

Only a hesitant recovery with risks for the future

Introduction

The European Commission's Annual Growth Survey 2016 (European Commission 2015a), published in November 2015, predicts GDP growth of 2.0% in 2015, with employment increasing by 0.9%. A very slight further acceleration is expected in 2017. These modest forecasts are threatened by economic difficulties elsewhere in the world, while the European Commission's vision of how to boost long-term recovery is based on a strategy which promises disappointingly little. Its emphasis is on an investment plan, accelerating structural reforms, and 'growth-friendly fiscal consolidation'. The ECB is also offering a contribution to economic recovery, in the form of quantitative easing, but it has not, and will not, provide much of a stimulus.

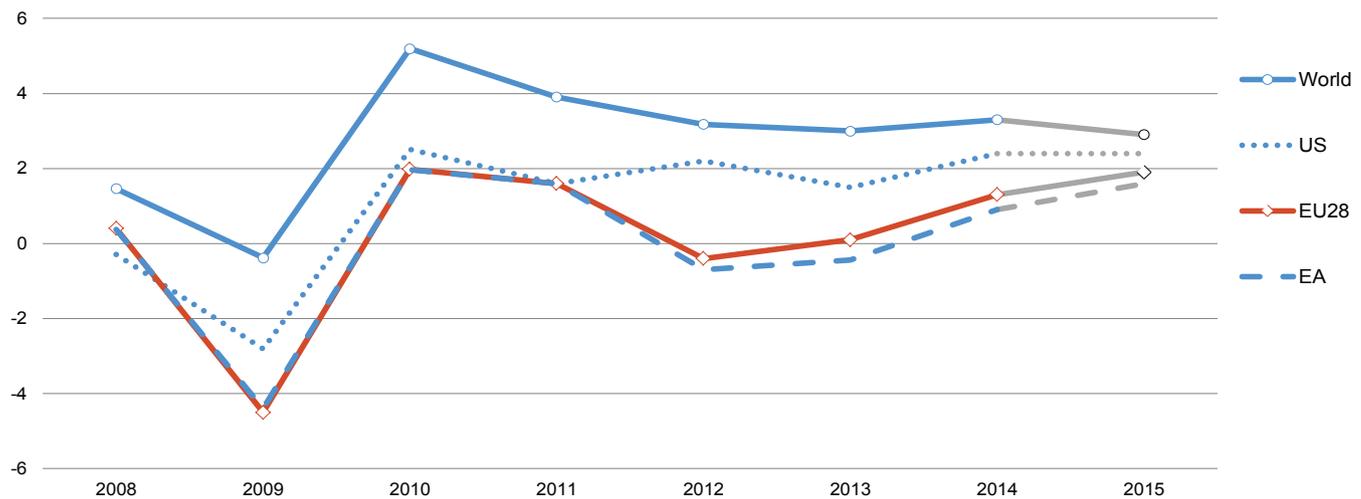
The proposed investment plan is taking shape as a weak and unconvincing response to the depth of the problem, bringing little benefit to countries that need it the most. The key to sustained recovery should be fiscal policy, both to stimulate internal demand and to create the basis for a more serious investment plan. The scope is there, as indicated by comfortable budgetary positions of some countries and the minimal rates of interest at which they can borrow. The need is also there, in the shortfall in research and development spending, in the weakness of European infrastructure, and in the need for a much more vigorous approach to energy conversion. Strict insistence on existing eurozone rules has depressed demand in the short term while also contributing to forced reductions in spending in precisely the areas that are essential for the future.

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Economic developments: modest recovery under way

Figure 1.1 Real GDP growth (at 2005 market prices), EU28, EA, US, World, 2008-2015 (%)



Source: Own calculations using IMF, OECD and Eurostat data. Note: 2015 are forecasts.

A weakened internal stimulus

Figure 1.1 shows the growth rates for the EU and eurozone compared with the USA and the world as a whole over the period from 2008, when the financial crisis spread beyond the banking sector in the USA, to 2015. Much of the world weathered the crisis with a slight drop in growth rates and a secular deceleration in subsequent years. The EU too showed recovery after 2009 but, as Figure 1.1 shows, it diverged from the USA and the rest of the world from 2010, falling back into depression. Recovery from that second dip was slow and uncertain, leaving GDP in real terms barely 2% above its 2007 level in 2015. The eurozone has performed slightly worse than the EU as a whole, but the difference is small.

The European Commission did not foresee the second downturn, confidently asserting in its 2010 autumn forecast that ‘the economic recovery ... is making progress’ (European Commission 2010: 9) and foreseeing a growth rate of 2.0% in 2012 while the reality was to be -0.3% for the EU as a whole and -0.6% for the eurozone. The policies of austerity applied in this period also contributed to a shift in economic orientation. Domestic demand

was held down, increasing between 2010 and 2015 by only 1.6% (falling by 0.5% for the eurozone), while exports increased by 21.6% (22.2% for the eurozone). Thus exports relative to GDP increased from 40.9% to 47.4% from 2010 to 2015 (from 41.2% to 49.0% for the eurozone). In other words, the EU had become more dependent on economic developments elsewhere in the world.

Higher external demand and gradual recovery in internal demand should drive some growth in the coming years. The ECB policies, discussed below (page 12) are expected to contribute very little. The European Commission (2015d: 154) is predicting GDP growth of 2.0% and 2.1% for 2016 and 2017. These would not be impressive figures when set against pre-2008 performance or that of other parts of the world. They are also at the upper end of what can be expected.

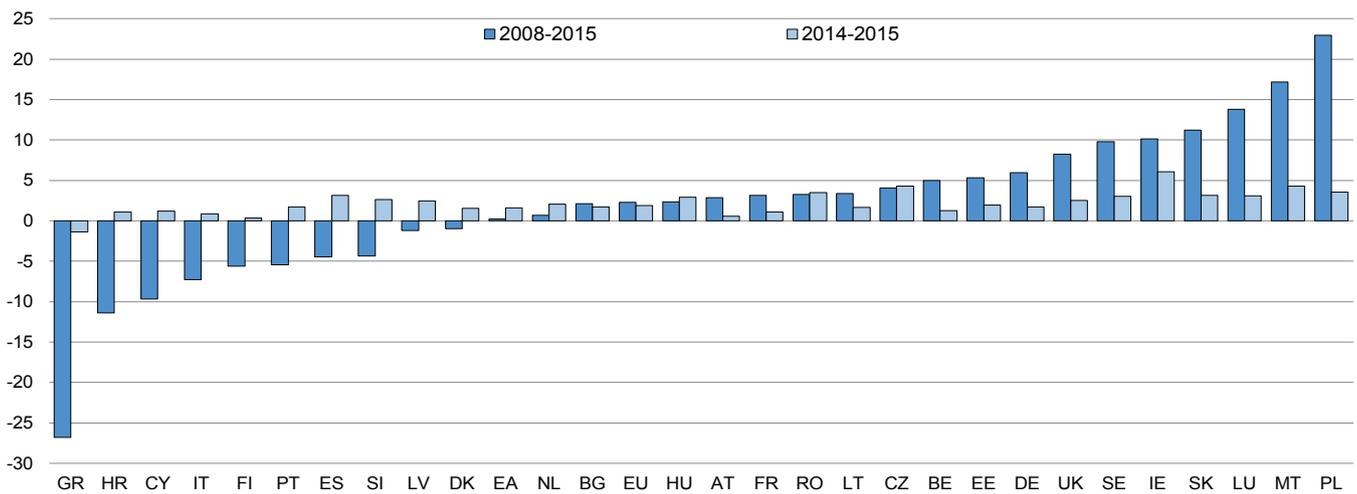
The European Commission is foreseeing a continuing rapid growth in exports, but that is threatened by slowdown elsewhere in the world. Three factors are important here. The first is the slower growth and uncertainty in China and a number of other developing countries. The second is the uncertain effect of lower commodity prices, and especially of the price of oil and gas. That leads to reduced demand from commodity exporters. There should be a compensating benefit from lower domestic prices stimulating domestic demand, but that

will be hampered by continued fiscal and wage restraint within the EU. The third important factor is the uncertain effects of political instability. Exports to Russia fell in 2014 possibly by as much as 14.5%, with continuing decline likely following the fall in oil and gas prices. Separating out effects of the various sanctions applied by both sides is very difficult, but the estimated overall effect is likely to be a reduction in EU GDP of 0.3% in 2014 and 0.4% in 2015.

