
1 / What Difference does the Crisis make to Long-term West European Growth?

Nicholas Crafts

1. Introduction

At the turn of the century it became conventional wisdom that economic growth in West European countries was somewhat disappointing and that a rapid decline in their share of world GDP was under way. At the EU level this prompted initiatives such as the Lisbon Strategy, aiming to raise productivity growth and enable European countries to take fuller advantage of the opportunities of the “knowledge-economy era”, but this was not seen as an imperative. Meanwhile, the UK was doing somewhat better than many of its European rivals, based especially on the strong performance of the market services sector and the fact that it was now in a position to enjoy spending the proceeds of the painful supply-side reforms of the 1980s.

The financial crisis which erupted in 2008 undoubtedly was a rude shock to expectations and seemed to demand policy reforms. On the maxim of “never waste a good crisis”, optimists saw this as an opportunity to overcome obstacles to reform that were holding back trend growth. In contrast, pessimists thought that a combination of misdiagnoses and political pressures might push policymakers in the direction of greater government intervention that would undermine long-term growth. Economic history offers examples of both – the former might appeal to the birth of the European Golden Age in the dark days of the late 1940s, while the latter could point to the implications of the policy responses to the Great Depression of the 1930s.¹

Econometric analyses of the implications of financial crises for growth offer some pointers, but leave open the extent to which European growth prospects may have been or may yet be adversely affected. It is already generally agreed that a substantial permanent fall in the level of output is likely, although there is some uncertainty about its magnitude (Furceri and Mourougane, 2009). It is less clear whether the trend growth will be reduced through declines in the rate of productivity growth. Clearly, one way in which this might happen is that major crises can lead to significant changes in supply-side policy. Here it is instructive to turn to economic history to complement what can be learnt from econometrics.

In the light of this challenge, this chapter considers European growth performance and its likely trajectory in the absence of the crisis and then assesses the direct effects of the crisis on growth. The evidence points to a significant negative impact in the absence of policy reforms that improve productivity

¹ While the long-term growth impact of 1930s policies, such as the turn to protectionism, was damaging, they had positive short-term effects which made them attractive both economically and politically, as epitomised by the British experience (Crafts, 2012a). Indeed, the potential conflict between the short and the long term is relevant to today's crisis (see Section 4).

growth. Are these policy reforms likely to be realised? Historical experience, notably in the context of the 1930s, suggests the crisis will produce strong pressures in the opposite direction. Overall, although this is not yet recognised by institutions such as the OECD, it seems likely that the financial crisis will result in a significantly reduced average European growth rate over the period to 2030.

2. Growth before the crisis

It is well known that Western Europe's growth performance was lacklustre from the mid-1990s up to the start of the current financial crisis. This was a far cry from the so-called Golden Age of the early post-war years and was for the average country a period of falling behind rather than catching up with the United States. It was a surprise to many that relative productivity performance deteriorated because it appeared that, on the whole, supply-side policy had improved. Yet, while American productivity growth accelerated, in Europe it slowed down.

Of course, since the Golden Age there have been big changes in the global economic environment. Among the most prominent are rapid globalisation, together with a new world division of labour associated with the rise of Asia, the advent of a new general purpose technology (GPT) based on information and communications technology (ICT), and the return of financial crises after a period of unusual stability. Moreover, after a long period of catch-up, many West European economies are close to, rather than far from, the productivity frontier. Finally, Europe's growth brought increasing demands for social transfers on which the median European economy spent 21.1% of GDP in 1980, compared with only 10.5% in 1960 and 1.2% in 1930 (Lindert, 2004). Managing these demands without undermining growth was an important challenge; insofar as they were financed by "distortionary" taxation, there was a potential drag on growth. The implications of such developments can be viewed as a mix of opportunities and threats, together with a need to implement appropriate institutional and policy reforms.

The key concept with which to approach the post-war European experience is catch-up growth. The leader throughout of course has been the United States, but for much of the post-1950 period West European countries were closing the income and/or productivity gap. It is well known that these gaps provide an opportunity to grow faster than the leader, but at the same time catch-up growth is not automatic. In the terminology of Abramovitz (1986), it depends on "social capability", that is, on the incentive structures which influence the effective assimilation and diffusion of new technology.

It is important to distinguish between catch-up growth in far-from-the-frontier and close-to-the-frontier economies. In the former, rapid total factor productivity (TFP) growth can be obtained by reducing productive and allocative inefficiency as well as by importing technology. In essence, this is a transitory phase, but growth can be rapid while it lasts, and this was a key element of the Golden Age, especially linked to structural change in terms of a rapid decline in agriculture's share in employment. As catch-up proceeds, the technological impetus to growth may be expected to switch somewhat from imitation to invention, and competitive advantage in an open economy will move towards knowledge-intensive activities. Arguably, European countries needed reforms after the Golden Age to position themselves for this subsequent stage of growth but, on average, they were slow to make this transition (Eichengreen, 2006).

As a general rule, the process of catch-up growth typically entails a series of ongoing reforms with the danger that at some point the political economy of the next step in modernisation becomes too difficult. As modern growth economics stresses (Aghion and Howitt, 2006), the institutions and policy choices that can galvanise a far-from-the-frontier economy differ in many ways from what is appropriate for a close-to-the-frontier economy. In particular, in the latter case stronger competition in product markets and high-quality education become more important. Similarly, as new technologies come along, institutions and policies may need to be reformed. Yet, making the requisite adjustments can be problematic and may be achieved only slowly and incompletely, such that catch-up growth falters. The constraints of a country's historical legacy can be important in this context.

The period from the early 1950s to the mid-1970s was an era when Western Europe clearly was catching up with the United States. The data for growth performance in these years are shown in Table 1. During the Golden Age both real per person and labour productivity measured either per worker or per hour worked grew much faster in most European countries than in the United States. In the following period of growth slowdown labour productivity continued to grow faster than in the United States, although catch-up in real GDP per person came to an end. The discrepancy is, of course, explained by slower growth in labour inputs in European countries as unemployment rose and work years shortened. This is also captured in the data in Table 1.

Table 1: Output and productivity in Europe and the United States, 1950-2007

a) Growth rates (% per annum)

	Real GDP	Real GDP /person	Real GDP /worker	Real GDP /hour worked
1950-73				
EU15	5.97	4.05	4.15	4.80
US	3.92	2.45	2.30	2.56
1973-95				
EU15	2.25	1.89	2.00	2.69
US	2.86	1.80	1.12	1.28
1995-2007				
EU15	2.58	1.80	0.92	1.17
US	3.17	2.11	1.92	2.05

b) Decomposition of EU15/US real GDP/person gap, 1950-2007

	Y/P	Y/HW	HW/E	E/P
1950	0.482	0.381	1.190	1.063
1973	0.680	0.629	1.092	1.000
1995	0.700	0.853	0.974	0.843
2007	0.675	0.769	0.947	0.928

Note: The table shows the identity $Y/P = Y/HW \times HW/E \times E/P$ for the ratio of EU15/US.

Source: Derived from The Conference Board Total Economy Database.

From 1995 to the eve of the current crisis, real GDP per person in Western Europe declined slowly relative to the United States; rather than closing the gap, Europe had started to fall behind. Table 1 shows that for the EU15 the ratio was 67.5% in 2007, compared with 70% in 1995. The data also show that in this period the main reason was slower labour productivity growth in Europe. Trends in annual hours worked were now more in line with each other, while the earlier tendency for employment rates to fall relative to the United States was reversed, so that total hours worked per person rose in Europe.

The growth in employment per person partly reflects an end to the policies that reduced labour inputs during and after the 1970s. Thus, on average, policies that affected the non-accelerating inflation rate of unemployment (NAIRU) moved a little way towards reducing unemployment (Nickell, 2003), and labour force participation of older males stopped falling as incentives to early retirement from replacement rates and implicit taxes were no longer rising, and in some countries were reduced (Duval, 2003). However, much of the increase in employment rates seems to owe little to policy and more to changes in norms with regard to female employment, especially in southern Europe. In effect, the increase in hours worked per person led to reductions in labour productivity growth over these years, as investment failed to respond and the quality of many additional workers was lower (Dew-Becker and Gordon, 2008).

The growth rate of real GDP per hour worked in the United States rose from 1.28% per annum between 1973 and 1995 to 2.05% in the 1995-2007 period. In contrast, in the EU15 it fell from 2.69% to 1.17% per annum. The rate of labour productivity growth fell between these two periods in most of the EU and was lower than that in the United States in most countries. Indeed, labour productivity growth in Italy and Spain fell well below 1% per annum after 1995 (The Conference Board, 2012). By contrast, Sweden saw an even stronger productivity revival than was achieved in the United States, while for part of the 1995-2007 period Ireland continued to be a Celtic Tiger and also exceeded the American productivity growth rate. Therefore, while EU countries, on average, did fall behind in productivity performance, there was also considerable diversity in Europe's performance.

The acceleration in US productivity growth was underpinned by ICT. Historical comparisons reveal that the impact of ICT has been relatively large, and also that it has come through very rapidly. This new GPT is unprecedented in its rate of technological progress, reflected in the speed and magnitude of the price falls in ICT equipment (Crafts, 2004). The main impact of ICT on economic growth comes through its diffusion as a new form of capital equipment, rather than through TFP growth in the production of ICT equipment. This is because users get the benefit of technological progress through lower prices and, as prices fall, more of this type of capital is installed.²

The implication is that, in the recent past, ICT has offered much of Europe a great opportunity to increase its productivity growth. However, the estimates of the contribution of ICT capital deepening to the growth of labour productivity highlighted in Table 2 show that European countries have been less successful than the United States in seizing this opportunity. That said, ICT production has boosted productivity growth notably in Finland, Ireland and Sweden, and the use

2 In a country with no ICT production, adapting the neoclassical growth model to embody a production function with two types of capital (ICT capital and other capital) shows that the steady state rate of growth will be TFP growth divided by labour's share of income, plus an additional term which depends on the rate of real price decline for ICT capital multiplied by the share of ICT capital in national income (Oulton, 2010).

