lower interest rates was Greece's sovereign debt again deemed sustainable.

In each of the four macroeconomic adjustment programmes, financial assistance has been provided contingent upon the commitment of each country to fulfil certain economic policy conditions contained in its programme. This usually involves fiscal consolidation, governance measures, financial sector stabilisation and structural reform measures to improve the business environment and support growth.

More generally, a macroeconomic adjustment is a process driven by policies but also by changes in private spending behaviour (consumption, imports, investment) and improvements in competitiveness that countries are required to undertake after a large shock. In the case of the four countries, the shock emerged as a consequence of an excessive accumulation of imbalances in different parts of the economy: in the public sector in Greece, in the housing and banking sectors in Ireland, because of external imbalances in Portugal, and in the banking sector in Cyprus. We now address some issues common to all countries, among them the role of the fiscal multiplier as well as other factors that can explain why output losses have been so different across countries.[6]

The programme countries' economies

Our detailed analysis shows that the four countries differ enormously, but that some issues are similar. Portugal and Greece share three key features, namely high external debt, an extremely low rate of national savings and low competitiveness. These weaknesses are all interrelated: low savings imply that consumption is rather high relative to income and that the pre-crisis level of consumption could be sustained only with continuing large inflows of capital.[7] Moreover, relatively high consumption (and at times housing investment) during the pre-crisis period kept domestic demand and employment high. Wage increases therefore outpaced productivity, thus leading to an erosion of competitiveness.

By contrast, Ireland had much lower debt to start with and a higher savings rate, but it was highly exposed to financial markets because its construction boom went hand-in-hand with a huge expansion of financial activity. Housing prices fell significantly, and the losses in the banking sector were so large that the government could not absorb them without outside support. This was the key reason for Ireland's fiscal troubles.

In Cyprus, the crisis had a very specific nature, as it was precipitated by the losses that the country's two largest banks made on their investments in Greek government bonds when the PSI was introduced. These losses crippled the Cypriot banking system, and the government was in no position to absorb them given their size. Cyprus was also less able to withstand this shock because it was coupled with the bursting of a housing and credit bubble, similar to that of Greece (but not as extreme as that of Ireland), that significantly deteriorated private-sector balance sheets.

Most judgments of the adjustment programmes are coloured by comparing the state of the economy today to its state the year the programme started. However, this view fails to take into account the fact that imbalances were accumulated in the preceding years. Thus, the problems of the programme countries today cannot simply be ascribed to the adjustment programmes.

A somewhat different view of the adjustment programmes can be obtained by simply comparing the state of the economy today (2013 data) with that of 2007. This is instructive because if one compares these two dates, one finds that the fiscal deficit actually fell very little in both Greece and Portugal. Both countries thus had huge fiscal expansions between 2007 and 2009 (by about ten per cent of GDP in Greece) which were then followed by deficit cutting under their adjustment programmes. The fiscal multiplier should have had similar (opposite) effects during both the deficit's ascent as well as its decline. Hence it is difficult to explain why Greek real GDP should be over 20 per cent lower in 2013 than in 2007 when the deficit was cut between these two dates by only a few points of GDP. This fall in GDP can only be understood if one takes into account the role of investment in the economy. In Greece, the level of investment collapsed between these two dates, yielding a negative contribution to GDP of about 12 percentage points. A similar observation can be made for Portugal: over the period 2007-13, the contractionary impact of fiscal policy was much smaller than that of lower investment.

6 A detailed case-by-case analysis can be found in C. Alcidi et al., op. cit.

7 C. Alcidi, D. Gros: Country Adjustment to a 'Sudden Stop': Does the Euro Make a Difference?, European Economy – Economic Paper No. 492, Directorate General Economic and Monetary Affairs (DG ECFIN), European Commission, 2013, pp. 11 ff.

In the case of Ireland, the fiscal deficit increased between 2007 and 2013, suggesting that in conventional terms fiscal policy was expansionary. This remains true even disregarding the increase in the deficit driven by the guarantees offered to the banks. This makes it difficult to argue that the high unemployment today is mainly due to the adjustment programme. Likewise, it would not be correct to argue that the recessions in the programme countries were caused by "austerity". The key negative factor behind the collapse of demand was in all cases the slump in investment. One reason why the recession has been particularly deep in Greece is that the fall in investment demand there has not been even partially offset by higher exports.

One could argue that a continuation of large fiscal deficits would have mitigated the recession. Nevertheless, given the continuing weakness of investment, deficits would have had to remain elevated for a long time. Furthermore, the adjustment would in any event have had to take place sooner or later, accompanied by unavoidable costs in terms of lost output and employment, unless the multipliers had changed in the meantime.