Prospects would be better with a stronger orientation towards domestic markets. In fact, total domestic demand is predicted to grow no faster than total GDP. Faster growth is foreseen within domestic demand for investment, primarily in machinery. The seriousness of the situation has been recognized by Jean-Claude Juncker with his warnings of the existential threat to the EU if economies do not recover. His method for stimulating investment, and some reasons for doubting its effectiveness, will be discussed in a later section.

Economic developments: modest recovery underway

Figure 1.2 Change in real GDP, 2008 to 2015 (%)



Source: Calculated from AMECO database, GDP at 2010 constant prices. Note: 2015 figures are estimates.

Diverging economic recoveries

Figure 1.2 shows differing GDP growth performances across countries. All countries, apart from Greece, were returning to some degree of growth in 2015, but with considerable differences in how they had fared over preceding years.

There is no easy division between east and west, between north and south, or between the eurozone and the rest of the EU. There have been good and bad performances from all of these categories such that overall the crisis and its aftermath have not significantly reduced divergences within the EU. Some lower-income countries have moved up. Between 2007 and 2015 IMF data show Poland moving from a per capita GDP, measured by purchasing power parity, of 55% to 70% of the EU average. Portugal and Greece declined in the same period from 78% and 93% respectively to figures of 73% and 68% of the EU average (<http://www.imf.org/external/pubs/ft/weo/2015/02/weodata/index.aspx>).

Differences between countries' performances reflected three influences. The first was the extent of exposure to the effects of the financial crisis of 2008. The second was the scope for increasing

exports as a basis for growth in a period of depressed internal demand. The third was the policies chosen by, or imposed upon, the country in question. Thus the crisis of 2008 hit hardest those countries that had become dependent on inflows of credit from abroad. The collapse of construction booms in Ireland, Spain and the Baltic Republics cut out significant parts of GDP. The downturn after 2010 was most marked in countries pushed into the severest austerity measures after facing sovereign debt problems, mostly following crises in private banking.

Poland was something of a star with GDP that increased by 23.0% between 2008 and 2015 – not that this appears such a feat when set against this country's previous growth performances. It was not severely hit by the banking crisis of 2008 – it had not been dependent on credits from outside – and it continued with planned public investment projects while others were cutting back.

Recoveries in other countries, such as the Czech Republic, Slovakia, Ireland and Spain, were all helped by exports. However, domestic demand was held in check and none of these reached pre-crisis growth rates. The three Baltic Republics had been heavily dependent on financial inflows supporting domestic construction booms. They experienced exceptionally deep initial depressions followed by reasonably strong recoveries, helped by public investment financed to a great extent

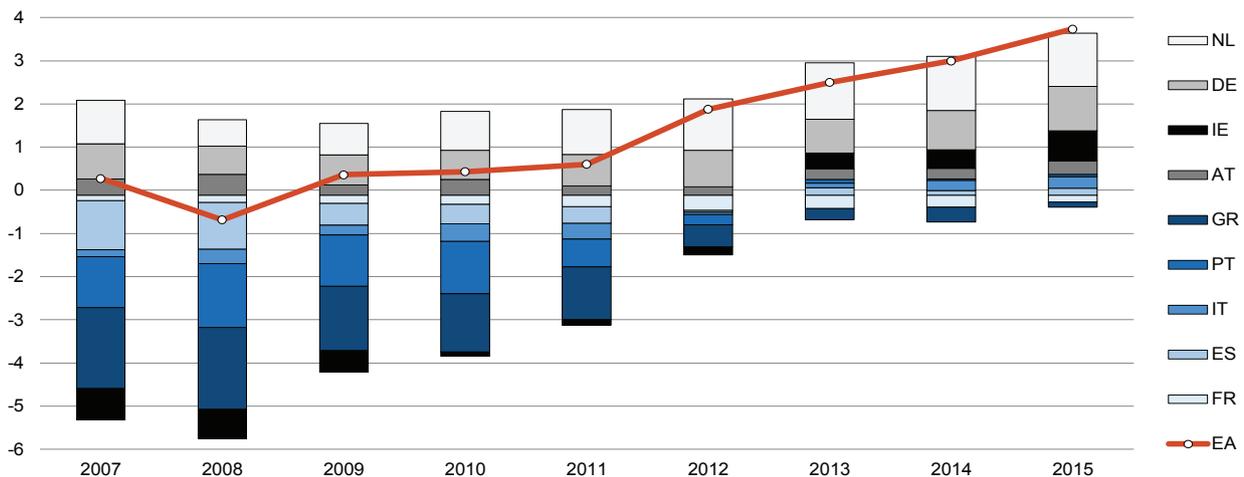
from EU sources, which slowed down from 2013.

The UK experience was rather different. Its export performance was weak, but it had pursued less vigorous austerity policies than eurozone members and continued to run budget deficits that would not be allowed within the eurozone rules. Plans for coming years include further cuts in public spending, aimed at achieving a balanced budget, which may threaten continuation of its current growth rates.

A remarkable feature of 2014 and 2015 was the slowness of recovery in core eurozone countries. Germany's post-2008 growth had depended heavily on higher exports. Determination to achieve a budget surplus inevitably depressed domestic demand, the most important element in total demand, and hence GDP. There was some change in 2015, with private consumption expenditure rising slightly faster than GDP (by 1.9% compared with 1.7%) and at its highest rate in all but one year since 2001. This stimulus from domestic sources is likely to continue with the effects of the newly introduced minimum wage, of higher disposable incomes following fuel price reductions, and of increased immigration. Germany will thereby, albeit belatedly and half-heartedly, offer a little stimulus to demand across the EU. In view of its budget and balance of payments positions, discussed in the next section, it could do much more.

Macroeconomic developments and policies: asymmetric rebalancing of the current account

Figure 1.3 Current account balance euro area (with the rest of the world) (% of GDP) and selected euro area member states 2007-2015



Source: AMECO (UBCA).

Asymmetric rebalancing leads to weak demand

The significant divergence in current account balances among member states with which the EU but in particular the euro area entered the crisis in 2008 has been reduced with the elimination of the previous large deficits in several member states, as shown in Figure 1.3. Although current account balances are often identified with trade balances (that is, the difference between exports and imports), they can also be understood as the result of an economy consuming and investing in more (deficit) or less (surplus) resources than it produces domestically.

However, as Figure 1.3 suggests, this reduction of the current account deficits in some member states (Greece, Portugal, Spain, Ireland) was not matched by a reduction of surpluses in countries previously in surplus, such as Germany and the Netherlands. On the contrary, their current account surpluses rose since 2008 to reach 8.7 and 10.5% of GDP respectively. Thus, there were policies that led to lower demand in deficit countries without being matched by policies to stimulate demand in surplus countries.

Overall, the euro area moved from a near-balance (0.3) or slight current account deficit (0.7) in 2007-8 to a rising surplus of 3.7% of GDP in 2015. Taking the interpretation of current account balance given above, this means that consumed and invested resources in the eurozone as a whole are lower than those produced, or that domestic demand is too low compared to supply. A current account surplus is likely to put pressure on the euro to appreciate, especially when the ECB decides to abandon its currently expansionary policy stance, making euro area exports to the rest of the world more expensive.