Table 2: Labour productivity growth in the market sector, 1995-2005
(% per annum)

a) Growth accounting

	Labour quality	ICT capital/ hours worked	Non-ICT capital/hours worked	Total factor productivity growth	Labour productivity growth
Ireland	0.2	0.4	2.1	1.8	4.5
Sweden	0.3	0.6	1.1	1.6	3.6
UK	0.5	0.9	0.4	0.8	2.6
France	0.4	0.4	0.4	0.9	2.1
Portugal	0.2	0.6	1.3	-0.3	1.8
Germany	0.1	0.5	0.6	0.4	1.6
Spain	0.4	0.3	0.5	-0.8	0.4
Italy	0.2	0.3	0.5	-0.7	0.3
US	0.3	1.0	0.3	1.3	2.9

b) Sectoral contributions

	ICT production	Manufacturing	Other goods	Market services	Labour productivity growth
Ireland	1.0	2.2	0.2	1.4	4.5
Sweden	1.1	1.0	0.2	1.4	3.6
UK	0.5	0.5	0.2	1.6	2.6
France	0.4	0.7	0.3	0.7	2.1
Portugal	0.5	0.5	0.2	0.6	1.8
Germany	0.4	0.6	0.3	0.2	1.5
Spain	0.1	0.1	0.0	0.2	0.4
Italy	0.3	0.0	0.2	-0.1	0.3
US	0.8	0.6	-0.1	1.8	2.9

Note: Reallocation effects not reported.

Source: Timmer et al. (2010).

of ICT capital has made a strong contribution to productivity growth, especially in the services sector, in countries such as the UK. Table 2 suggests that strong productivity performance in the 1995 to 2005 period relied on ICT production and/or market services.

The empirical evidence is that the diffusion of ICT has been aided by complementary investments in intangible capital and in high-quality human capital and by relatively light regulation in terms of employment protection and restrictions to competition, especially in the distribution sector (Conway et al., 2006). Since these forms of regulation are known to have weakened over time, the point is not that regulation has become more stringent, but rather that existing regulation has become more costly in the context of a new technological era. Evidently, social capability depends on the technological epoch. European countries have varied considerably in this respect; for example, the UK and Sweden have been better placed than Italy and Spain.³

³ For a detailed account of Italy's problems in exploiting ICT, see Crafts and Magnani (2011).

The example of ICT prompts some more general comments on European supply-side policies in the decades before the crisis. In some respects, these improved in terms of providing conditions favourable to growth. For example, European countries generally became more open to trade, with positive effects on productivity, partly as a result of the European single market. Over time, years of schooling have steadily increased, and product market regulation that inhibits competition has been reduced. Corporate tax rates have also fallen since the early 1980s. The UK, in particular, benefited from the big increase in competition in product markets as a result of deregulation and the abandonment of protectionist policies from the 1970s through to the 1990s (Crafts, 2012a). Nevertheless, supply-side policies were in need of reform prior to the crisis if the disappointing growth performance of many EU countries was to be adequately addressed, particularly in southern Europe.

In this context, serious questions have been raised about the quality of schooling in a number of European countries, which recent research suggests exacts a growth penalty. Indeed, a measure of cognitive skills, based on test scores, correlates strongly with growth performance (Hanushek and Woessmann, 2009), and it is striking that even the top European countries, such as Finland, have fallen behind Japan and South Korea, while Germany, and especially Italy, have deteriorated. These authors' estimates are that if cognitive skills in Greece were at the standard of South Korea's, its long-term growth would be raised by close to 1% per annum. Woessmann et al. (2007) show that the variance in outcomes in terms of cognitive skills is explained by the way the schooling system is organised, rather than by educational spending.

Competition and competition policy have tended to be weaker than in the United States, which has raised mark-ups and lowered competitive pressure on managers to invest and to innovate, with adverse effects on TFP growth (Buccrossi et al., 2013; Griffith et al., 2010). Over recent years, it is clear that productivity growth in market services was very disappointing in many European countries (see Table 2). One reason for this is the continued weakness of competition reflected in high price-cost mark-ups, which appear to have survived the introduction of the single market (Hoj et al., 2007). Studies have regularly shown that addressing these issues by reducing the barriers to entry maintained by member states would have raised productivity performance significantly; unfortunately, governments still have considerable discretion to maintain these barriers, notwithstanding the Services Directive (Badinger and Maydell, 2009). It should also be noted that the failure to deal with excessive regulation in professional services, in particular, has had an adverse impact on productivity growth in user industries (Barone and Cingano, 2011).

Finally, research into the impact of fiscal policy on growth suggests that the structure of taxation has significant effects. Generally speaking, direct taxes are more damaging than indirect taxes. The substantial increase in social transfers in European countries in the latter part of the 20th century was financed to a considerable extent by "distortionary" taxation; the estimates of Kneller et al. (1999) indicate that the average 10 percentage point increase in the share of direct tax revenue in GDP between 1965 and 1995 could have entailed a fall in a country's growth rate of about 1 percentage point. Financing this expansion of government outlays by a different tax mix would have generated considerably better growth.

Adjustments to Asian catch-up, and in particular the continent's new exporting prowess, have been or will be required, especially of those south European countries such as Greece, Italy and Portugal, where revealed comparative advantage has been positively correlated with that of dynamic Asia. This puts a premium on strong innovation capabilities, good human capital and flexible labour, and product markets. However, an index of ability to grapple with globalisation based on these attributes shows that the most affected countries are the least well placed to cope. Out of 26 OECD countries, Greece, Italy and Portugal were found to be in 25th, 24th and 23rd place, respectively. Sweden, meanwhile, was best placed (Rae and Sollie, 2007).

Nevertheless, failure to grasp the opportunities presented by ICT has been more important than the adjustment problems presented by the new international division of labour, although similar attributes are valuable in each case, namely a good education system, flexible labour markets, and light regulation of product markets (Crafts and Magnani, 2011). Given its exports profile, Italy's exposure to Asian competition has been relatively high, and its flexibility is very low compared with most other OECD economies. Yet the implications for its growth performance have been small. The "market-crowding" impact on export growth has been much smaller than relatively slow growth in the EU15 (Italy's main market) and trends in the real exchange rate (Breinlich and Tucci, 2010). There has been an adverse trend in the terms of external trade, but the effect only reduced real income growth by 0.1 percentage points in the decade to 2006 (Bennett et al., 2008).

On the eve of the financial crisis there was widespread agreement on reforms which would improve Western Europe's growth performance, although the extent of what was needed inevitably varied across countries. This consensus was based on an empirical analysis of the experience of recent decades. The very influential analysis by Sapir (2006) stressed the importance at the EU level of completing the single market in services, and at the national level of reforming labour market and social policies in areas where these reduced flexibility and employment.

OECD economists, who believe that implementation of these reforms has been made more urgent by the crisis, provide some useful quantification of the possible benefits generated from structural policy reforms. These are summarised in Table 3. Barnes et al. (2011) conclude by proposing improvements to the quantity and quality of education, strengthening competition, cutting unemployment benefits, reducing and reforming taxes, and lowering employment protection. These would either raise the growth rate or, in some cases, provide a transitional boost as the economy moves to higher employment and output levels. The authors claim that addressing all policy weaknesses by moving up to the level of the OECD average has a potential GDP gain of 10% for the average country after ten years, and eventually 25%.⁴

4 Some reforms, notably to educational systems, take a long time to pay dividends.

Table 3: Potential impact on real GDP per person of structural policy reforms

	Labour market	Taxation	Product market regulation	Education	Total
Moving to OECD average					
US	0.3	1.4	0.0	2.5	4.2
France	4.5	10.9	2.2	2.1	19.7
Germany	6.1	9.9	0.0	0.0	16.0
UK	1.1	0.0	0.0	4.6	5.7
Sweden	6.5	6.4	0.0	0.1	13.0
Greece	6.0	10.1	22.0	5.8	43.9
Ireland	6.8	0.9	9.7	0.0	17.4
Italy	0.3	10.8	0.3	5.4	16.8
Portugal	7.3	0.7	8.5	21.8	38.3
Spain	3.5	4.6	0.0	6.3	14.4
"10% reforms"					
OECD average	6.1	3.3	3.8	11.6	24.8

Source: Barnes et al. (2011).

3. Growth implications of the financial crisis

This section considers the direct implications of the crisis rather than those that might come via a wider array of policy responses affecting the progress of supply-side reforms; these will be addressed in Section 4.

A useful starting point is to look at what economists who make long-term projections of future economic growth have to say. The team at Goldman Sachs have reviewed their famous BRICs projections, which entail comparisons of future developed-market and emerging-market growth, in a recently published paper (Wilson et al., 2011). In essence, their view is that the crisis will have no long-term impact, and they project real GDP growth in Europe at 2.2% per annum for each of the two decades 2010-19 and 2020-29, which is identical to its performance in the 1990s.