Finally, another general observation is that *ex ante* (i.e. in 2010) it appeared that Greece and Portugal faced the threat of insolvency, given their very high external debt levels. In Ireland and Cyprus, conversely, this seemed to be less the case. Since then, the Greek and Portuguese experiences have diverged substantially, mainly because reforms were implemented in the latter and resulted in strong export growth (or, alternatively, because Portuguese exporters have been eager and able to stay in the market, even though their home market collapsed). Export growth limited the fall in output and government revenues, contributing greatly to the sustainability of public finances. By contrast, Greece's exports have stagnated and provided no offset to the required fiscal adjustment, which had to be much larger than that of Portugal because the initial conditions were so much worse.[8]

Multipliers and the impact of the fiscal adjustment

One key issue for all programmes was the impact that a large fiscal adjustment would have on output. As is well known, any fiscal consolidation has a negative impact on demand via the so-called Keynesian multiplier: when public spending goes down, GDP and therefore income fall, as does consumption, which in turn induces another drop in GDP. The drop in GDP also affects tax revenues, and consequently a reduction in expenditure by one euro could potentially lead to a fall in demand by more than one euro, ultimately resulting in a decrease in tax revenues.

How large are these effects? Modern macroeconomic models assign only a small role to the multiplier because they usually assume that consumption is driven mainly by expectations about future income and not just current income. Most of the models used by the European Commission, the ECB and the IMF thus estimated that the value of the multiplier would be below unity (implying that a reduction in the deficit equivalent to one per cent of GDP should lead to a fall in demand of less than one per cent). However, the academic literature suggests that the size of the multiplier can vary considerably depending on whether the fiscal adjustment is conducted via expenditure cuts or tax increases, with different expenditure and tax categories yielding quite different multipliers. Another factor of uncertainty in these models relates to whether the adjustment is temporary or permanent. At the time of the first Greek programme, the conventional wisdom was that, on average, the fiscal multipliers should be low; however, due to a high degree of uncertainty depending on the nature of the fiscal adjustment, neither negative values nor values larger than one could be excluded a priori.

In 2009-10 another element of uncertainty was the role of a binding budget constraint on households' spending decisions. The assumption that forward-looking households would not adjust their consumption on the basis of today's income but would instead base their consumption decisions on their expected future income was difficult to maintain given that a credit crunch was substantially limiting access to credit in some countries. It is thus clear that the "pure" Keynesian effect of current output and income on current consumption should have been given more weight in the economic models, an argument made by some economists at the time.[9]

A useful benchmark for the likely fall in output in response to a fiscal adjustment can be calculated via a Keynesian model in the simplest form, where current income drives (current) consumption and imports and where exports are exogenous (because they are determined by foreign demand, and the real exchange rate does not vary in the short run).

In this simplest model, the size of the Keynesian multiplier, and hence the final effect of fiscal consolidation on output, is influenced by two factors: the (marginal) propensity to save and the degree of openness to trade. The multiplier is large when the savings rate is low and/or when

8 In this respect, C. Alcidi et al., op. cit., also analyse the feasibility of macroeconomic adjustment in the programme countries.

9 See, for example, D. Gros: Fiscal Policy and the Credit Crunch: What Will Work?, Voxeu.org, 21 December 2008.

Table 1
Trade openness in the programme countries, 2009

Country	Exports % GDP	Imports % GDP	Openness indicator
Greece	19.0	29.8	0.49
Ireland	90.7	75.4	1.66
Portugal	27.9	35.5	0.63
Cyprus	40.8	46.5	0.87

Note: Openness indicator is defined as the sum of import and exports relative to GDP.

Sources: AMECO database; C. Alcidi, A. Belke, L. Coutinho, A. Giovannini, D. Gros: State-of-Play in Implementing Macroeconomic Adjustment Programmes in the Euro Area, Policy Note, Directorate General for Internal Policies, Economic Governance Support Unit, European Parliament, Brussels, February 2014.

Table 2
Simple Keynesian multipliers

Country	Keynesian multiplier: 1/(1-c+m)=1/(s+m)	Marginal propensity to import (m)	Marginal propensity to consume (c)
Greece	2.5	0.2	0.92
Ireland	1.3	0.57	0.82
Portugal	1.7	0.60	0.99
Cyprus	1.02	0.82	0.86

Note: The marginal savings rate, s, is computed as the ratio of the increment in private savings relative to the increment in GDP over the period 2002-07; similarly the marginal propensity to import, m, is computed as the ratio of the increment in imports relative to the increment in GDP over the same period.

Sources: AMECO database; C. Alcidi, A. Belke, L. Coutinho, A. Giovannini, D. Gros: State-of-Play in Implementing Macroeconomic Adjustment Programmes in the Euro Area, Policy Note, Directorate General for Internal Policies, Economic Governance Support Unit, European Parliament, Brussels, February 2014.

the degree of trade openness is low. A low degree of trade openness also means that exports cannot provide a strong offset to low domestic demand – adding to the political difficulties of maintaining a tight fiscal stance. As shown in Table 1, openness varies greatly across countries.

It was already known in 2009-10 that the structure of the Greek economy made it likely that the multiplier would be high. The savings rate was low and it was a relatively closed economy, with the result that Greece had "the need for a very large fiscal adjustment without a safety valve".[10] Given the large adjustment needed and the likely large multiplier, Greece would have to confront a large slump in GDP, of the order of 20 per cent, even assuming a trend growth rate of three per cent per annum and a three-year adjustment period.[11]

Portugal displayed similar features to Greece but in an attenuated form, with debt at a lower level and a higher degree of openness. By contrast, Ireland, as a very open economy with a high level of savings, had the potential to achieve fiscal consolidation at a lower cost in terms of GDP contraction.