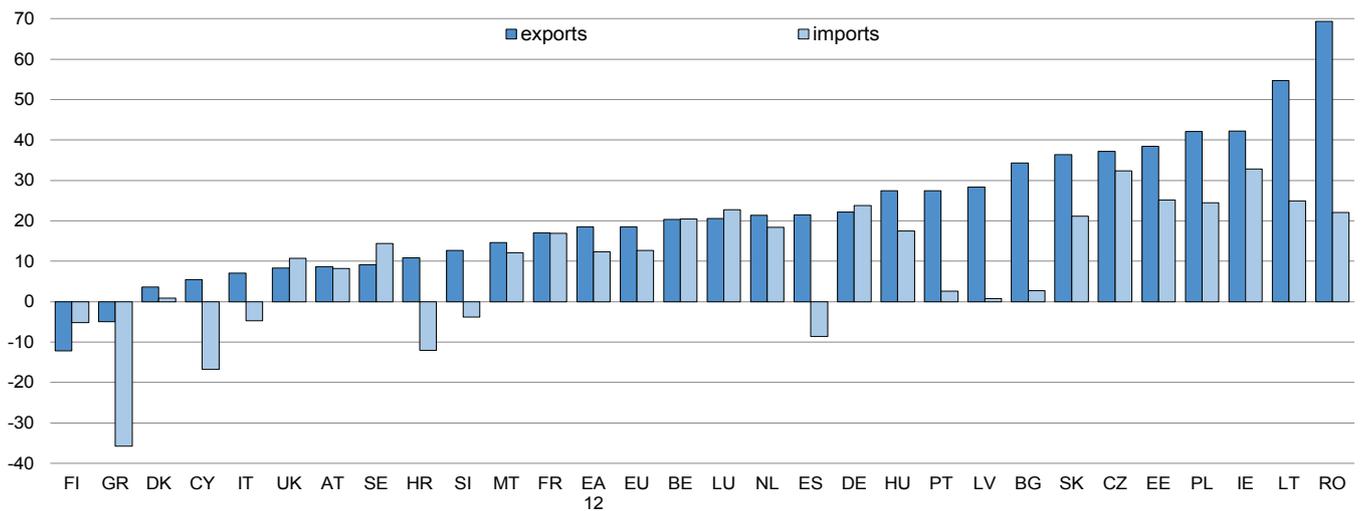
This asymmetric external rebalancing and its consequences for the euro area and, thanks to the close interconnection, the EU economy as a whole have not gone unnoticed even by the European Commission in its most recent Alert Mechanism Report (European Commission 2015e). In fact, the acknowledgement that the fiscal stance in the euro area as a whole should be taken into account in addition to national policies is a welcome development (European Commission 2015b; European Commission 2015a), although the view that a neutral fiscal stance is currently appropriate is not (on which more below).

However, the economic governance tools in place, that is, the EU fiscal rules and the Macroeconomic Imbalances Procedure, do not provide much leverage to

enforce developments in national fiscal policies that would deliver the necessary stimulus in aggregate demand. The Macroeconomic Imbalances Procedure treats current account surpluses less strictly than current account deficits, thus placing the onus of adjustment on deficit countries.

Restoring external balance by cutting demand

Figure 1.4 Percentage changes in exports and imports, 2008-2015, 2010 prices



Source: Calculated from AMECO database. Note: 2015 figures are estimates.

Export growth not due to policy choices

Figure 1.4 shows the growth in exports and imports of goods and services from 2008 to 2015 that lies behind the current account changes discussed above (page 10). Exports, which had grown by 18.6% for the EU as a whole, were well in excess of imports, leading to the EU’s overall surplus. The European Commission had wanted to see improved current account positions in a number of member states, so this could appear as a good result. However, it was only the drop in imports that followed from policy choices. Rising exports had quite different causes and the resulting surplus was linked to depressed demand within the EU.

A key argument was that exports could be increased by holding down labour costs, so that unit labour costs across the whole economy became a target for judging countries’ performance. However, this is of little relevance to international competitiveness partly because it includes non-trade sectors: labour costs are reduced by cuts in public sector pay which have no direct bearing on export prices. It is of little relevance

also because competition is much more a matter of product quality which is poorly taken into account in the unit labour cost measure (as discussed with country examples in Myant *et al.* 2016). In fact, changes in this measure clearly explain very little of the export performances shown in Figure 1.4.

Variation between countries is enormous. A number saw rapid growth, as established markets recovered from the crisis. This often came with higher unit labour costs and higher export prices (for example rising by 4% and 1% respectively for Estonia from 2008 to 2014). Ireland saw exports still expanding strongly in 2015, with much lower unit labour costs for the whole economy, following public-sector pay cuts, but higher pay in exporting sectors and higher export prices. The key here, as in other cases, was a shift to higher quality products (Myant *et al.* 2016 for country evidence).

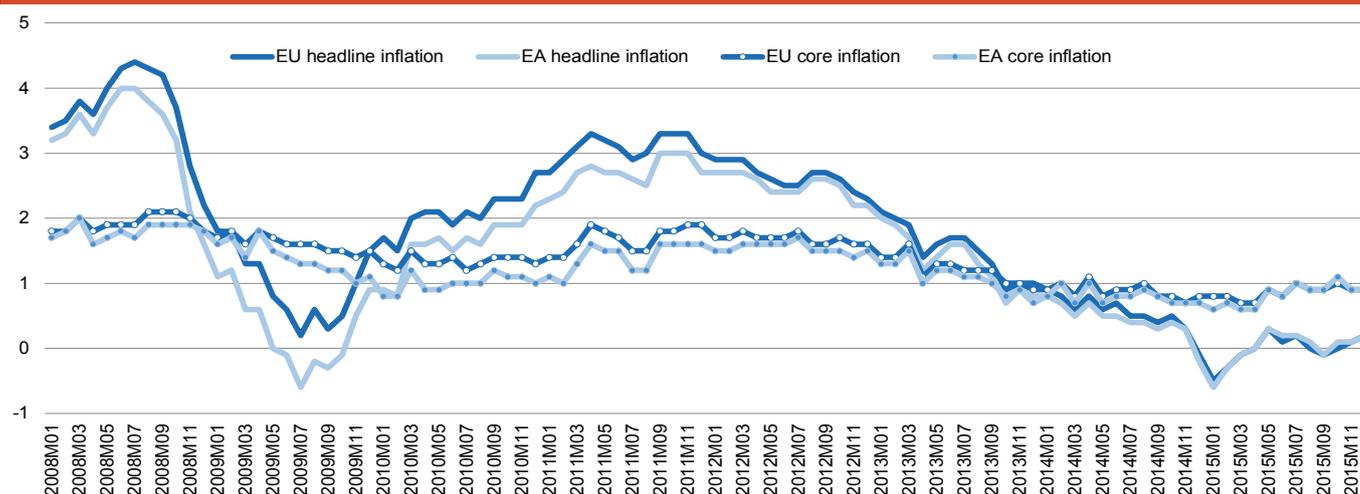
Two dramatic failures in terms of exports were Greece and Finland. Unit labour costs were reduced by 13% in the former case, but this led to no export boom because Greece lacked the necessary base in modern, export-oriented industries. Unit labour costs in Finland increased by 8% between 2008 and 2014, but export prices fell by 3.4%, ostensibly increasing its cost competitiveness. In fact, the key issue was the failure of Nokia, leading to less exports and also lower quality exports. Reducing wages

and imposing economic austerity did little beyond depressing overall demand and causing depression across the Finnish economy.

Imports follow a more consistent pattern across countries: those undergoing the severest austerity suffered lower domestic demand and hence big import reductions. The biggest deficit by 2015, at 4.3% of GDP, was found in the UK, a country which had seen little change in either exports or imports compared with pre-crisis levels. Not being a member of the eurozone, the UK had not been required to implement the most vigorous austerity policies which would presumably have restored external balance by cutting domestic demand and hence imports.

Macroeconomic developments and policies: deflation and monetary policy

Figure 1.5 Headline and core inflation in the EU and the euro area (Harmonized Index of Consumer Prices - All items and excluding energy, food, alcoholic beverages, tobacco and oil) (annual % change)



Source: Eurostat (prc_hicp_manr series).