A much more detailed analysis is provided in the OECD's *Economic Outlook* (2012, chapter 4). Some of the main projections are summarised in Table 4, which sets them in the context of recent performance. The OECD team explicitly assumes that the crisis will have only a small effect on the level of potential real GDP growth in the OECD area of about 2.3%, but no impact on the trend rate of growth. Output levels in OECD countries are currently well below potential, but these "output gaps" are expected to disappear over the next few years. The analysis assumes that the crisis does not affect the pace of structural reforms, which will make a modest contribution on average to future growth. In particular, it is striking that the labour productivity growth projections in Table 4 for the eurozone and for OECD countries overall are quite bullish and call for a stronger performance between 2012 and 2030 than for 1995-2007. Even the troubled eurozone economies are generally expected to share in this experience, although slower employment growth in future will hold real GDP growth below pre-crisis levels.

Table 4: OECD long-term growth projections**a) Real GDP growth (% per annum)**

	1995-2007	2008-12	2012-17 (actual)	2012-17 (potential)	2018-30
OECD	2.8	0.5	2.4	2.1	2.3
Eurozone	2.3	-0.1	1.8	1.5	1.8
US	3.1	0.6	2.7	2.1	2.4
France	2.2	0.1	2.2	1.8	2.1
Germany	1.6	0.6	1.7	1.6	1.1
UK	2.9	-0.5	1.9	1.5	2.1
Sweden	3.2	0.9	2.6	2.5	2.3
Greece	3.8	-2.8	1.7	0.6	2.4
Ireland	2.4	-1.7	2.6	1.2	2.6
Italy	1.5	-1.0	0.9	0.6	1.6
Portugal	3.2	-1.2	1.0	0.7	1.8
Spain	3.7	-0.4	2.3	1.5	2.3

b) Growth of real GDP/worker (% per annum)

	1995-2007	2008-12	2012-17 (potential)	2018-30
OECD	1.7	0.5	2.1	2.3
Eurozone	1.0	0.3	1.5	1.8
US	1.8	1.2	1.3	1.4
France	1.1	0.1	1.4	1.9
Germany	1.2	0.0	1.4	1.7
UK	1.9	-0.4	0.8	1.5
Sweden	2.4	0.4	1.8	1.9
Greece	2.5	-0.8	0.3	2.2
Ireland	2.3	1.2	0.9	1.3
Italy	0.3	-0.5	0.1	1.5
Portugal	1.4	0.2	0.5	1.7
Spain	0.1	1.7	0.8	1.6

Note: The projected growth rates for 2018-30 differ from pre-crisis performance because they result from OECD modelling, which takes into account the impact of possible reforms, scope for catch-up etc. All these effects are assumed not to have been affected by the crisis.

Sources: 1995-2012: The Conference Board Total Economy Database; 2012-30: OECD (2012, chapter 4).

It is well known that financial crises can have direct and permanent adverse effects on the level and possibly also the trend growth rate of potential output, and this is a major reason why such crises usually have serious fiscal implications, including big increases in structural deficits as a percentage of GDP. From the perspective of a production function or of growth accounting, there may be direct adverse effects on capital inputs as investment is interrupted, on human capital if skills are lost or restructuring makes them redundant, on labour inputs through increases in equilibrium unemployment, and on TFP if research and development

(R&D) is cut back or innovative firms cannot get finance. Given that, in the long run, TFP growth provides the fundamental underpinning of the rate of trend growth, the key question is whether this is affected by financial crises.

Modern econometric studies are not entirely conclusive. Furceri and Mourougane (2009) estimate that, in the case of OECD countries, a severe banking crisis reduces the level of potential output by about 4%, while the IMF's (2009, chapter 4) review of the evidence, which also covers lower-income economies, suggests a figure of 10%, with the level of capital, labour inputs and TFP each accounting for about one-third of this. In each paper long-run trend growth is said not to be affected, but in both cases the confidence intervals are large, and the transition period until the levels effect materialises may be quite long. If the level of potential output suffers an adverse shock, then for a country such as the United Kingdom the structural fiscal deficit is likely to rise by a similar amount as a share of GDP (IFS, 2010), and fiscal consolidation may be required to head off unstable debt dynamics.

Box 1. TFP growth and the American Great Depression

A celebrated historical example of a severe banking crisis is the Great Depression of the 1930s in the United States, when about one-third of all banks failed and financial intermediation was severely disrupted, with severe consequences for investment and GDP (Bernanke, 1983). What does that experience reveal? One way to address this issue is through time-series econometrics, where the shock in the 1930s has been a focal point in debates about deterministic or stochastic trends.⁵ Here the evidence is rather inconclusive and the picture is muddled by World War II. In fact, assuming trend-stationarity and extrapolating the pre-1929 trend of per capita income growth into the long term provides quite a good approximation to actual experience. However, a more careful examination suggests a break in trend in 1929 comprising a levels decrease followed by a modest increase in trend growth through to 1955, with the pre-1929 trend line being crossed in 1942 (Ben-David et al., 2003).

Further insight may be obtained by considering business-cycle peak-to-peak growth-accounting estimates, as in Table 5. The obvious feature of the 1930s is that the financial crisis undermined growth in the capital stock. Had growth of the capital-to-labour ratio continued at the pre-1929 rate, by 1941 it would have been about 25% larger and, accordingly, potential GDP per hour worked perhaps 8% bigger. Growth of labour inputs was sluggish, impaired perhaps by the impact of the New Deal. However, TFP growth was very strong, powered by sustained R&D, and Field (2013) has labelled the 1930s the most technologically progressive decade of the 20th century in the United States, building on the strong fundamentals in place from before the Great Depression. Overall, the clear impression is that the result of the banking crisis was to lower the level of productive potential rather than its growth rate. For today's European countries the analogue may be that continued TFP growth in ICT, which will further reduce the price of ICT equipment, has the scope to underpin future growth. Oulton (2010) estimates that even without reforms which would speed up its diffusion, this will add on average about 0.5 percentage points to future growth across the OECD, and with reforms this might rise to 0.75 percentage points.

5 With a deterministic trend, a shock only has a temporary effect and the economy then returns to the previous trend growth path; in contrast, if the trend is a non-stationary stochastic process, shocks have an enduring effect on the future growth path, and long-term forecasts are affected by historical events.

Table 5: Contributions to labour productivity growth in the United States (% per annum)

	Capital/hours worked growth	Human capital/hours worked growth	Total factor productivity growth	Real GDP/hours worked growth
1906-19	0.51	0.26	1.12	1.89
1919-29	0.31	-0.06	2.02	2.27
1929-41	-0.19	0.14	2.97	2.92
1941-48	0.24	0.22	2.08	2.54
1948-73	0.76	0.11	1.88	2.75

Note: Estimates are for private non-farm economy.

Source: Derived from Field (2013).

Banking crises can also be expected to affect future growth, given their implications for regulation of the financial sector and their fiscal legacy. With regard to regulation, there is quite wide agreement that a major requirement is to reduce the future leverage of the banking system to reduce the chances of future crises. This will generally entail the banks having more equity capital to absorb losses, which will raise the cost of capital to the banks and to their borrowers. However, the evidence suggests that, although this will reduce the capital stock and the level of GDP in future, the effect will probably be fairly modest. Miles et al. (2013) provide an illustrative calculation which suggests that halving leverage from 30 to 15 might cost a little under 0.2% of GDP. It is also worth noting that growth did not seem to be impaired during most of the 20th century, when leverage was much lower.

An obvious fiscal implication of the financial crisis is that it will leave a legacy of much increased ratios of public debt to GDP (D/Y). Partly, this will come through the costs of recapitalising banks, but mainly it will come through the borrowing that governments have undertaken as a result of the financial crisis-induced recession. The median increase in D/Y in advanced countries following a banking crisis in the recent past is estimated to have been 21% of GDP (Laeven and Valencia, 2012).⁶ OECD countries are now more vulnerable on this score than in the 1930s because they entered the crisis with higher D/Y ratios (Ali Abbas et al., 2011) and during the crisis have provided some fiscal stimulus and have not tried to over-ride the automatic stabilisers.

The long-term implications of substantial increases in D/Y are unfavourable for growth, as is highlighted in particular by growth models of the overlapping-generations variety. The adverse impacts can occur through a number of transmission mechanisms, including reductions in market-sector capital formation, higher long-term interest rates and higher tax rates. Empirical research on advanced economies has found negative effects; for example, Kumar and Woo (2010) estimate that a 10 percentage point increase in D/Y is associated with a fall of about 0.2 percentage points in growth. It has also been suggested that the adverse effect on growth is non-linear and rises sharply once the debt ratio reaches a critical level, which has recently been claimed to be around 90% of GDP (Checherita and Rother, 2010). The OECD (2012) notes that in the eurozone, the United States and the OECD as a whole D/Y is approaching 100% and points out that if the results of these papers are taken literally, then this could reduce future trend growth by between 0.5 and 0.75 percentage points.⁷

⁶ In some cases, such as Ireland, the increase has been much greater than this (73%).

⁷ The OECD projections in Table 4 do not incorporate this prediction.

High levels of D/Y create further worries about future fiscal sustainability, which add to the pressures for increases in taxes and/or cuts in public expenditure, i.e., fiscal consolidation. Recent work by OECD economists in the wake of the crisis has given some guidance on the size of the adjustments that may be needed. For example, if it is desired to achieve $D/Y = 60\%$ by 2025 (the Maastricht Treaty rule), then the required improvement in the primary balance starting in 2010 and continuing throughout would have been close to 12% of GDP in the UK, about 14% in Ireland and the United States and close to 10% in France, Greece, Portugal and Spain (Hagemann, 2012).⁸

Fiscal consolidation is unlikely to be expansionary; on the contrary, the short- to medium-term implications are likely to be deflationary and to entail (possibly considerable) GDP losses. The estimates in Guajardo et al. (2011) are that, on average, a fiscal consolidation of 1% of GDP reduces real GDP by 0.62% over the following two years. This can be mitigated if an offsetting monetary policy stimulus is possible and/or the exchange rate depreciates. If the fiscal adjustment is achieved through expenditure cuts rather than tax increases, the evidence is that output losses are much less, in particular because private investment tends to respond favourably (Alesina et al., 2012). It is also well known that expenditure-based consolidations have a greater chance of success (Molnar, 2012).