Generally speaking, simplistic multipliers like the ones shown in Table 2 tend to exaggerate the severity of the recession that would follow the fiscal adjustment, but they deliver the unambiguous message that the assumption that GDP growth can remain positive over large fiscal adjustment periods is unrealistic. A corollary of this view is that the fiscal correction's potentially large negative impact on output might well be politically very difficult or even unfeasible in some of the countries.[12]

Overall, we conclude that it was clear even at the time the Greek programme was designed that the fall in output in response to the fiscal adjustment required would be very large.

The "fiscal multipliers" debate

The approach of the troika is in principle the same as all IMF programmes: financing is provided against promises of fiscal adjustment (usually in the form of expenditure cuts), expenditure switching (which in this case had to be achieved through internal devaluation) and, subordinately, tax increases.

There has been some debate about the importance of the expansionary effects of budget consolidation, i.e. the non-Keynesian effects of fiscal consolidations. Many empirical studies have found support for the notion that a fiscal adjustment, *if credibly implemented*, can positively affect demand through confidence and wealth effects and offset the usual growth reductions following an increase in taxes and a decrease in government expenditure. This, in turn, improves long-term refinancing conditions, the return (crowding-in) of private investment and, thus, the prospect that the programme countries will return to the

10 D. Gros, C. Alcidi: The European Experience with Large Fiscal Adjustments, Voexu.org, 28 April 2010.
11 See ibid. for more detailed calculations and description on Keynesian multipliers.
12 See ibid. on the past European experience with large fiscal adjustments.

capital markets.[13] The case of Greece is of course problematic, because for a long time the fiscal adjustment did not appear to be credible.

The above-mentioned positive growth effects resulting in the long run from austerity measures depend on the size and the persistence of the fiscal adjustment. Such non-Keynesian effects emerge if the initial budget deficit is large or if the debt-to-GDP ratio is very high. But as we stressed above, swift real exchange-rate depreciations are crucial for those economies, such as Greece, that are caught up in a situation with large fiscal deficits, low-output growth and an appreciated real exchange rate (allusions are frequently made to Sweden in the 1990s). This implies that either the country would have to leave the euro area in order to be able to devalue its own currency or, if it preferred to stay in the common currency area, country-specific shocks would have to have a release valve elsewhere and, thus, prices and/or wages would have to fall to a sufficient extent. This mirrors the often-cited balance-of-payments restriction that also applies for Portugal.[14]

If these real devaluations of the home currency do not take place to a sufficient extent, tax increases and public expenditure cuts are bound to reduce aggregate demand and output. Consequently, tax revenue will fall and fiscal consolidation will be slow. In this case, it is legitimate to argue that austerity policies cause low growth.

Recent econometric results from the IMF suggesting that the multipliers were much higher have received enormous attention. However, not all of the literature on this subject points towards higher fiscal multipliers than those employed by the troika.[15] The results obtained by the ECB and the European Commission are a priori no less persuasive than those delivered by the IMF. Best academic practice requires that the choice of the adequate model should not be based on the ideological priors of the contracting authority ("Keynesian" versus "non-Keynesian", socialist versus conservative, etc.) but, instead, on the much more neutral use of widely accepted empirical model selection criteria.[16]

We acknowledge that large debts discourage capital accumulation and, thus, also reduce growth. This occurs through higher long-term interest rates, higher future distortionary taxation, higher (expected) inflation, greater uncertainty and increased macroeconomic volatility, thus fuelling the accumulation of other macroeconomic imbalances (such as current account imbalances). Higher interest expenditure implies either higher taxes or constraints on other government spending that would promote higher growth. If growth is indeed reduced, fiscal sustainability issues are likely to be exacerbated, with further adverse consequences. Note that the link between growth and debt turns out to be rather weak at "normal" debt levels, but seems to be quite valid for countries with larger public debt.[17] Finally, the consolidation of public debt in financially distressed countries could lend the ECB additional credibility, helping to ensure the effectiveness of its announced OMTs and avoid any impression that it is engaging in monetary financing of public debt by the printing press.[18]

Another weak point in the troika's debt sustainability analysis is the at least implicit *assumption of multiple equilibria*. In leaked troika reports, the results of the debt sustainability analysis were often not included and inserted only at the latest possible moment. The intention obviously was to avoid the negative growth impacts of a prematurely published and overly rigorous analysis. Moreover, the impression emerged in the cases of Greece and Portugal that the troika followed a well-founded theory of multiple equilibria: if a positive debt sustainability analysis is delivered, there will be more growth and the positive assessment of debt sustainability becomes self-sustained. They did not take into account that such a solution might not be consistent over time because of national elections in the euro area member states whose results in some cases might cast doubt on the validity of the contractual basis of the measures.[19]

Further considerations on multipliers

Today there remains great uncertainty about the size of the fiscal multipliers in the programme countries. The recent

13 A. Belke: Debt Mutualisation in the Ongoing Eurozone Crisis – A Tale of the "North" and the "South", in: S.N. Durlauf, L.E. Blume (eds.): The New Palgrave Dictionary of Economics, Online Edition, Palgrave Macmillan, Houndmills, Basingstoke 2013; A. Belke: Towards a Genuine Economic and Monetary Union – Comments on a Roadmap, in: Politics and Governance, Vol. 1, No. 1, 2013, pp. 48-65.