Inside the liquidity trap

Figure 1.5 shows the falling rate of inflation using different possible measures. The headline inflation rate (Harmonised Index of Consumer Prices-HICP) in the EU and the euro area turned negative around the end of 2014/first quarter of 2015, having started to decline from the target of 2% back in 2013. The EU-average core inflation – the overall price index excluding energy and unprocessed food whose prices tend to change according to seasons and which is thus more likely to reflect expectations about inflation – fluctuated between 0.7 and 0.8% between December 2014 and June 2015. In 2015, core inflation was negative or below 1% in 18 out of 28 member states, with Bulgaria and Cyprus experiencing core deflation, that is, negative core inflation rates. In late 2015 the vast majority of eurozone member states had core inflation rates that were positive but well below the ECB’s target rate of 2%, and in most cases lower than 1%.

These developments (as well as others on indicators not mentioned here, see European Commission 2015e; European Commission 2015b; Theodoropoulou 2015 for more) suggest that the objective

of stable price increases at around 2% per year is currently not being met. Inflation is well below the rate it is supposed to be. This is problematic insofar as expectations about inflation are shifted downwards below the target of 2%. Lower inflation leads to higher real debt burden and makes relative real wage adjustments across sectors or countries harder.

The effect of the recent negative oil price shocks and the earlier appreciation of the euro notwithstanding, the hovering of core inflation in the EU and the euro area well below 2% is yet another indication of the persistently low demand and anemic growth in the European economy and especially the euro area.

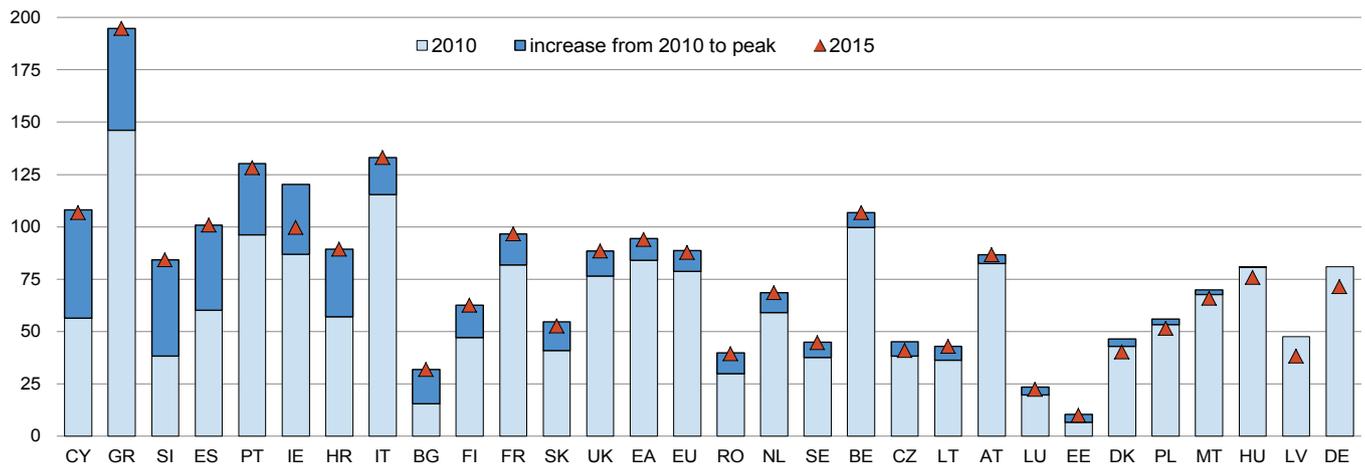
Following early years of rather reticent responses, the ECB’s main interest rate was lowered to 0.05% in September 2014. The Bank had announced earlier in 2013 that it expected interest rates to remain at low levels for the foreseeable future. As of March 2015 the ECB, in the context of its ‘Expanded Asset Purchase Programme’, started buying euro area public sector securities thus strengthening its programme of quantitative easing whose purchases had begun in autumn 2014. Quantitative easing is an unconventional monetary policy whereby the central bank buys financial assets using money it has created and which thus is injected into the economy (see ETUI and ETUC 2015). Up until now, the total amount of money that has been injected

amounts to 700 billion euros (equivalent to about 7% of eurozone GDP). The latest phase of the QE policy is due to last at least until March 2017 and may be extended further if inflation is not on a path to reach the target of 2%.

However, monetary policy is not averting the threat of deflation. So far, the most tangible effect of the QE has been the depreciation of the euro with respect to other important currencies, which may have helped exports although, as indicated above, other factors are also important (page 11). In general, as indicated above, growth has failed to pick up. This should not come as a surprise, given that the European economy seems to have fallen into a so-called ‘liquidity trap’, whereby, with interest rates at zero and demand prospects weak, households and firms are reluctant to put any cash they hold (including the newly injected cash by the ECB) into consumption or investment and instead hoard it. As the next section shows, this prolongation of economic depression is not solving the problems of debt, neither public nor private.

Macroeconomic developments: the debt overhang in the public sector

Figure 1.6 Gross government debt as a share of GDP (%), EU28 member states, 2010, 2015, increase from 2010 to peak value 2010-2015 (p.p.)



Source: AMECO (UDGG series), own calculations

The limits of fiscal austerity

Figure 1.6 shows the evolution of gross public-debt-to-GDP ratios from 2010, when the shift to fiscal austerity took place in most of Europe (with the exception of the Baltic states where adjustment had taken place earlier), the change in the ratio between 2010 and its peak value in the period 2010-2015, and its value in 2015.

In the vast majority of member states, public debt/GDP ratios continued to rise even after 2010 when the fiscal policy stance became restrictive. The largest increases were in fact observed in the member states that faced sovereign debt crises and received bail-outs and/or suffered deep recessions.

In only 12 member states was the public debt/GDP ratio in 2015 below the highest point it had reached in any year after 2010; in only 6 countries was the 2015 ratio lower than that of 2010.

On average, in both the EU and the euro area the public gross debt/GDP ratio increased by 10 percentage GDP points between 2010, when it stood at 79% (EU) and 84% (EA), and its peak in 2015.

In 2015, Greece and Italy were the two countries with the highest debt/GDP ratios, at 195% for Greece and 133% for

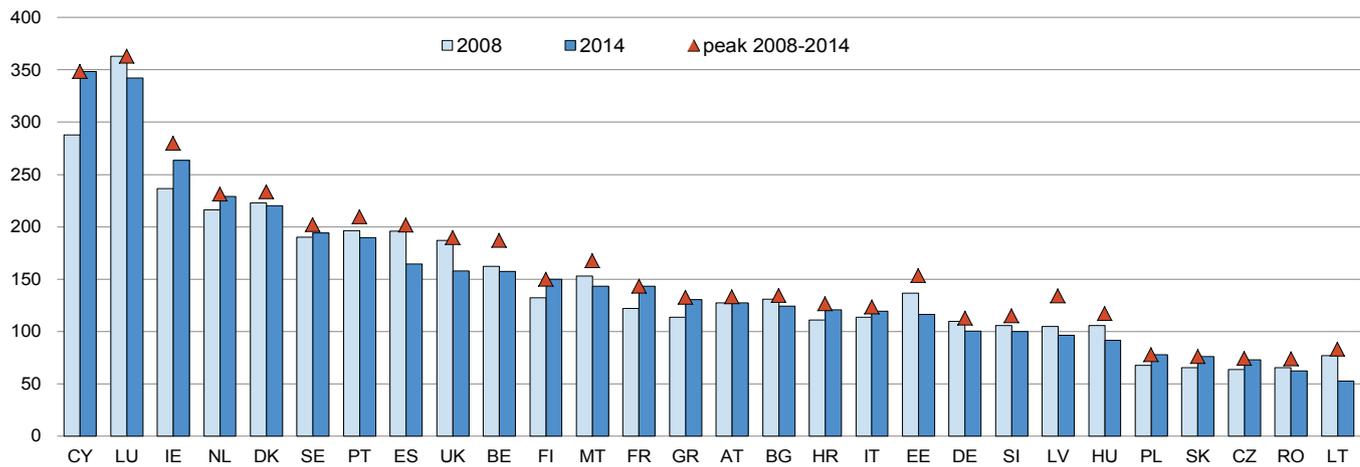
Italy, which was closely followed by Portugal at 127. At the other end of the spectrum, Estonia with 10% and Luxembourg with 22% had the lowest ratios.