The composition of fiscal consolidation measures has supply-side implications which can leave a legacy for future growth performance. Some measures can raise either the level of output, or supply-side reforms can improve growth and thus tax revenue; for example, in practice, in the 1980s reductions in the unemployment benefit-to-wage-rate ratio in the UK lowered the NAIRU, and deregulation and the shift away from protectionism was good for growth (Crafts, 2012a).⁹ Broadly speaking, supply-side considerations add to the reasons for achieving consolidation mainly by expenditure cuts. However, cuts in expenditure on education, which adds to human capital, and on infrastructure, which adds to physical capital and raises returns to private investment, are bad for long-term growth. Pre-crisis, many EU countries were already investing too little to maintain the stock of public capital at a growth-maximising level (Kamps, 2005), while previous episodes of fiscal stringency have been notable for their negative impact on public investment (Mehrotra and Valila, 2006). Indeed, it is noticeable that at high levels of debt a rising D/Y leads to cuts in both public investment and education spending (Bacchiocchi et al., 2011). And as these authors point out, this does not bode well for the growth prospects of highly indebted EU countries.

8 The basic algebra related to stabilising the debt ratio is that $\Delta d = b + (i - \pi - \Delta Y/Y)d$ where d is the debt/GDP ratio, b is the primary budget deficit, i.e., the budget deficit without including interest payments on the debt, i is the nominal interest rate, π is the rate of inflation and $\Delta Y/Y$ is the rate of growth of real GDP. So for $\Delta d = 0$, the required primary budget surplus $-b = d(i - \pi - \Delta Y/Y)$. Price deflation means that π is negative, and this clearly makes the fiscal task much harder given that i cannot be negative. On the other hand, if $\Delta Y/Y > (i - \pi)$, i.e., if growth is greater than the real interest rate, it is possible to stabilise (or even reduce) d while running a primary deficit. Normally, the primary balance has to take the strain but, interestingly, this was not the case during Europe's Golden Age, when in the era of rapid catch-up and financial repression the growth rate was much greater than the real interest rate (Ali Abbas et al., 2011). The implications of this point are examined in greater detail in the next section.

9 The NAIRU (non-accelerating inflation rate of unemployment) is the rate of unemployment which is consistent with stable inflation. A lower NAIRU implies that it is possible to have more people employed, and thus higher GDP, on a sustainable basis without generating inflationary pressure.

4. Policy responses to the crisis: Lessons from the 1930s

If medium-term trend growth rates are significantly reduced as a result of the crisis, a major reason is likely to have been the broad economic policy response. Given the magnitude of the problems confronting Europe today, it is instructive to consider the lessons from the 1930s, the last time the continent went through a crisis of similar magnitude and dimensions, when the implications for policy were probably the most important channel for medium-term growth rate effects (Eichengreen, 2011). Indeed, the 1930s were characterised by policy moves that helped short-term economic and political objectives, but damaged long-term growth performance.

First, it is well known that the Great Depression saw big increases in protectionism, partly reflected in the tariff rates reported in Table 6. Jacks et al. (2011) found that intra-European trade costs rose by an average of about 20% between 1929 and 1938. Protectionism may have been responsible for about 40% of the fall in trade volumes during the Great Depression (Irwin, 2012). The most interesting research analysing the pattern of protectionism in that period is by Eichengreen and Irwin (2010); this shows that countries which devalued were less protectionist on average, and they argue that protectionism in the 1930s can be seen as a second-best policy which was used when conventional macroeconomic management tools in the form of fiscal and monetary policy were unavailable. The countries to which this description most obviously applies today are eurozone economies with sovereign debt and competitiveness problems; the likely implication is that they will be even less inclined to move towards implementing the single market in services. However, it is also worth noting with regard to OECD countries more generally that with zero lower bound (ZLB) interest rates conventional monetary policy is circumscribed, and as public debt-

Table 6: Tariff rates, 1928, 1935 and 1938 (%)

	1928	1935	1938
Austria	8.1	17.5	14.8
Belgium	3.4	8.3	6.7
Canada	15.9	15.4	13.9
Czechoslovakia	7.8	10.0	7.2
Denmark	5.5	8.2	7.3
France	6.6	16.9	16.6
Germany	7.9	30.1	33.4
Hungary	11.0	7.2	12.0
Italy	6.7	22.2	12.1
Japan	7.1	6.2	6.6
Netherlands	2.1	9.1	6.7
New Zealand	17.1	17.5	16.4
Norway	11.5	14.4	12.2
Spain	24.1	27.9	n/a
Sweden	9.3	10.1	9.5
Switzerland	9.3	23.3	18.1
United Kingdom	10.0	24.5	24.1
United States	13.8	17.5	15.5

Note: Tariff rate is defined as customs revenue/value of imports.

Source: Eichengreen and Irwin (2010).

to-GDP ratios reach levels of around 100%, fiscal multipliers become very low, even in times of deep recession (Auerbach and Gorodnichenko, 2011).

Obviously, today there are trade rules that are overseen by the World Trade Organisation (WTO). Although world trade volumes fell dramatically in 2008-09, they have subsequently recovered quickly, and research suggests that tariff barriers contributed little (perhaps only 2%) to the downturn (Kee et al., 2010). It is tempting to infer from this that protectionism is not a serious issue this time around, but that would be a serious mistake. In fact, protectionism has been resurgent, but it has taken different forms, with most countries not wishing flagrantly to flout WTO rules. So, interventions have frequently taken the form of bailouts and subsidies, with the EU state-aids regime in effect suspended. Indeed, a WTO-compatible protectionist wave is a real possibility (Evenett and Vines, 2012).

Second, the 1930s saw a general retreat from competition in the advanced countries, together with increases in regulation and, in Europe, nationalisation. Voters had less trust in markets and demanded greater state intervention. This was reflected in policy developments at the time and in the post-war settlements of the 1940s. Both the British and American governments sought to encourage cartelisation – the difference being that in the United States the Supreme Court struck down the provisions of the National Industrial Recovery Act in 1935. In the United Kingdom, competition in product markets was greatly weakened, and this lasted long into the post-war period. In the late 1950s tariffs were still at mid-1930s levels, and about 60% of manufacturing output was cartelised. The retreat from competition had adverse effects on productivity performance over several decades and provided the context in which industrial relations problems and sleepy management proliferated (Crafts, 2012a). In the United States, product market regulation was substantially increased with adverse implications for economic efficiency, and it was not until the 1970s and 1980s that this was reformed (Vietor, 1994). Across Europe, state ownership was extended so that countries typically entered the Golden Age with nationalised industries supplying 10% of GDP (Millward, 2011).

Third, the shock of the 1930s encouraged workers to demand much greater social protection and promoted tighter regulation of the labour market. In the United States this was famously addressed by the New Deal. There the 1930s saw the federal government pass the Social Security Act in 1935, which established a wide range of benefits, including unemployment insurance and retirement benefits. Another long-lasting intervention was the Fair Labor Standards Act of 1938, which brought in minimum wages and overtime restrictions (Fishback, 2007). Across European countries much more ambitious social policies were developed, which left their footprint with a big increase of social transfers between 1930 and 1950 (Crafts, 2012b). To the extent that this was financed by distortionary taxation, this had a negative implication for growth.

Fourth, banking crises were at the heart of the 1930s depression in many countries, notably in the United States. In 1933, ending the waves of banking crises was both an economic and political imperative. As today, reliance on market discipline appeared unrealistic. The lender of last resort had failed. So, the solution was deposit insurance plus regulatory reform, and the political attractions of the former meant that it would become a permanent feature of the American banking system (Calomiris, 2010). Many other countries have since followed down this path, a choice reinforced by the present crisis, which has seen

Box 2: The collapse of the Gold Standard in the 1930s

During the Great Depression the Gold Standard collapsed. The deflationary pressure caused by the accumulation of gold reserves by France and the United States imposed severe stress on other countries seeking to protect their gold parities (Irwin, 2010). The demise of this fixed exchange-rate system was complete when France, the Netherlands and Switzerland abandoned the Gold Standard in 1936, but it was already doomed from September 1931 onwards when Britain pulled out, followed by the United States in March 1933 during the early days of President Franklin D. Roosevelt's New Deal. The 1930s were also notable for a large number of sovereign debt defaults, especially in Latin America, but Austria and Germany suffered the same fate too (Crafts, 2012c).

The key point in this regard is that devaluation and default were good for growth. Indeed, there is a very clear correlation between the countries that exited early from the Gold Standard and those that recovered rapidly from the slump (Bernanke, 1995), as Table 7 demonstrates. Abandoning the Gold Standard allowed countries to reduce both nominal and real interest rates, to relax fiscal policy and to escape the need to reduce money wages and prices through a prolonged recession in order to regain international competitiveness. It is also clear that sovereign default, which improved the fiscal arithmetic by eradicating debt overhangs and bolstered the balance of payments through the elimination of debt-service flows, promoted short-term growth (Eichengreen and Portes, 1990).