14 Ibid.

15 See European Central Bank: The Role of Fiscal Multipliers in the Current Consolidation Debate, Monthly Report, Frankfurt/Main, December 2012, Box 6, pp. 82-85 and European Commission: Box I.5: Forecast Errors and Multiplier Uncertainty, Autumn 2012 Forecast, European Economy 7/2012, Brussels 2012, pp. 41-43 versus International Monetary Fund: October 2012 World Economic Outlook (WEO), Washington DC 2012.

16 See, for instance, H.M. Pesaran, B. Pesaran: Working with Microfit 4.0 – Interactive Econometric Analysis, Oxford University Press, 1997.

17 C.M. Reinhart, K.S. Rogoff: Growth in a Time of Debt, in: American Economic Review, Vol. 100, No. 2, 2010, pp. 573-78; C.M. Reinhart, V.R. Reinhart, K.S. Rogoff: Public Debt Overhangs: Advanced-Economy Episodes since 1800, in: Journal of Economic Perspectives, Vol. 26, No. 3, 2012, pp. 69-86.

18 A. Belke: Debt Mutualisation ..., op. cit.; A. Belke: Towards a Genuine Economic ..., op. cit.

19 Ibid.

IMF research arguing that the multipliers were large has received more attention than other results which do not come to this conclusion. However, Alcidi et al. find that in 2010 there were reasons to believe that the multiplier should be very large in the case of Greece, of medium size in the case of Portugal and low in the case of Ireland.[20] Thus, in Greece the multiplier might have been underestimated. One implication of this is that the degree to which expenditure cuts would translate into an improvement of the deficit was overestimated.

One aspect that has only rarely been discussed is the fact that if one takes a longer perspective, fiscal policy has not been so restrictive in the programme countries. In Greece, for example, the 2013 primary balance was only a little better than in 2005. There are only two logically consistent explanations for the fact that output in the programme countries is so much below potential, although the fiscal adjustment has been quite limited if one compares 2013 to some of the years before the crisis (e.g. 2005). First, the multipliers are of a radically different size during different phases of the cycles, booms and busts. Second, components of demand other than public consumption and public investment had collapsed in the meantime.

The literature suggests that multipliers tend to be larger during booms than during busts.[21] Yet the difference could not explain the large output gap for Greece that developed between 2005 and 2011, following a small net change in the fiscal stance. For Greece and Ireland, the second effect seems to have been key: fiscal policy had been "expansionary" just before the countries went into the programmes to offset the impact of a collapse in investment.

For Ireland the collapse of the housing boom is well known, but an important fall in investment had also taken place in Greece, where investment fell from 30 per cent to 20 per cent of GDP through 2009-10. The huge expansion in the government deficit until 2009 can be seen as an attempt to offset this investment collapse. This would explain why the observed multiplier during the years before 2010 appeared much lower: the expansion of government expenditure was mostly offset by lower investment expenditure. Once the fiscal adjustment started, the two effects, namely lower investment expenditure and lower government expenditure, reinforced each other, resulting in a "double whammy" on output.

Finally, one must take into account that a high multiplier applies not only to government expenditure but to all components of demand, including for exports. This implies that one key element of the programmes was the expected improved performance of exports. In the case of Greece, exports disappointed, whereas in Ireland and Portugal, they grew as much as expected in the programme, providing an important offset to the fiscal adjustment.

Comparing falls in output

A high Keynesian multiplier not only implies that a fiscal contraction will lead to a large fall in output, but also that the impact of all changes in exogenous demand components will be magnified. It follows that, even in an economy characterised by a high multiplier (like Greece), a fiscal contraction does not have to have a large impact on output if it is offset by an increase in other components of demand, such as exports or investment. The extraordinary size of the output drop in Greece seems to be due to a significant extent to the fact that exports did not provide an offset and that investment contracted even more than one would have expected normally, thus adding to the drag on demand coming from the fiscal consolidation.

For any economy that starts with a large current account deficit (like Greece or Portugal), export growth is the key to long-term growth. But experience has shown that export growth can provide an important offset to a large fiscal adjustment even in the short run. The first Greek programme was based, inter alia, on the assumption that there would be substantial export growth. The fact that this growth did not materialise was thus one key element in the unexpectedly large drop in output (and the increasing doubts about the sustainability of Greece's public debt).