Overall in 2015, 11 member states had debt/GDP ratios at or below 60% which is the limit of the EU fiscal rules, a limit which reflected the average debt/GDP ratios in the EU when the Maastricht criteria were set (de Grauwe 2014), while another five, including Germany, the Netherlands and Finland, were below 80%.

The evolution of the public debt/GDP ratios suggests the limits of fiscal austerity in putting public finances on a sustainable path as, in spite of a significantly restrictive fiscal stance, debt has not been coming down due to the weak output growth.

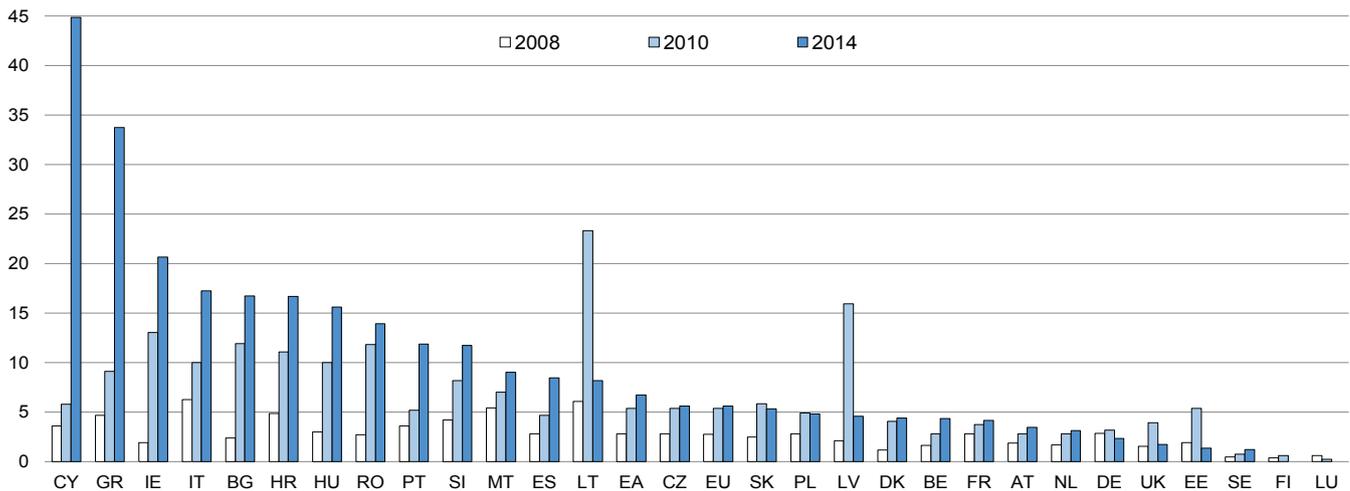
Macroeconomic developments: private sector debt and non-performing loans

Figure 1.7 Private sector debt (consolidated) as share of GDP (%), 2008, 2014 and peak 2008-2014



Source: Eurostat (tipspd20 series), own calculations.

Figure 1.8 Bank non-performing loans as share of total gross loans*, EU member states



Source: World Bank Development Indicators. *gross value of loan reported in bank balance sheet, not just the part that is overdue

Private sector debt overhang

Figure 1.7 illustrates that private sector debt is still high in several member states and has been falling as households and firms have been trying to reduce it ('deleverage') following the crisis and the uncertainty it has brought with it. When this happens, it means that increases in

the amount of money in the economy are unlikely to be taken up and used for consumption and investment when households and firms are more preoccupied with reducing their debt and/or are uncertain about economic prospects.

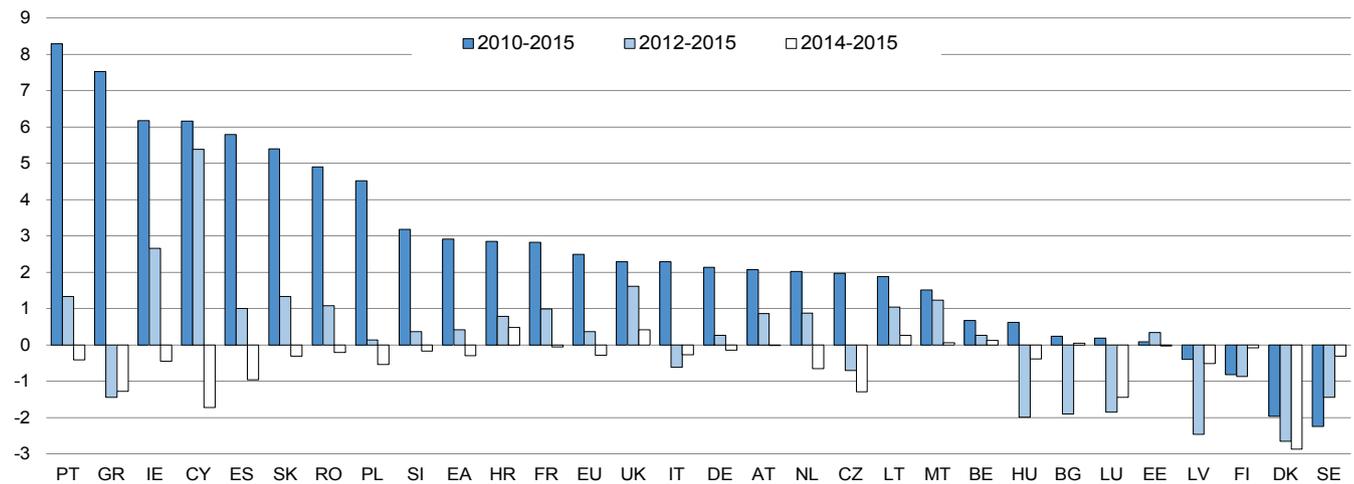
On the other hand, Figure 1.8 shows the share of non-performing loans as a share of total loans in EU member states. There has been an increase on average and a substantial increase in several member states which faced the deepest recessions since 2008. This means that financial institutions in these member

states are less likely to extend credit as they receive more liquidity in order to improve their balance sheets.

These developments further underline the fact that, under the current circumstances, monetary policy alone is unlikely to bring about recovery and that what is needed instead is a coordinated fiscal expansion in the EU with emphasis on public investment.

Macroeconomic developments and policies: fiscal policy

Figure 1.9 Fiscal stance: cumulative change in the structural government balance, excluding interest payments (p.p. of GDP), EU 28 member states, 2010-2015



Source: AMECO (UBLGBPS), own calculations.

Fiscal stance easing but more is necessary

The year 2015 marked a turn of fiscal stance in the EU from restrictive to neutral. That is, whereas the balance between those public revenues and expenditures that are at the discretion of governments had previously been in surplus, it now moved in the direction of a slight deficit; in other words, discretionary spending began to slightly exceed revenue. This turn comes at the tail of a six-year period of fiscal consolidation in the face of the greatest post-war recession in Europe and in particular in the euro area. The change in fiscal policy stance is observable even in member states that faced sovereign debt crises and had to be bailed out, such as Portugal, Greece, Ireland, Cyprus, Spain and Romania.

In the latest Annual Growth Survey, the European Commission (2015b) called once more for ‘responsible fiscal policies’ which it defines as, among others, policies of fiscal consolidation that is growth- and equity-friendly (on which see Chapter 2) and social protection systems that can efficiently respond to risks

throughout the lifecycle while remaining sustainable (again, see Chapter 2).

Is this neutral stance an appropriate fiscal policy stance for growth? Although it is arguably better than further tightening (that is, revenues being larger than discretionary spending), the EU and in particular the euro area need and should have more fiscal expansion. On the one hand, the output gap, that is, the difference between actual demand and what the euro area can produce, is still negative. On the other hand, we have seen that the euro area as a whole has a high and rising current account surplus, which means that consumption and investment absorb less than what the area produces. There is therefore a clear need to stimulate demand.