The decision by countries to leave the Gold Standard was analysed by Wolf (2008), who used an econometric model to examine the odds of remaining in this fixed exchange-rate system. The model accurately predicts departures and shows that a country was more likely to exit from the Gold Standard if its main trading partner had done so, if it had returned to gold at a high parity, if it was a democracy, or if the central bank was independent. Conversely, it was less likely to leave if it had large gold reserves, less price deflation and strong banks. In other words, the loss of international competitiveness and greater pain from deflationary pressures hastened a country's exit.

It is widely understood that the countries in the euro periphery need to undertake sharp fiscal consolidation if they are to restore long-run fiscal sustainability and reduce public debt-to-GDP ratios to prudent levels. Not surprisingly, the economic adjustment programmes for Greece and Portugal agreed as a condition for the emergency loans granted by the EU and IMF entail big fiscal consolidations, with the budget deficit targeted to fall by 13.7% of GDP in Greece between 2009 and 2014 and by 6.8% of GDP in Portugal between 2010 and 2013.

It is also apparent that since the beginning of Economic and Monetary Union (EMU) southern periphery countries have experienced a substantial loss of international competitiveness as their relative production costs have increased. In these countries wage rises have outstripped labour productivity growth by a greater margin than in their trading partners on average, with no offsetting effects available through a devaluation of the exchange rate. According to estimates by the European Commission (2010) the real exchange rate was overvalued by 13.7% for Greece, 18.5% for Portugal and 12.2% for Spain, while in the previous 15 years unit labour costs in manufacturing relative to Germany had risen by 45%, 35% and 50%, respectively.

It might be expected that fiscal retrenchment could contribute to solving both the public finance and the competitiveness problems of these countries, but the process is likely to be both very painful and seriously protracted. Indeed, a "lost decade" beckons. High unemployment – to which fiscal contraction will contribute – is central to an adjustment process of this kind, as it is needed to create downward pressure on wages in labour markets which are not very flexible.¹⁰ There is also an unfortunate feedback loop from price and wage deflation, as the route to improved competitiveness is that falling prices push up the primary budget surplus required to stabilise or reduce the public debt-to-GDP ratio.

It would not be surprising if a 1930s-style option of "devalue and default" – a chaotic exit from the eurozone – gathered political support in these circumstances. Germany's position within EMU has uncomfortable parallels with that of France in the Gold Standard era as a surplus country imposing deflation on partners, while the predictors of abandoning the gold anchor 80 years ago point to strong pressures on countries in southern Europe to exit the eurozone.

10 Fiscal contraction can be expansionary, but history suggests this is not the normal result and, in particular, this is unlikely when the exchange rate is fixed (Guajardo et al., 2011).

a substantial extension of deposit insurance schemes in a large number of OECD countries, with disastrous consequences in cases such as Ireland.

Microeconomic analysis incorporating implications of asymmetric information predicts there is the potential for serious market failures in the banking sector with attendant risks of banking crises; for example, a bank run (a coordination failure) can occur even though agents are rational and banks are solvent (Diamond and Dybvig, 1983). Deposit insurance is a possible solution and can, in principle, be costless if coordination panics are the only problem. However, if it is not so much that panics but weak balance sheets lead to bank failures, this makes deposit insurance potentially a costly intervention. Deposit insurance also increases moral hazard (incentivises excessive risk-taking), so that complementary regulation to ensure capital adequacy and sufficient equity to absorb losses is essential (Allen et al., 2011).

For this solution to work effectively, it is crucial that regulation is well designed. The lesson from the 1930s is that it may well not be because vested interests are likely to hijack the politics of regulatory design (Calomiris, 2010). There are dangers to growth on either side: on the one hand, excessive regulation, which stifles financial innovation, imposes financial repression or unduly raises the cost of capital, and on the other hand too lenient regulation, which allows excessive risk-taking to continue with a relatively high probability of another banking crisis. Indeed, the 1930s experience does little to inspire confidence that the regulatory response will be appropriate.

Fifth, the 1930s experience suggests that a strategy of devaluation and sovereign default is an attractive escape route from the eurozone for the periphery countries of southern Europe because it allows more policy sovereignty and a route to return to growth. Moreover, the 1930s experience indicates that once one country exits, others may quickly follow. The pressures on the survival of the eurozone are thus likely to intensify. However, the benefit/cost ratio of leaving the Gold Standard in the 1930s was very different from that of leaving the eurozone today; a decision to reintroduce a national currency now might engender “the mother of all financial crises” (Eichengreen and Temin, 2010) through instantaneous capital flight and a collapse of the banking system. How costly this might be is really a matter of speculation, but estimates have been made; for example, Cliffe (2011) suggests that after five years real GDP in the eurozone would still be 5% lower than at the time of the break-up.

It is equally reasonable to argue that the demise of the currency union would have a permanent adverse effect on GDP levels, although perhaps not as large as has sometimes been claimed. The currency union effect on trade volumes was initially thought to be very large, but better econometrics and the opportunity to examine the actual impact of EMU now suggest that trade volumes increased by perhaps 2% (Baldwin et al., 2008), with the implication that the trade effect on GDP was less than 1%. There are, however, several channels through which EMU may have raised productivity, and a recent study found that it had raised the level of real GDP per hour worked by 2% (Barrell et al., 2008), so this would potentially be at risk.

Sixth, given the pressures on public finances which the crisis has triggered, a move back to financial repression may well be on the cards with a view to reducing the interest costs of servicing the public debt and pushing down the real interest rate relative to the growth rate. This would lower the required primary surplus for fiscal sustainability. Such a policy involves limiting in various ways the free flow

Table 8: Capital account openness (0-100)

	France	Germany	Italy	United Kingdom	Western Europe
1950-4	62.5	35	37.5	47.5	33
1955-9	65	90	50	52.5	45
1960-4	75	100	67.5	47.5	56
1965-9	65	100	75	42.5	56
1970-4	75	97.5	75	50	54
1975-9	75	95	75	65	72
1980-4	67.5	97.5	75	100	75
1985-9	75	100	85	100	75
1990-4	87.5	100	92.5	100	92
1995-9	92.5	100	100	100	100

Note: The world average for 1890-1913 was 99.7.

Source: Appendix to Quinn and Toyoda (2008).

of capital between countries, i.e., reducing the integration of capital markets (cf. Table 8). This happened in Britain from the 1930s through to the 1970s, and it has been estimated that the financial repression “tax” yielded 3.6% of GDP per annum between 1945 and 1980 (Reinhart and Sbrancia, 2011). More generally, Ali-Abbas et al. (2011) found that big debt reductions in the period 1945-70 were, unusually, characterised by a much larger component from the growth-interest differential rather than from primary surpluses, while Wyplosz (2001) showed that capital controls and credit restraints were instrumental in significantly lowering European real interest rates at this time. There was, however, a cost to European growth from reducing the efficiency of capital markets, which Voth (2003) estimated as at least 0.7 percentage points per annum.

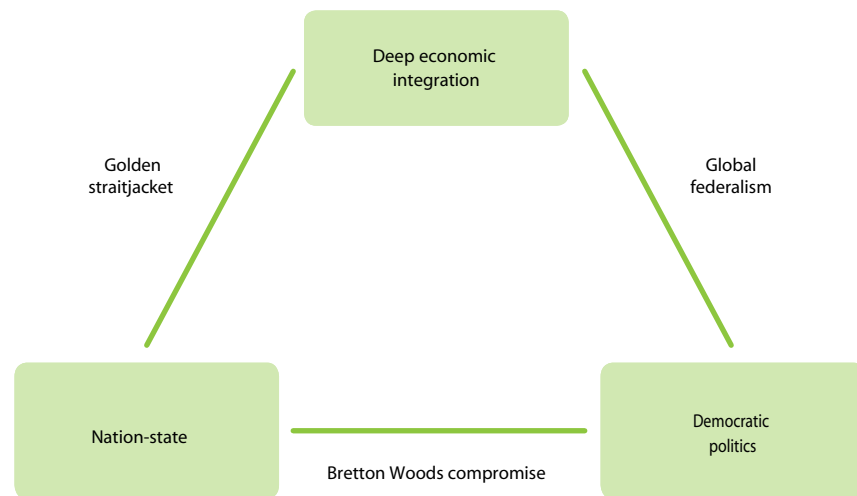
The overall message of this section is that there is quite a serious threat both to levels of potential output and to medium-term trend growth from inappropriate policy responses to the pressures created by the crisis. The “business-as-usual” projections by the OECD (2012) are likely to be overly optimistic. Moreover, the general direction of the 1930s policy response to the economic crisis runs very much in the opposite direction to the supply-side reforms that are required to speed up European growth. At best, this does not bode well for Sapir’s (2006) agenda of completing the single market and making labour markets more flexible and employment-friendly. At worst, there may be adverse policy measures that undermine Europe’s medium-term growth performance. Obviously, today’s institutions are different; it will no doubt become clear how well they contain some of these damaging policy responses.

5. Making things better, not worse

The focus of this section is on growth over the medium to long term, rather than on short-term macroeconomic policy, and once again draws on lessons from economic history. Given that the collapse of the eurozone is a major threat to medium-term growth, the starting point has to be a strategy that addresses this issue.