(Re)gaining competitiveness, assuring long-term growth

The structural adjustment undertaken by the peripheral countries in the last three years has been not a mere fiscal rebalancing process due to excessive government deficits/debt but rather a comprehensive macroeconomic adjustment to absorb the balance of payments imbalances accumulated in the first ten years of the EMU. Since 1999 the peripheral countries were able to accumulate large current account deficits financed by large inflows of capital from surplus countries in the north – a natural and positive economic mechanism, except for the fact that

20 C. Alcidi et al., op. cit.

21 A. Auerbach, Y. Gorodnichenko: Measuring the Output Responses to Fiscal Policy, NBER Working Paper 16311, National Bureau of Economic Research, Cambridge MA 2010; and R. Barrell, D. Holland, I. Hurst: Fiscal Consolidation: Part 2. Fiscal Multipliers and Fiscal Consolidations, OECD Economics Department Working Papers, No. 933, OECD Publishing, Organisation for Economic Cooperation and Development, Paris 2012.

this transfer of resources went primarily to finance unproductive capital in the peripheral countries. The adjustment plans defined by the Troika were designed therefore not only to bring sustainability to public finances but also to restore competitiveness to the peripheral countries through an increased flow of exports, thereby assuring a sustained growth path in the medium/long run. Within a system of fixed exchange rates as the EMU, there are two ways to make a country's exports more competitive: through an internal devaluation or via structural reforms. Analysing what has happened since 2009, it appears that these mechanisms have worked, as all of the peripheral countries considered here have improved their external position by increasing exports and reducing imports (or, at least, increasing them less than exports), thus improving their trade balances.

Conclusions

Our evaluation in Alcidi et al. suggests that the adjustment programmes for Portugal and Ireland have worked more or less as intended and indeed as many adjustment programmes beforehand have.[22] The fiscal adjustment is painful initially and leads to a deep recession, during which financial markets often doubt the eventual success. But this is then followed by a recovery based essentially on export growth as domestic demand remains subdued. The strength of exports determines the strength of the recovery. In economic terms, one would call this first expenditure reduction (i.e. fiscal adjustment) and then expenditure switching, with exports increasing and domestic production outcompeting imports at the margin. Cyprus seems to be following this script, although its main problem was not so much fiscal as financial.

22 C. Alcidi et al., op. cit.

Greece stands out because of the depth and length of its recession. We would argue that the depth of the recession could have been at least partially expected, given the initial conditions of the special case of a small but closed economy. What makes Greece unusual is the lack of growth in exports despite a considerable fall in wages. The only explanation for this puzzling phenomenon is that the Greek economy has remained so distorted that it has not responded to changing prices signals.

There is indeed little evidence that structural reforms have increased the adjustment capacity in any of the countries under consideration. However,, the starting points for Ireland and Portugal were relatively decent. In Greece, by contrast, the quality of the institutions, as far as one can measure, was much lower than in the other programme countries. And the little evidence that exists suggests that since the start of the programme many indicators have deteriorated. It could be that the troika has been so insistent on fiscal adjustment in Greece because there has been no progress on structural reforms (despite the special task force). All in all, it appears that the fiscal problem has been resolved in Greece, more than in the other countries, but no progress has been made on making the economy more competitive and improving the quality of the administration and governance of the country.

As a final remark, we observe that the EU-led macroeconomic adjustment programmes in countries outside the euro area (e.g. Latvia) seem to have been much stricter, but led to quicker adjustments and were followed by stronger rebounds. At the trough of Latvia's recession, the programme was also off-track and failure seemed imminent, but the harsh adjustment period ultimately cleared the way for a solid recovery.

Tim Callan, Claire Keane, Michael Savage, John R. Walsh, Brian Colgan*

Ireland's Economic Adjustment: From Crisis to Recovery

Ireland's national income fell further and faster than that of most other countries in the early years of the Great Recession. The scale and severity of the adjustment problem faced by Ireland was extremely large, and there has been considerable international interest in how Ireland has fared in implementing its adjustment. This paper focuses mainly on the adjustment policies pursued and the outcomes in terms of macroeconomic aggregates and income distribution. First, however, we summarise briefly the combination of domestic and international factors which led to the precipitous decline in output.

The depth and sustained nature of the international Great Recession would, of itself, have created a difficult environment for a small and very open economy such as Ireland. When combined with an interlocking set of domestic factors, the result was close to a perfect storm. Major contributory factors included the bursting of a property bubble,

* We are grateful to the Central Statistics Office for access to the data from the Survey on Income and Living Conditions (SILC). Responsibility for the analysis and interpretation of these data rests with the authors.

a severe banking crisis and a very sharp deterioration in the public finances, which shifted from modest surpluses to very large deficits and from a low debt-to-GDP ratio to a high one within a few years. The scale of the challenge faced can be gauged from a few bleak facts: Irish GNP fell by more than ten per cent between 2007 and 2009, unemployment rose from less than five per cent in 2007 to almost 15 per cent by 2011, and the ratio of government debt to GDP rose from below 40 per cent in 2007 to a peak of over 120 per cent in 2013.[1]

In this paper, we focus on clarifying the nature of the policies adopted and documenting the outcomes for macroeconomic aggregates and for the distribution of income. We do not attempt to identify macroeconomic policy impacts because of the difficulty in estimating outcomes associated with counterfactual policies. For the same reasons, we do not attempt to come to a judgement on the merits or demerits of the policies actually adopted; we simply report the outcomes associated with them. The next section summarises the main features of the adjustment policies. We then describe the macroeconomic outcomes before reviewing the consequences for the distribution of income. Particular attention is given to the distributional impact of policies in the areas of tax, welfare and public sector pay. The final section draws together the conclusions and presents some issues for further consideration.