Moreover, monetary policy at the moment is not capable of delivering this stimulus. This is why under the current circumstances of weak demand and near zero interest rates, fiscal policy has to take a more active role than usual in stimulating the European economy.

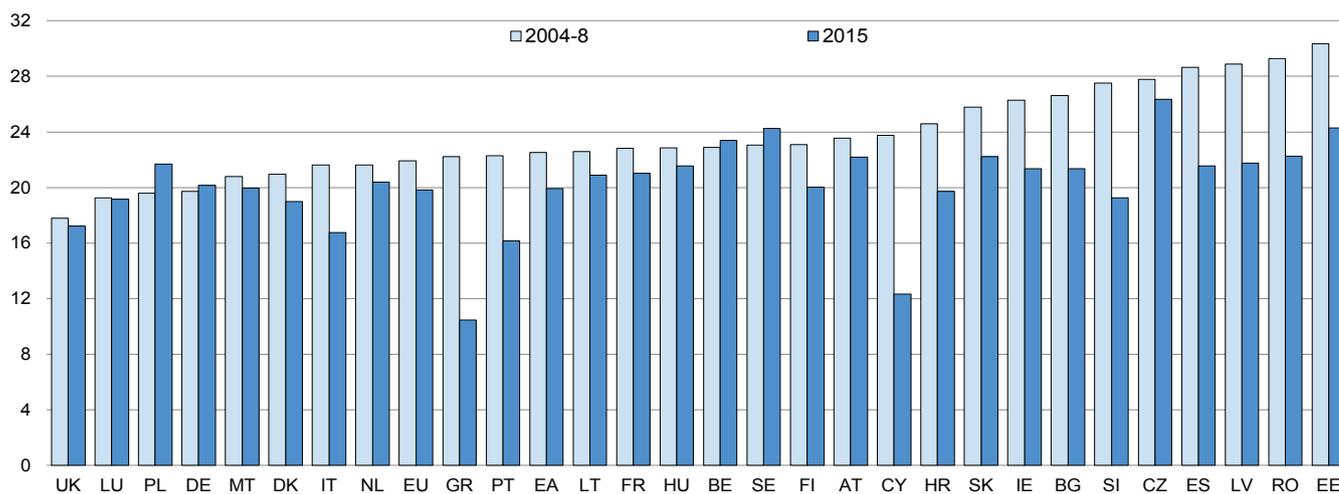
What is more, several governments (for example Germany) can at the moment borrow at virtually zero interest rates. This is a unique opportunity for borrowing to finance spending on public investment, the need for which is clear as discussed below in relation to climate change, to the need for more investment in research activities and, in general, for a more substantial investment plan at the European level.

The current fiscal rules cannot force a national government to spend more rather than less, as they have an asymmetric focus on deficits. However, recent proposals of the European Commission for taking into account the situation in the euro area as a whole (European Commission 2015e; European Commission 2015b) in determining national fiscal policies could be used for putting stronger pressure on member states with fiscal space to adopt more expansionary fiscal policies.

Moreover, it would not be possible to interpret eurozone rules more creatively to accommodate some expansion. For example, a ‘Golden Rule’ for public investment, which would exclude public expenditure for net public investment from the calculation of government budget deficits, could be incorporated into the application of the Stability and Growth Pact rules (see Feigl and Truger 2015 for a detailed proposal) and combined with an expanded conception for an EU investment plan (see below page 16).

Renewing growth through investment

Figure 1.10 Gross fixed investment as % of GDP, 2004-8 and 2015



Source: Calculated from AMECO database, using 2010 constant prices.

An EU plan promises too little

Figure 1.10 shows that investment fell dramatically in the aftermath of the crisis and by considerably more than GDP (see page 9). Its 2015 level was 15% below the peak of 2007, using 2010 prices. Total fixed investment fell from 22.0% of GDP in the 2004-8 boom period to 19.8% in 2015. In some countries – notably Germany, Austria and Sweden – there was little net change over this period. For some, by way of contrast, the drop was enormous: Cyprus, Ireland, Greece, Latvia and Spain all saw falls in investment equivalent to over 10% of their GDPs. Most of the decline was in private investment, including housing construction and industry, but in Ireland, Spain and Greece public fixed investment too fell by more than 50%.

Though some past investment may well have been misguided, all countries have demonstrable needs for investment to cope with the challenges of the future in transport and communications, education and research, climate change, energy, environment, and ageing of populations. Yet, as Figure 1.10 shows, investment levels are extraordinarily low in a number of EU countries, leaving

large numbers of unemployed and much unused capacity.

A revival in investment activity would provide an immediate stimulus to demand. It is also essential for long-term growth and for overcoming divergences and inequality within the EU. In 2013 the ETUC presented a proposal for an investment plan (ETUC 2013) that would increase investment by the equivalent of 2% of GDP every year over a ten-year period.

A more modest plan from European Commission President Jean-Claude Juncker proposed the investment of 2.4% of EU GDP over three years. This was to be built up on an EU guarantee of €21 bn, enabling the EIB to raise finance on commercial markets and increase lending by €63bn. Private finance would then support chosen projects to reach a full level of investment of €315bn. There was not thought to be any problem with raising this finance, in view of exceptionally low interest rates on government borrowing, as indicated above (see page 15).

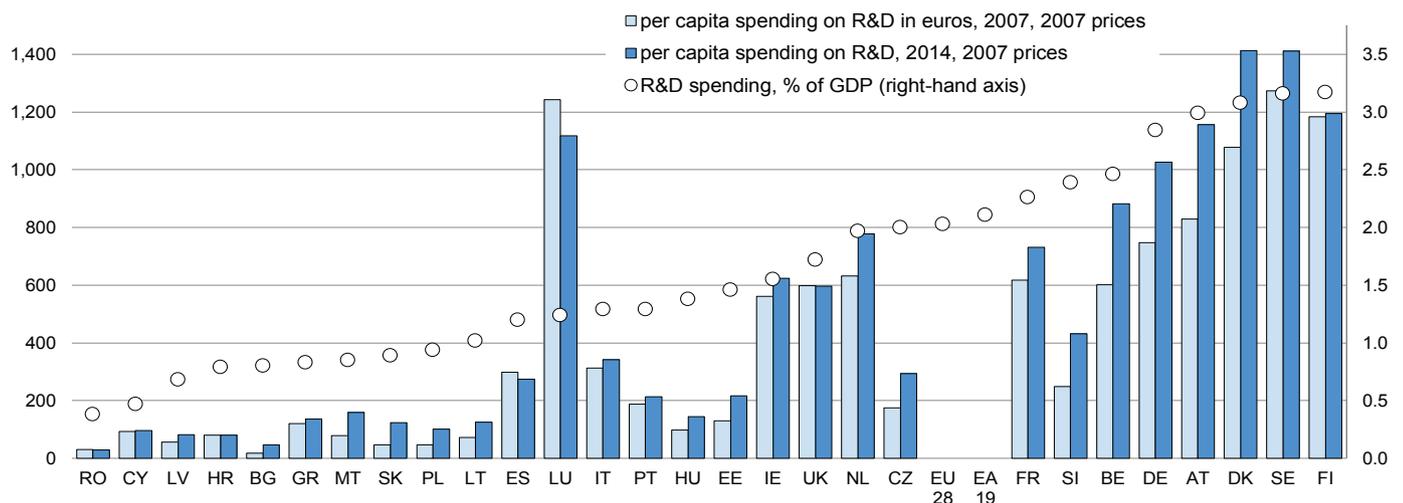
Reaching of this target – which would be enough to make up for no more than about a third of the fall in investment since before 2008 – was dependent on a leverage rate that was conceivable only for very safe investment. That would always be difficult for public sector projects in lower-income countries, particularly those constrained by the eurozone rules that restricted state borrowing

and budget deficit levels. Indeed, among the first 21 projects approved by the EIB by the end of September 2015, over 90% of investment foreseen was in countries with per capita GDP levels above the EU average.