The 1930s implosion of the Gold Standard can be understood in terms of the political trilemma formulated by Rodrik (2000) and reproduced in Figure 1, which states that it is generally only possible to have at most two of the following:

Figure 1: The Political Trilemma of the World Economy



Source: Rodrik, 2000.

deep economic integration, democratic politics, or the nation-state. In the 1920s, with the return to the Gold Standard, countries had signed up to the “golden straitjacket”, which had been acceptable in the context of very limited democracy in the 19th century. But in the 1930s democratic politics at the level of the nation-state over-ruled this policy choice, and when reconstruction of the international economy was subsequently undertaken under the auspices of the 1944 Bretton Woods agreement, economic integration was severely restricted by controls on international capital flows (the Bretton Woods compromise in Figure 1). The point is that to retain the benefits of deep economic integration would have required action to organise it through democratic politics at a supranational level (Crafts, 2012c).¹¹

If that is the case, then logic points to a solution to the political trilemma problem that is different from either the 1930s retreat from economic integration or the 1950s Bretton Woods compromise. The implication is that deep economic integration and democratic politics are chosen as options by going down the route of “global federalism” in a “United States of Europe”, rather than deep economic integration combined with the nation-state through the golden straitjacket. This would require major institutional reform within the EU, which would entail banking union, fiscal union and a constitution that ended Europe’s “democratic deficit”.

Wolf (2012) spells out what this would achieve. He notes that it would allow more effective European fiscal and monetary policy at the ZLB and political legitimisation of a much higher level of transfer payments from an expanded European budget, while also finding a way to share burdens of adjustment between surplus and deficit countries. In this regard, Fishback and Wallis (2013) point to the lessons of the New Deal, where a politically acceptable way had to

¹¹ It should also be noted that undertaking long periods of deflation, perhaps in an attempt to comply with the “golden straitjacket”, helped spawn the rise of extremist political parties. Econometric analysis shows that undergoing a long and deep contraction in GDP was associated with votes for extremist political parties (de Bromhead et al., 2012). The example of deflation under Chancellor Heinrich Brüning in Germany, followed by the rise of the Nazis, is often cited in this context. The link between prolonged recession and extremism is clearly more complex than this, and de Bromhead et al. point also to the importance of the structure of the electoral system and the depth of democratic traditions in determining political outcomes.

be found to expand the role of central government, and argue that this could only be achieved by imposing strict limits on central administrative discretion. The implications of a successful strategy would be to preserve the income gains that have accrued from European integration and to guard against creeping protectionism in capital and product markets.

Table 9: ICT and long-term growth potential (% per annum)

	ICT-use own β	ICT-use Swedish β	ICT-output
Austria	0.46	0.76	0.22
Belgium	0.64	0.73	0.13
Czech Republic	0.53	0.81	0.27
Denmark	0.62	0.70	0.20
Finland	0.67	0.76	0.57
France	0.48	0.68	0.17
Germany	0.44	0.68	0.33
Hungary	0.58	0.79	0.44
Ireland	0.39	0.94	0.51
Italy	0.36	0.70	0.19
Netherlands	0.51	0.71	0.10
Slovenia	0.28	0.62	0.28
Spain	0.53	0.76	0.10
Sweden	0.70	0.70	0.24
United Kingdom	0.60	0.66	0.16

Note: β is the factor share of ICT capital; a high value indicates relatively successful diffusion and is conducive to a higher growth contribution. The estimates assume that the real price of ICT equipment continues to fall at 7% per annum and the steady-state growth implication is derived using a neoclassical growth model with two types of capital.

Source: Oulton (2010).

Table 10: Pre-crisis productivity performance

	2007 real GDP/hour worked (\$1990 Geary-Khamis)	Real GDP/hour worked growth, 1995-2007 (% p.a.)	Total factor productivity growth, 1995-2007 (% p.a.)
Greece	17.29	3.36	0.61
Italy	25.63	0.46	-0.20
Portugal	15.62	1.16	-0.63
Spain	23.50	0.48	-0.58
EU15 median	30.44	1.67	0.64
Czech Republic	14.51	3.87	0.79
Estonia	22.69	7.18	4.71
Hungary	10.66	3.08	0.21
Latvia	14.20	5.84	2.86
Lithuania	15.30	6.30	4.31
Poland	11.83	3.20	2.01
Slovakia	17.32	5.18	2.96
Slovenia	22.40	4.32	1.70

Notes: \$1990GK indicates that the levels are measured at purchasing power parity (PPP) in terms of 1990 US dollars. EU15 refers to the pre-2004 accession EU countries.

Source: The Conference Board Total Economy Database.

Box 3. A “real” Marshall Plan to save the eurozone?

Sixty years ago the original Marshall Plan confronted a difficult situation which had clear similarities to today's problems. At the end of the 1940s Western Europe had a large balance-of-payments deficit (the “dollar shortage”). It also faced a potential battle with political extremists who were hostile to the market economy; it was struggling to ignite the growth process that eventually delivered the “Golden Age”; and it was reluctant to embark on the integration of European markets. Economic historians have little doubt that the Marshall Plan made an important contribution to solving these myriad problems, and in the eyes of the general public it has attained an iconic status, underscored by repeated calls for a new Marshall Plan for Eastern Europe (in the 1990s), for Africa (in the 2000s), and for the Middle East (in 2011). Could a new Marshall Plan, therefore, come to the rescue of the eurozone by making an exit by countries such as Greece less likely and reducing the risk of a more general exodus (Crafts, 2012c)?

To answer such a question convincingly, it is important to recognise both what the original Marshall Plan really was and how it worked in practice. A “real” Marshall Plan would work as a “structural adjustment programme” – according to De Long and Eichengreen (1993), the most successful ever. Its main role would be to promote supply-side reforms that raise productivity growth. This would repeat the main achievement of the original Marshall Plan in the 1950s. A real Marshall Plan would have to work in much the same way as its famous predecessor, namely by achieving reforms through strong conditionality in return for serious money. The structural reforms that would be targeted are those already identified in Table 3. This would be much better than throwing money at southern Europe through more of the same structural funds, because they are badly targeted and they have not been successful in raising long-term growth prospects.¹³

To be credible, the funds would have to be committed, but only released when reforms had been implemented satisfactorily – similar to the deal that worked in the context of EU enlargement in 2004. Whether the EU could implement this is rather doubtful; at a minimum it seems likely the IMF would have to be involved. Sadly, unlike the Marshall Plan in the 1940s, the overall record of the structural adjustment programmes administered by the IMF and World Bank has been generally disappointing both in terms of compliance and outcomes. More specifically, the success or failure of such programmes seems to have depended mainly on domestic political economy considerations and a willingness to embrace reform, the implication being that “the key to successful adjustment lending is to find good candidates to support” (Dollar and Svensson, 2000).

The experience of the collapse of the Gold Standard in the 1930s suggests that seeking to keep the eurozone intact by imposing a “golden straitjacket” on the policy choices of independent nation-states is not a viable option. This points to fiscal federalism with genuine democracy at the EU level as the long-term solution; a new Marshall Plan may not be a substitute for reforms of this kind, but it could certainly serve as a valuable complement. Unfortunately, it would be difficult at present to persuade the countries in northern Europe that countries in southern Europe are “good candidates” or that non-compliance would, in effect, be punished. In practice, therefore, the Marshall Plan approach is probably a non-starter.¹⁴

Reforms to address the political trilemma problem are only part of what is required. As previously noted, there is considerable scope to improve productivity performance through supply-side reforms. A particular focal point can still be the diffusion of ICT, where deregulation and educational reforms could make a significant difference. Table 9 offers some projections of the future scope for ICT to deliver productivity growth for European countries both with and without reform. The key point to note is that if ICT were as important in the other countries as it is in Sweden, the most successful adopter of ICT, then the ICT capital contribution would rise appreciably, notably by over 0.2 percentage points per annum in the large continental economies.

A much more attractive way than prolonged deflation to address the competitiveness and fiscal problems of the euro periphery of southern Europe would be to increase the rate of labour productivity growth. Provided wage increases are restrained, this could be a substitute for either internal or

external devaluation, and it would improve fiscal sustainability by narrowing or even overturning the gap between the real interest rate and the growth rate. *Prima facie*, there is a lot of scope to improve the euro periphery's productivity performance, as Table 10 illustrates.

Box 4: Selective industrial policy

Selective industrial policy (“picking winners”), which is a form of protectionism and typically inhibits competition, has deservedly got a bad name. In particular, it has been widely remarked that, in practice, support is disproportionately given to sunset rather than sunrise industries, and some economists argue that this “government failure” is an inherent aspect of the political economy of industrial policy. Baldwin and Robert-Nicoud (2007) have recently used a variant of the well-known “protection-for-sale” model to argue that the asymmetric appropriability of rents implies that losers lobby harder, while earlier explanations include the “social insurance” explanation of Hillman (1989) and the suggestion by Krueger (1990) that known losers in ailing industries are more visible than unknown gainers in expanding industries.

This can be illustrated by reference to the UK experience of the 1960s and 1970s, which delivered a very poor payoff and was hijacked by politicians who were afraid of de-industrialisation and creative destruction. There was a very clear tendency for selective subsidies to be skewed towards relatively few industries, notably aircraft, shipbuilding and, latterly, motor vehicles (Wren, 1996a). The high expenditure on shipbuilding is striking, since this was clearly an industry in which the UK no longer had a comparative advantage in the face of Asian competition. More generally, there was quite a strong bias towards shoring up ailing industries, which is well reflected in the portfolio of holdings of the National Enterprise Board (Wren, 1996b), in the pattern of tariff protection across sectors (Greenaway and Milner, 1994), and also in the nationalisations of the 1970s, where the prevalence of very poor rates of return reflected a lack of political will to eliminate productive inefficiency (Vickers and Yarrow, 1988).