Adjustment policies

Much of the focus on Ireland's economic adjustment dates from the start of the formal Economic Adjustment Programme (EAP) with the IMF, European Commission and ECB (collectively known as the troika) in late 2010. However, Ireland's economic adjustment began much earlier, in October 2008, with a very severe budget that introduced sharp increases in income-related taxes. Taxes were increased further by a special Supplementary Budget in April 2009, and further consolidation mainly on the expenditure side was undertaken in late 2009. Analysis by the Irish Fiscal Advisory Council shows that the total scale of the fiscal adjustment package over the seven years 2008 to 2014 was in the region of 17 per cent of GDP.[2] Almost half of the total adjustment was due to measures taken in the years 2008 to 2010, i.e. *before* the EAP agreement with external bodies.

Despite the scale of these adjustments, borrowing costs on financial markets became unsustainable, leading to the EAP agreement with the troika. Key objectives of this programme included restoration of stability in the banking system, fiscal adjustment to bring deficits and debt under control, restoration of access to capital markets, and structural reforms to stimulate growth and reduce unemployment. We focus mainly on the fiscal adjustment issues. It should be noted, however, that the strategy embodied in the EAP involved a very substantial recapitalisation of the banks from public funds – amounting to over €60 billion.[3]

As noted above, the total fiscal consolidation in Ireland has been around 17 per cent of GDP. Of this, close to half is estimated to have come from reductions in the government's current spending, with somewhat more than a third coming from increases in taxation. The balance came from reductions in capital spending.[4] The adjustment was front-loaded, with sharp increases in taxes during 2009 alone accounting for almost half of the total impact from taxation over the whole seven-year period. Most of the additional revenue was gained from income-related taxes, but there were also some significant indirect tax increases, particularly in the standard rate of VAT.[5]

Expenditure measures played a greater role in later years. As health, education and welfare spending account for the bulk of total public expenditure, expenditure reduction measures in each of these areas were implemented to reach the major overall reductions required. In the welfare area, main payment rates were first increased in the 2009 budget, which was brought forward from December to October 2008 – at which point the full scale of the crisis was not yet evident. The 2010 and 2011 budgets then reduced the main payment rates for welfare schemes used by those of working age and made deeper cuts in the universal child benefit payment. Payments to young unemployed people were reduced very substantially. Rates of payment for old age pensions, however, have remained at their 2009 levels to date, with some reductions in near-cash benefits.

Macroeconomic outcomes

We focus in this short note on two key macroeconomic indicators: national income and unemployment. As noted earlier, Ireland's national income fell very sharply, and by more than that of other countries, with the onset of the recession and the multiple crises. However, recent OECD and national forecasts indicate that cumulative growth

1 For greater detail on the combination of factors which gave rise to these problems, see K. Whelan: Ireland's Economic Crisis: The Good, the Bad and the Ugly, in: Journal of Macroeconomics, Vol. 39, Part B, 2014, pp. 424-440.

2 Irish Fiscal Advisory Council: Pre-Budget 2015 Statement, September 2014, Dublin: IFAC.

3 For more details, see K. Whelan, op. cit.

4 See Irish Fiscal Advisory Council, op. cit.

5 For further details on the micro-level policies on tax and welfare, see C. Keane , T. Callan, M. Savage, J.R. Walsh: Distributional Impact of Tax, Welfare and Public Service Pay Policies: Budget 2015 and Budgets 2009-2015, in: Quarterly Economic Commentary, Winter 2014, ESRI, Dublin.

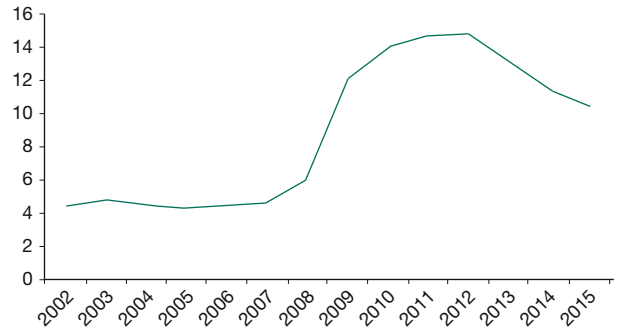
Table 1
Cumulative real GDP growth, 2007-2015
% change

Country	Growth
Greece	-22.5
Italy	-7.0
Slovenia	-5.0
Portugal	-4.3
Ireland	-3.9
Finland	-3.5
Spain	-3.5
Ireland (GNP)	-1.2
Denmark	-1.0
Hungary	-0.5
Netherlands	0.7
Estonia	1.1
France	3.2
Iceland	3.3
Czech Republic	4.4
United Kingdom	4.4
Belgium	5.7
Luxembourg	5.8
Austria	7.0
Germany	8.4
Norway	8.5
Sweden	12.5
Switzerland	13.0
Slovak Republic	16.6
Poland	27.8

Source: OECD Economic Outlook June 2014, data extracted on 14 Nov 2014 from OECD.Stat.

over the 2012 to 2014 period will be in the region of 12 per cent, with national forecasts showing growth running at three per cent or more for each of the years 2013, 2014 and 2015.[6] Table 1 shows how Ireland's economy has fared over the period 2007-2015 compared with other European economies. For most countries, GNP and GDP are very close in terms of both levels and growth rates, and as a result, most international comparisons focus simply on GDP. For Ireland, however, the large outflows of factor income associated with repatriation of profits by multinational companies mean that GNP is a better measure of real economic activity and incomes. We therefore show both a GNP and a GDP-based figure for Ireland.