Thus the plan is making slower progress than originally hoped. Nor is it helping to reduce divergences across the EU insofar as it is primarily benefitting countries that could have afforded the investment even in the absence of special EU help. Improvements to the arrangement would include more solid public funding and relaxation of the eurozone rules for all aspects of the investment plan. That would mean allowing repayment of debts and permitting current spending such that new public-sector facilities, such as education and research, could function once built.

The ups and downs of Research and Development

Figure 1.11 Research and Development spending per capita (€), 2007 and 2014, and as % of GDP, 2014



Source: Eurostat.

Widening gaps in innovation potential

Figure 1.11 shows spending on Research and Development in member states using two measures. The measure of total spending as a percentage of GDP relates to the target set in the Europe 2020 agenda of reaching a level of 3% of GDP, a benchmark that, by 2014, had been achieved by only three countries.

R&D remains an area of great and persistent inequality across the EU. The extent of the differences is shown even more clearly by figures for R&D per capita. Lower-income countries spend much less on research. Sweden spends 49 times as much per capita as Romania. In a few cases, including Romania and Spain, the per capita level even fell between 2007 and 2014. Elsewhere, including in a number of lower-income countries, there were substantial increases.

Concentration of research towards higher-income countries also follows from those differences in income levels, as research workers are generally highly mobile and can move to the country where pay is best. Public spending and support for research and higher education

institutions are additional crucial factors and the weakness or absence of this infrastructure places lower-income countries at a massive disadvantage.

Overcoming these obstacles depends on action at the EU level. Structural Funds and EIB investment were essential in practically all public sector development of research infrastructure in central and eastern Europe in the 2007-14 period and hence in improving – sometimes very significantly – the position of a number of those countries. Spending on R&D does not guarantee an innovative economy. That depends on the structure of R&D spending and on the institutional environment that can lead to its productive use. In respect of both these conditions, there are large differences across EU member states.

In countries with higher levels of per capita R&D spending a higher proportion of that spending generally comes from business enterprises. Thus for Estonia and the Czech Republic, two newer member states close to the average level of spending relative to GDP, business enterprises accounted, respectively, for 43% and 56% of R&D spending in 2014. In Germany and Finland, two countries closer to the top of the league, the figure was 68%.

A second issue is the extent of investment in R&D. Capital investment per capita in Estonia and the Czech Republic was higher than in Sweden. This

could bode well for the future, but it also means that productive applications are some way away and dependent on funding for running facilities once completed. Construction up to now has depended heavily on EU support. In some countries per capita levels of investment are pitifully low, falling to 5% of the EU average for Bulgaria, thereby pointing to continuing substantial divergence in the future.

The third issue is the ability of a country to convert the results of research into productive activities. Private and public-sector users of research outcomes need to have contacts, knowledge, incentives and sources of finance. This too accentuates the inequalities between countries, encouraging a continued concentration of innovation. A wider strategy for restoring sustained growth through a knowledge-based economy, extending beyond the established core of the EU, needs to include means to bring expertise and capital to those who can develop innovative ideas in all countries. An expanded investment plan, beyond the limited version currently being developed by the European Commission and the EIB, could make a significant contribution.

After COP21 in Paris: the decarbonisation challenge

Figure 1.12 Annual emissions to 2030 for the EU, US and China, global COP21 pledges and the 2°C pathway

Emitter (COP21 pledges)	Annual emissions (Gt CO ₂ e*)			
	1990	2005	2010	2030
EU (40% below 1990 levels by 2030)	5.4	4.9	4.4	3.2
US (28% below 2005 levels by 2025)	5.4	6.2	5.9	3.8
China (peaking emissions by 2030)			10.8	15.3
Total (EU-US-China)	—	—	21.1	22.4
Rest of the world			26.2	35.4
Total global emissions			48.5	57.8
Global emissions path needed for the 2°C target by 2100				42
Emissions gap between pledges and the 2°C path				15.8

Source: UNEP (2015). * Gigatons of CO₂ equivalent.

Huge emissions gap after Paris

The 21st annual session of the Conference of the Parties (COP) to the 1992 United Nations Framework Convention on Climate Change (UNFCCC), the COP21 Paris, was presented as a last chance to reach a global agreement to control climate change caused by human activity. The agreement that was signed by 187 countries in December 2015 contained four important pillars:

- **Long-term goal:** To keep global temperature increase ‘well below’ 2°C and to pursue efforts to limit it to 1.5°C.

- **Differentiation:** Industrialised countries are expected to reduce greenhouse gas emissions at a faster rate than developing nations and are also expected to provide financial assistance and technology transfer to help developing countries transition to a low-carbon economy.

- **Reviewing targets:** Going forward, targets will be reviewed every five years, supported by an accountability system to track progress.

- **Transparency:** In the absence of penalties for countries that fail to meet their targets, signatories are invited to report on their emissions and steps taken to reduce them.

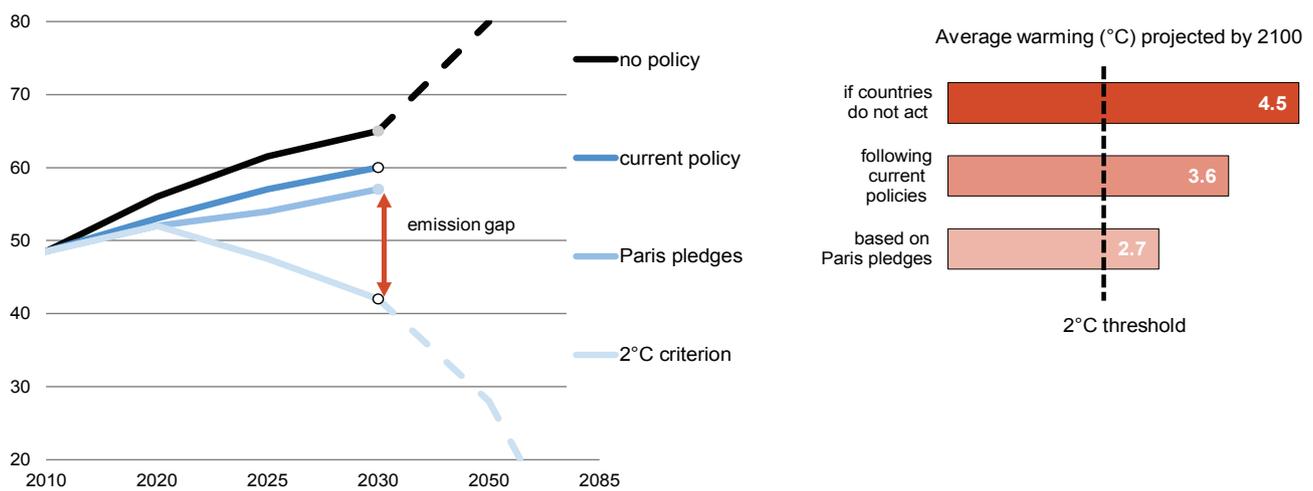
The fact that 187 countries made commitments with the aim of limiting the world temperature increase to 2°C (and possibly 1.5°C) must be judged positively. However, the targets will not be achieved without very substantial policy changes. The ‘Nationally Determined Contributions’ (NDCs) – the commitments made by individual national governments – do not add up to enough of a reduction in carbon emissions to reach that goal, even assuming that they will be achieved. Figure 1.12 shows what would be needed set against what has been promised. The EU is committing to cutting greenhouse gas emissions to 40% below their 1990 level in 2030. The USA is committing to slightly less, while China will be allowed an increase. These three together accounted for 43.7% of global ghg emissions in 2010 and will still be responsible for approximately 38% by 2030.