Moreover, policies to subsidise British high-technology industries with a view to increasing world market share in sectors where supernormal profits might be obtained were notably unsuccessful in this period in a number of cases, including civil aircraft, which by 1974 had cost £1.5 billion at 1974 prices for a return of £0.14 billion (Gardner, 1976); computers (Hendry, 1989); and nuclear power (Cowan, 1990). A combination of subsidies to American producers linked to defence spending and the relatively small size of the British market undermined these attempts at rent-switching. The one sector which did represent a success was pharmaceuticals. It is generally agreed that government policy underpinned this success, but it is less clear what were the relative contributions of different aspects of that policy.

One major impact of government support may have been through the demand side and the drug-purchasing policies of the NHS. The Pharmaceutical Price Regulation Scheme (PPRS) shaped the incentives facing pharmaceutical companies. It is suggested by some that this acted as a successful industrial policy which provided a distinctive form of rate-of-return regulation that could be manipulated by the Department of Health to encourage R&D in the UK (Thomas, 1994). Others are sceptical, pointing out that the UK is a small part of the world market and that the quality of the science base is by far the most important factor in location decisions for R&D in pharmaceuticals (NERA, 2007). From this perspective, the most important aspect of government support has been the provision of elite research universities with world-class departments in the key sciences, together with public funding for research through the Medical Research Council.

12 For further details on the original Marshall Plan, see Crafts (2011).

13 The spending priorities of the current programme are not well aligned with the supply-side reforms that are required to improve productivity performance in southern Europe. Indeed, there is far too little emphasis on promoting structural reforms. A further key point is whether the recipient region has adequate absorptive capacity, which seems particularly to concern its level of human capital and its quality of government (Becker et al., 2012). In the absence of reaching an appropriate threshold in this regard, structural funds have had no medium-term growth effect, and indeed, have been unsuccessful in raising investment in Greece and Portugal.

14 For further discussion of the potential for a real Marshall Plan in today's eurozone, see Crafts (2012c).

Pre-crisis TFP growth was very weak, and there were large labour productivity gaps between southern Europe and the EU15 median. In that context, labour productivity growth was at best mediocre, and at worst very disappointing. This is underlined by the far superior labour productivity growth generally achieved by the 2004 accession countries, which saw Greece and Portugal overtaken in the early 2000s by Estonia, Slovakia and Slovenia. If the euro periphery's productivity problem could be effectively addressed, living happily within the eurozone would look much more feasible in the long run. The obstacle here relates to the political will to reform, rather than actual constraints arising from public finances.

The UK would also benefit from supply-side reform that raised its medium-term growth rate as a means of addressing its public finances and improving living standards. In the aftermath of the crisis, the mood of many people in the UK was captured by Peter Mandelson in his speech to the 2009 Labour Party Annual Conference, when he suggested that what was needed was "less financial engineering and a lot more real engineering". In part, this might be interpreted as saying (correctly) that re-regulation of the financial sector was required and that this would probably reduce its size. But it was also a call for strengthening industrial policy, which is (deservedly) much more controversial.

A key point here is that the UK benefited greatly from strengthening competition in product markets by abandoning protectionism, deregulating and, eventually, strengthening competition policy. This addressed long-standing problems of industrial relations and bad management which had appeared intractable. The empirical evidence is unequivocal; increased competition promoted better productivity performance (Crafts, 2012a). A major consequence, as emphasised by Aghion et al. (2011) is that, if there is to be a return to a more active industrial policy, it should be designed to minimise the adverse effects on competition.

This leads to a second essential point, namely, that the emphasis should be on good horizontal industrial policies to support productivity performance in the private sector.¹⁵ More generally, the development of endogenous growth theory suggests that horizontal policies which raise the appropriable rate of return to innovation and/or investment and speed up the diffusion of technology can have positive effects on the rate of growth. Quite a wide range of government policies might be relevant in this regard, including the structure of taxation, the extent and type of regulation, the quality of state education and the supply of infrastructure capital which raises private-sector profitability. With respect to horizontal industrial policies, the UK's record is mixed, and there is considerable scope for improvement, as empirical research has frequently pointed out, even though the OECD assessment reported in Table 3 seems to suggest that there is relatively little scope to improve productivity through structural policy reforms.

New growth economics has tended to stress the importance of policies towards education and R&D. In each area, it might be argued there have been some policy successes. The most important changes in education have included the expansion of higher education, the national curriculum and league tables for schools. The good news is that, based on international test scores in mathematics and science, the UK showed slow but steady improvement between 1975 and 2003, which

15 "Industrial policy" is perhaps best defined in the manner of Caves (1987) to encompass public-sector intervention aimed at changing the distribution of resources across economic sectors and activities. Thus, it includes both "horizontal" policies which focus on activities such as innovation, provision of infrastructure and so on, while "selective" policies aim to increase the size of particular sectors. The classic justification for industrial policy is that it remedies market failures, for example, by providing public goods, solving coordination problems, or subsidizing activities with positive externalities.

regression analysis suggests would have added a small amount to productivity growth. The bad news, however, is that the UK is still well below the top country (Hanushek and Woessmann, 2009). Nevertheless, growth-accounting estimates show a relatively strong contribution to growth in the recent past based on increasing proportions of the workforce with higher qualifications, as is reflected in Table 2. With regard to R&D, the big innovation in policy has been the R&D tax credit introduced in 2001 and subsequently expanded in its coverage. A careful ex-ante study suggested that the policy might raise UK TFP growth by about 0.3 percentage points per annum (Griffith et al., 2001), but subsequent analysis has found that estimates of benefit-cost ratios are highly sensitive to methodology, and design of the policy may need to be revisited (HMRC, 2010).

Unfortunately, with regard to public capital and transport infrastructure, the picture is much less encouraging. To maintain the level of public capital to GDP at a growth-maximising level, investment of about 2.7% of GDP per annum would be needed (Kamps, 2005), but over 1997-2008 the UK invested only 1.5% of GDP. In terms of cost-benefit analysis, Eddington (2006) reported there was a substantial backlog of road projects with very high benefit-cost ratios (typically strategic roads near urban areas, not “grand projects” such as high-speed rail) and estimated that a ten-year programme worth £30bn was required to catch up with this backlog, which would deliver annual welfare benefits of £3.4bn. Continuing the traditional roads policy, memorably described by Glaister (2002) as “predict but don’t provide”, runs the risk of a growing disincentive to private investment and of productivity being impaired as journey times increase (Rice et al., 2006).

It is certainly true that the revenue from “distortionary taxes” is much smaller as a proportion of GDP than in many European countries. Nevertheless, it is still fair to say that UK policy has been quite timid in making the sort of reforms that recent research, such as the Mirrlees Review, suggests would be most effective in stimulating long-term growth (Mirrlees et al., 2011). For example, this might entail reducing the effective rate of corporate tax while extending the VAT base. The effective average corporate tax rate in 2007 was only about 2 percentage points lower than in the early 1980s (Devereux, 2007), while the revenue produced by the current VAT regime, with its many exemptions, amounts to only about 48% of the total that would be raised if VAT were applied to all consumer expenditure. Using the estimates in HM Treasury (2007), imposing the standard rate of VAT on everything except food would allow a reduction of 12 percentage points in the corporate tax rate, which the OECD study estimates would raise the labour productivity growth rate by about 0.25 percentage points per annum over a ten-year period (Johansson et al., 2008).

The UK has benefited more than most European countries from the adoption of ICT, as Table 2 highlights. The diffusion of ICT has been aided by complementary investments in intangible capital and high-quality human capital and, importantly, also by policies of light regulation in terms of employment protection and barriers to entry in product markets. It should be noted, however, that not all UK regulation is productivity-friendly. Land-use planning is an aspect that creates massive allocative inefficiency and reduces labour productivity both by making land unduly expensive and by restricting city size, which means that agglomeration economies are forgone and spatial adjustment is impeded – successful British cities are too small (Leunig and Overman, 2008). One of the implications is an implicit regulatory tax rate of around 300%, which makes office space in cities such as Leeds and Manchester much more expensive

than even in New York and San Francisco (Cheshire and Hilber, 2008). These findings, together with sub-optimal investment in transport, are quite worrying in the context of the role of agglomerations in underpinning productivity and competitive advantage, especially in the financial and business services sectors (Graham, 2007) and suggest the need for serious policy reforms.

It may also be useful to look at the UK in terms of its ability to adjust to the challenges resulting from globalisation, in particular the rise of dynamic Asia. This turns on the country's export mix, the flexibility of its labour and product markets, and its strengths in innovation and education according to the index devised by Rae and Sollie (2007). They found that the UK ranked 8th out of 26 OECD countries based on having a relatively small share of low-technology and a relatively large share of high-technology exports; a labour market which redeploys workers relatively quickly and has limited insider power; strong product market competition; and respectable scores in education and innovation.

That said, it should be recognised that productivity performance in the UK not only exhibits agglomeration benefits, but also has quite a strong regional component. Econometric analysis of production functions finds that, across all sectors, plants in the south-east have a substantial TFP advantage over the rest of Britain (Harris and Moffat, 2011). This suggests that resilience in the face of foreign competition would be strengthened by the removal of some of the obstacles to spatial adjustment to the challenges of globalisation that are imposed by the planning system and sub-standard transport infrastructure.

In sum, there are plenty of evidence-based policy changes that could improve productivity performance. Sadly, many of them are politically too difficult to adopt. It is unfortunate that this has severely constrained supply-side policy, for example, by making serious pro-growth reforms to the tax and planning systems no-go zones.