Figure 1
Unemployment rate, Ireland, 2002-2015
in %



Source: OECD Economic Outlook June 2014, data extracted on 14 Nov 2014 from OECD.Stat.

Comparisons based on Irish GNP and on OECD forecasts from June 2014 suggest that Ireland is close to regaining its pre-recession GNP level in 2015. Recent national forecasts suggest a slight gain above that level. Even according to the more conservative OECD figures, Ireland's economic position is close to the median for eurozone countries, whereas in the early years of the recession, the country's multiple crises put it towards the bottom of the league. One factor which has been important in this is Ireland's strong connections with the UK and US economies, which have been growing faster than the eurozone.

Turning now to unemployment, Figure 1 shows how the Irish unemployment rate, having risen from less than five per cent to nearly 15 per cent, has now fallen significantly. As of 2014, the rate is close to 11 per cent, with the OECD forecasting a reduction to just over ten per cent next year. Again, this is close to the eurozone average.

Distributional outcomes, 2008 to 2012

What has been the net impact of these major upheavals on the level and distribution of household incomes? We examine this issue from two points of view. First, we look at the overall impact on household income levels and on income levels by decile. This is based on the Survey on Income and Living Conditions (SILC) in Ireland. Second, we look at the impact of austerity policies in the areas of tax, welfare and public sector pay, as identified by microsimulation modelling using SWITCH, the ESRI tax-benefit model.[7]

6 OECD Economic Outlook, June 2014; D. Duffy, J. FitzGerald, K. McQuinn, D. Byrne, C. Morley: Quarterly Economic Commentary, Winter 2014, ESRI, Dublin; Central Bank of Ireland: Central Bank Quarterly Bulletin 04, October 2014, Dublin.

7 T. Callan, B. Nolan, C. Keane, M. Savage, J.R. Walsh: The Great Recession, Austerity and Inequality: Evidence from Ireland, in: Intereconomics, Vol. 48, No. 6, 2013.

Table 2
Gini coefficient of equivalised disposable income among persons, Ireland, 2005-2012

	SILC
2005	0.324
2006	0.324
2007	0.317
2008	0.307
2009	0.293
2010	0.316
2011	0.311
2012	0.312

Notes: The equivalence scale used here and elsewhere, unless otherwise stated, is 1 for the first adult, 0.66 for other adults (aged 14 or over) and 0.33 for each child (aged under 14). This is the scale used in the official measure of poverty in Ireland and is close to that implied by the structure of social welfare payments.

Source: SILC, 2012, Central Statistics Office.

Table 3
Decile shares of equivalised disposable income among persons, Ireland, 2008 and 2012

Decile	2008	2012
	Income share	
	%	%
Bottom	3.5	3.0
2	5.0	4.9
3	5.9	6.0
4	6.8	6.9
5	7.9	7.9
6	9.1	9.1
7	10.4	10.5
8	12.2	12.4
9	14.7	15.2
Top	24.4	24.0

Source: SILC, 2012, Central Statistics Office.

Table 2 shows Gini coefficients for disposable income (per adult equivalent) for the years 2005 to 2010 derived from the SILC surveys carried out each year.

The Gini coefficient is very similar for both 2007 (which could be taken as a pre-recession value) and 2012, the latest available data point. Over a longer period (1994 to 2009), Nolan et al. show that the Gini coefficient remains in the range 0.31 to 0.32 for almost all years.[8] Against this backdrop, the fall in the Gini to 0.29 in 2009, the first year in which the full effects of the recession were felt, is quite striking: this is the lowest level the Gini has reached in Ireland, by some measure, since 1980. This reflects the sharp rise in progressive income taxation and a rise in welfare payments in that year, for reasons already noted.

Despite this stability in the overall Gini, there were some significant shifts in the income distribution, as revealed by the decile shares shown in Table 3. Between 2008 and 2012, the shares of the bottom decile fell by 0.5 per cent and those of the top decile by 0.4 per cent of income.

The overall fall in average real income – whether measured at the median or the mean – was just over 14 per cent between 2008 and 2012. For most deciles, losses were close to these average values, but there were much greater losses – almost double the average rate – for the bottom income decile (in line with the finding on decile shares). Above average losses were also recorded for the second decile and for the top decile. The major factors behind this pattern, as will be seen, were income reductions due to job losses and reduced self-employment income rather than the pattern of tax and welfare changes.

It must be stressed that comparisons of corresponding deciles in different years are not comparing the incomes of the same people but are instead comparing what might be termed "income positions", e.g. the incomes of the poorest ten per cent in each year. Changes in composition (e.g. more of the bottom decile being unemployed or self-employed with very low incomes in the recession) can also affect the observed patterns.