In relation to the Paris target, this will be inadequate. These and other individual commitments mean that the world will still be running well above the trajectory leading to the goal of a temperature increase of no more than 2°C. Figure 1.11 shows how much the world will be falling behind. Total world emissions from 2010 to 2030 will have increased from 48.6 gigatons (Gt) to 57.8Gt while following the target path would signify a reduction to 42Gt. Thus the more difficult adjustments have been pushed further into the future. Calculations show

that global carbon neutrality (net-zero emissions) needs to be achieved between 2055 and 2070. Carbon neutrality, or having a net zero carbon footprint, refers to achieving net zero carbon emissions by balancing the amount of carbon released with an equivalent amount removed from the atmosphere. As industrialised countries are expected to reduce ghg emissions faster than developing countries, for the EU this means net zero emissions by as early as 2050. Policies are currently not in place to achieve this, as indicated in the following section.

After COP21 in Paris: the challenges for Europe

Figure 1.13 Global CO₂ emission scenarios after Paris COP21 (GtCO₂e*)



Source: UNEP 2015. * Gigatons of CO₂ equivalent.

Source: Climate Action Tracker 2015.

More stringent 2030 climate targets needed

On the basis of the UNEP (2015) Emissions Gap Report, Figure 1.13 (left side) summarises the main policy scenarios between 2010 and the end of the century. The 'baseline' (no policy intervention) leads to a very dangerous world temperature increase. While the 'current policy trajectory', 'Paris INDC pledges' and '2°C warming pathway' point to progressively better outcomes, the gap even from the Paris pledges to the 2°C pathway remains enormous. Figure 1.13 (right side) shows that according to expert calculations by the independent Climate Action Tracker 2015 (<http://climateactiontracker.org/>), if all COP21 pledges are fully implemented, global temperatures would still be rising too rapidly to the end of the century. The EU needs to reassess its climate and energy targets for 2020 and 2030 and redefine a pathway to net zero emissions by mid-century.

The EU has already promised to increase its 2020 greenhouse gas reduction target to 30% if there is global action on climate change; this condition has now been met. The 2030 targets of 40%

ghg reduction could therefore be redefined in accordance with a pathway to reach net zero ghg emissions and an exit from fossil fuel by 2050.

Individual member states have adopted targets based on their capabilities, but performance relative to national targets is uneven. Cyprus, Malta, Spain, Portugal and Ireland have the worst performance, while the new member states (with the exception of Poland) are among the best (EEA 2015). To achieve overall targets, a 27% EU target for the share of renewable energy by 2030 would need to be revised upwards. As shown in earlier reports (ETUI and ETUC 2013), there are a number of underperforming member states, in particular Malta, Luxembourg, the UK and the Netherlands. A comprehensive overview of the EU climate and energy policy targets is thus necessary.

Another area for improvement would be the EU's emissions trading. This was established in 2005 and allowed enterprises to buy at significant cost the right to greenhouse gas emissions. The hope was that this would prove a flexible means towards reducing emissions overall. These permits can be bought and sold between enterprises. However, the economic crisis led to an over-abundance of permits and their price fell such that the disincentive to emit greenhouse gases was reduced. To counteract these negative effects CO₂ allowances need to be withdrawn from the market; and yet a

Commission initiative to this end backed by the European Parliament was blocked by a coalition of member states in the European Council. It is high time now to ensure that pre-2020 surplus emissions permits are not carried over to the post-2020 phase of the emissions trading system.

Investment in clean energy could be boosted with the help of an expanded version of the EU's investment plan, while a proper, substantially higher, carbon price should provide incentives for a speed up of the transition. At historically low fuel prices a levy or tax on fuel should be imposed with revenues channelled into clean energy incentives.

Faster greening and decarbonisation also mean that jobs and skill needs will change at a faster pace than previously thought. Going beyond the Europe 2020 Strategy and also the 2030 Climate Package, the European policy framework on the transformation to a zero-carbon economy needs to be strengthened and to include guidance for member states to develop appropriate education and skills development and labour market policies that facilitate the transition. In this regard there could be an EU-level support mechanism providing assistance to employees from sectors where rapid employment decline is anticipated. Employees in energy-intensive industries cannot be left without support.

Conclusions

Dangers ahead without new policies

The European economy has been slowly and hesitantly pulling out of recession. The peak pre-crisis level, reached for the EU as a whole in 2008, was narrowly exceeded in 2014 and surpassed by 2% in 2015. However, this has come with a reorientation of the EU economy towards external demand, leaving growth more dependent on developments elsewhere in the world. The signs of slowdown in China and a number of other countries, the uncertainty in Russia, and the unpredictable effects of falling oil prices – cutting demand from oil-producing countries – all threaten the future stability of the EU economy.

The European Commission's rhetoric and the accompanying policy measures suggest no awareness of either the depth of the problems or the extent of policy change required to tackle them. There has been a verbal recognition that past policies had failed and that a big change is needed if GDP and employment growth are to be restored and maintained, but this has led only to half-hearted and uncoordinated responses. The key obstacle remains continued adherence to the eurozone's fiscal rules.

There has been a little movement. The overall fiscal stance has moved from restrictive to neutral, meaning that while state budgets are no longer used to depress economic activity across the EU as a whole, nor are they used to stimulate expansion, despite the fact that many countries could comfortably spend more. As a result, existing policies will not be enough to prevent continually increasing public debt levels relative to GDP. Indeed, growing debt levels are an inevitable accompaniment to economic depression, as is fully confirmed by Europe's post-2008 experience. Gross debt as a proportion of GDP has increased across the EU and, with few exceptions, in every country and every year from 2008 to 2014.

There was some improvement in 2015 in a few countries that were experiencing significant GDP growth, such as Ireland, although debt there is still well above crisis levels. Reducing debt levels across the EU as a whole will be possible only with renewed growth, providing higher tax revenues.

Against this background, new elements in EU economic policy have come from two directions. The first is the investment plan proposed by European Commission President Jean-Claude Juncker. Although set to run for three years from 2015, it has been running late and has had no economic impact in its first year. It will not restore investment to its pre-crisis level. Minimal accompanying concessions on budget rules mean that its impact is concentrated in favour of countries least in need of an EU programme. It falls far short of both what Europe could afford and what Europe needs.

The second new element is the European Central Bank's policy of quantitative easing which had injected the equivalent of 7% of eurozone GDP by the end of 2015. Evidence of any impact is sparse. Quantitative easing has not reversed the trend towards deflation which threatens to become another factor hampering economic recovery. Deflation – meaning a falling price level such as has already occurred in several member states – would make it more difficult to reduce both public and private debt levels, thus adding to banks' difficulties in lending. Indeed, evidence on private debt levels points to continuing disincentives both for consumers to borrow and for banks to lend, contributing to, and exacerbated in a number of countries by, increasing proportions of debt that are not being repaid.

These two areas of cautious policy change can make little difference when the key issue, namely, fiscal policy and the constraints imposed by eurozone rules, has not been addressed. The slight relaxation referred to above comes with warnings of the need for accelerated structural reforms – vaguely defined but including measures that have cut wages and hence consumer demand – and 'growth-friendly fiscal consolidation'. In

practice that means continuing a degree of austerity in the hope that it will reduce budget deficits and debt levels, whereas it has in fact been leading, and will continue to lead, to their increase.

Continuing tight fiscal policies greatly reduce the already limited effectiveness of Juncker's investment plan. This is under-financed because no new public resources are available within existing rules. Member states also have limited means to afford the requisite co-financing, to cope with needs for current spending to make use of the results of investment, and to repay credits.

Other policy areas essential for long-term growth are also hit by fiscal rules. Target levels of R&D spending will not be met, with very significant reductions in some countries where the level was already low. Targets for reducing carbon emissions need to be toughened if the aims of the Paris climate change conference of 2015 are to be met. A little help will be forthcoming here from Juncker's investment plan, but even past targets have been threatened by cuts in public spending such that much of the apparent recent progress in this area has come as a result of economic depression.

It is not difficult to find alternative policies for Europe that could restore growth and employment. Europe, after all, has been performing exceptionally badly in comparison with the rest of the world. Unfortunately, the modest ideas currently proposed are inadequate to counter the effects of continuing cautious fiscal policies and the threatened fall in demand in external markets.