What of the standard measures of income poverty? The percentage of individuals falling below 60 per cent of median equivalised income (the Laeken indicator for "at risk of poverty") had been roughly stable from 2008 to 2010, close to 14.5 per cent, but it rose by two percentage points by 2012. The EU's "anchored" poverty measures examine poverty lines which are set in the usual way (60 per cent of median income) for a base year and then simply increased in real terms. This is of particular interest in the present context, where real incomes have fallen sharply in just a few years. Analysis on this basis, with a poverty line "anchored" at its 2007 level, shows the risk of poverty rising sharply from about 16.5 per cent to 24.1 per cent.[9]

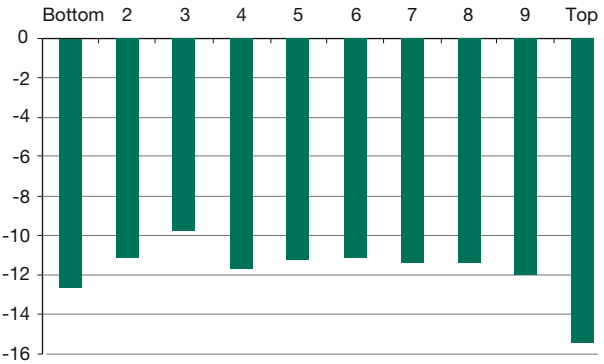
8 B. Nolan, B. Maitre, S. Voitchovsky, C.T. Whelan: Inequality and Poverty in Boom and Bust: Ireland as a Case Study, GINI Discussion Paper 70, 2012.

9 SILC, 2012, Central Statistics Office.

There is strong interest in many countries in assessing the distributional impact of austerity measures. We follow an approach along the lines of Bargain and Callan, which uses as a baseline a counterfactual policy which is designed to be distributionally neutral – simply the base year policy indexed by the growth or decline in a broad measure of income.[10] The impact of policy change is then measured by estimating inequality measures under this counterfactual distributionally neutral policy and under actual policy, as simulated using a tax benefit model. The analysis is based on a comparison of actual 2010 data with a distributionally neutral policy which indexes 2008 policy in line with average weekly earnings over the period. The analysis includes the main changes in income tax and social insurance contributions as well as the introduction of income levies and changes in benefit payment rates. In addition, the modelling includes the impact of reductions in public sector pay, which were progressively structured.[11]

Over the full 2009 to 2014 period, policy had a negative impact on incomes at all levels.[12] Losses for most income deciles arising from these austerity measures were close to 11 per cent. As shown in Figure 2, between 2009 and 2012, the greatest losses were experienced by the top decile (over 15 per cent), with above average losses also being suffered by the bottom income decile (close to 13 per cent). Thus, the pattern is not one which can be simply described as either regressive or progressive. Within each income decile, pensioners tend to fare better than non-pensioners, reflecting the fact that the basic payment rates for pensions were increased in 2009, in contrast to the reductions in other welfare payments.

Figure 2
Impact of income tax, welfare and public sector pay policy changes, Ireland, 2009-2014
% change in disposable income by income decile



Source: SWITCH model in December 2013 incorporating the main changes in direct tax, welfare and public service pay/pensions and augmented by results on carbon tax and VAT, DIRT, specific 2014 budget restrictions on tax relief for pension contributions and medical insurance premia, and capital gains tax.

Assessment

Where does the Irish economy stand after seven very lean years? One useful point of assessment is to consider how Ireland has fared in terms of the objectives set out in the Economic Adjustment Programme agreed to in late 2010. Four major aims were banking stability, fiscal adjustment, market access for sovereign borrowing and structural reform to enhance growth. Banking stability has recently been subject to EU stress tests, and both of the main pillar banks have been given a clean bill of health in this respect. Targets for deficits have been attained, and the debt-to-GDP ratio has now started to decline. Reflecting this, the Irish government has regained access to borrowing on terms which have now allowed the country to exit from the adjustment programme and to begin early repayment of part of the IMF loan facility. Some progress has been made on structural reforms (e.g. introduction of a property tax and big reductions in transaction-based taxes on property, as well as the development of enhanced activation policies in the labour market). Economic growth has resumed.

There remain some areas of risk, however. The scale of the debt-to-GDP ratio means that Ireland is vulnerable to increases in international interest rates and that a significant element of taxable capacity will be required simply to service the debt rather than pay for public services or transfers.

The income distribution consequences of recession and austerity have been complex. The greatest losses have been in the incomes of the lowest income decile; but the combined impact of tax, welfare and public sector pay policies has been greatest on the top income decile. The exceptionally large losses in income at the lowest income decile have much more to do with loss of employment and reduced self-employment income arising from the recession than from tax and welfare measures.

Debate as to whether alternative policies could have led to a better economic performance, or greater social cohesion, has been active. Some argue that adjustment would have been less painful if it had been implemented more slowly; opponents of this view counter that a slower adjustment path would have involved higher long-run debt. The documentation of outcomes undertaken here can help to inform this ongoing debate.

10 O. Bargain, T. Callan: Analysing the effects of tax-benefit reforms on income distribution: a decomposition approach, in: Journal of Economic Inequality, Vol. 8, No. 1, 2010, pp. 1-21.
11 These reductions include a "pension-related deduction" and explicit cuts to pay.
12 C. Keane et al., op. cit., update this analysis to include the impact of the 2015 budget.