6. Policy conclusions

- Conventional wisdom is that medium-term growth prospects are unaffected by the financial crisis which began in 2007. This seems overly optimistic. Considering both the direct effects and the pressures to change policies in directions that will undermine rather than stimulate growth, it is quite possible that growth in the euro area between 2012 and 2030 will be closer to 1% per annum, as opposed to the pre-crisis rate of 2.3%.
- A major consequence of the crisis is that average public debt-to-GDP ratios in European countries will approach or even exceed 100%. Past experience says the existence of such high debt ratios will of itself reduce growth performance by at least 0.5 percentage points per annum. Attempts to address this issue through fiscal consolidation, which may last for many years, will further depress growth.
- Fiscal consolidation can be undertaken in a variety of ways with very different implications for growth potential. Past experience suggests there is a real danger that government expenditure on education and infrastructure will be jeopardised. A key policy implication is that supply-side impacts need to be taken seriously, and the emphasis is on cutting current rather than capital expenditure and on raising indirect taxes.
- Supply-side reforms undertaken now could potentially raise European growth rates by as much as 0.5 to 1 percentage points per annum over the period to 2030. A key implication would be faster and more complete diffusion of ICT.

The general thrust of these reforms would include fiscal changes to reduce distortionary taxation, strengthening competition and reducing regulations that damage productivity, and improving the quality of education. Generally speaking, this could be done without undermining public finances, but it would undoubtedly upset many voters.

- The UK appears less in need of, and to have less to gain from, supply-side reform, according to OECD research. This is misleading, as there is considerable scope to enhance Britain's growth performance over the medium term. The areas where supply-side policy can be improved include raising the quality of education, repairing the infrastructure shortfall, tax reforms along the lines proposed by the Mirrlees Review and, importantly, reducing the massive inefficiencies resulting from the planning system. A return to selective industrial policies, however, would be a mistake.
- The debt overhang makes reforms that raise the growth rate in European countries more urgent because of the favourable impact they would have on fiscal sustainability but, unfortunately, this is unlikely. Indeed, the pressures of the crisis may well push policy in an adverse direction, especially if there appears to be no scope to stimulate economic activity using conventional fiscal or monetary policies. Indeed, the 1930s crisis led to more regulation, less competition, increased protectionism and financial repression.
- The experience of the 1930s also suggests there is a real risk of European economic integration being partially reversed, or even of the eurozone collapsing in chaos with a large cumulative GDP loss over five or more years. In this context, devaluation and sovereign default may have increasing political appeal. The logic of the political trilemma is that if deep economic integration is to survive, then a much more federal Europe is required, but this is much easier said than done and, in any event, will take considerable time to implement.
- In the meantime, a "real" Marshall Plan could be a useful way to address problems in some euro periphery countries. The appropriate interpretation of this plan would be to implement structural adjustment programmes that entail strict conditionality to achieve supply-side reform in return for serious flows of aid. Unfortunately, this is unlikely to appeal to countries in both northern and southern Europe.

References

- Abramovitz, M. (1986), "Catching Up, Forging Ahead, and Falling Behind", *Journal of Economic History*, 36, 385-406.
- Aghion, P. and Howitt, P. (2006), "Appropriate Growth Theory: a Unifying Framework", *Journal of the European Economic Association*, 4, 269-314.
- Aghion, P., Dewatripont, M., Du, L., Harrison, A. and Legros, P. (2011), "Industrial Policy and Competition", CEPR Discussion Paper No. 8619.
- Alesina, A., Favero, C. and Giavazzi, F. (2012), "The Output Effects of Fiscal Consolidation", NBER Working Paper No. 18336.
- Allen, F., Carletti, E. and Leonello, A. (2011), "Deposit Insurance and Risk Taking", *Oxford Review of Economic Policy*, 27, 464-478.
- Ali Abbas, S. M., Belhocine, N., El-Ganainy, A. and Horton, M. (2011), "Historical Patterns and Dynamics of Public Debt – Evidence from a New Database", *IMF Economic Review*, 59, 717-742.
- Auerbach, A. and Gorodnichenko, Y. (2011), "Fiscal Policy in Recession and Expansion", NBER Working Paper No. 17447.
- Bacchiocchi, E., Borghi, E. and Missale, A. (2011), "Public Investment under Fiscal Constraints", *Fiscal Studies*, 32, 11-42.
- Badinger, H. and Maydell, N. (2009), "Legal and Economic Issues in Completing the EU Internal Market for Services: an Interdisciplinary Perspective", *Journal of Common Market Studies*, 47, 693-717.
- Baldwin, R., Di Nino, V., Fontagne, L., De Santis, R. and Taglioni, D. (2008), "Study on the Impact of the Euro on Trade and Foreign Direct Investment", *European Economy Economic Papers* No. 321.
- Baldwin, R. E. and Robert-Nicoud, F. (2007), "Entry and Asymmetric Lobbying: Why Governments Pick Losers", *Journal of the European Economic Association*, 5, 1064-1093.
- Barnes, S., Bouis, R., Briard, P., Dougherty, S. and Eris, M. (2011), "The GDP Impact of Reform: a Simple Simulation Framework", OECD Economics Department Working Paper No. 834.
- Barone, G. and Cingano, F. (2011), "Service Regulation and Growth: Evidence from OECD Countries", *Economic Journal*, 121, 931-957.
- Barrell, R., Gootschalk, S., Holland, D., Khoman, E., Liadze, I. and Pomerantz, O. (2008), "The Impact of EMU on Growth and Employment", *European Economy Economic Papers* No. 318.
- Becker, S. O., Egger, P. and von Ehrlich, M. (2012), "Absorptive Capacity and the Growth Effects of Regional Transfers: a Regression Discontinuity Design with Heterogeneous Treatment Effects", CAGE Working Paper No. 89.
- Ben-David, D., Lumsdaine, R. and Papell, D. H. (2003), "Unit Roots, Postwar Slowdowns and Long-Run Growth: Evidence from Two Structural Breaks", *Empirical Economics*, 28, 303-319.
- Bennett, H., Escolano, J., Fabrizio, S., Gutierrez, E., Ivaschenko, I., Lissovolik, B., Schule, W., Tokarick, S., Xiao, Y. and Moreno Badia, M. (2008), "Competitiveness in the Southern Euro Area: France, Greece, Italy, Portugal, and Spain", IMF Working Paper No. 08/112.
- Bernanke, B. (1983), "Non-Monetary Effects of the Financial Crisis in the Propagation of the Great Depression", *American Economic Review*, 73, 257-276.
- Bernanke, B. (1995), "The Macroeconomics of the Great Depression: a Comparative Approach", *Journal of Money, Credit and Banking*, 27, 1-28.
- Bernanke, B. and James, H. (1991), "The Gold Standard, Deflation, and

Financial Crisis in the Great Depression: an International Comparison”, in Hubbard, R.G. (ed.), *Financial Markets and Financial Crises*. Chicago: University of Chicago Press.

Breinlich, H. and Tucci, A. (2010), “Foreign Market Conditions and Export Performance: Does “Crowdedness” Reduce Exports?”, CEPR Discussion Paper No. 7975.

Buccirosi, P., Ciari, L., Duso, T., Spagnolo, G. and Vitale, C. (2013), “Competition Policy and Productivity Growth: an Empirical Assessment”, *Review of Economics and Statistics*, forthcoming.

Calomiris, C. W. (2010), “The Political Lessons of Depression-Era Banking Reform”, *Oxford Review of Economic Policy*, 26, 540-560.

Caves, R. E. (1987), “Industrial Policy and Trade Policy: the Connections”, in H. Kierzkowski (ed.), *Protection and Competition in International Trade: Essays in Honour of W. M. Corden*. Oxford: Blackwell.

Checherita, C. and Rother, P. (2010), “The Impact of High and Growing Government Debt on Growth: an Empirical Investigation for the Euro Area”, ECB Working Paper No. 1237.

Cheshire, P. and Hilber, C. (2008), “Office Space Supply Restrictions in Britain: the Political Economy of Market Revenge”, *Economic Journal*, 118, F185-F221.

Cliffe, M. (2011), *EMU Break-Up: Pay Now, Pay Later*. London: ING.

Conway, P., de Rosa, D., Nicoletti, G. and Steiner, F. (2006), “Regulation, Competition and Productivity Convergence”, OECD Economics Department Working Paper No. 509.

Cowan, R. (1990), “Nuclear Power Reactors: a Study in Technological Lock-In”, *Journal of Economic History*, 50, 541-567.

Crafts, N. (2004), “Steam as a General Purpose Technology: a Growth Accounting Perspective”, *Economic Journal*, 114, 338-351.

Crafts, N. (2011), “The Marshall Plan: a Reality Check”, CAGE Working Paper No. 49.

Crafts, N. (2012a), “British Relative Economic Decline Revisited: the Role of Competition”, *Explorations in Economic History*, 49, 17-29.

Crafts, N. (2012b), “Western European Growth Prospects: an Historical Perspective”, CAGE Working Paper No. 72.

Crafts, N. (2012c), “Saving the Eurozone: Is a ‘Real’ Marshall Plan the Answer?”, CAGE-Chatham House Policy Paper No. 1.

Crafts, N. and Magnani, M. (2011), “The Golden Age and the Second Globalization in Italy”, CAGE Working Paper No. 61.

De Bromhead, A., Eichengreen, B. and O’Rourke, K. H. (2012), “Right-Wing Political Extremism in the Great Depression”, NBER Working Paper No. 17871.

De Long, J. B. and Eichengreen, B. (1993), “The Marshall Plan: History’s Most Successful Adjustment Program”, in R. Dornbusch, W. Nolling and R. Layard (eds.), *Postwar Economic Reconstruction and Lessons for the East Today*. Cambridge, Mass.: MIT Press, 189-230.

Devereux, M. (2007), “Developments in the Taxation of Corporate Profit in the OECD since 1965: Rates, Bases and Revenues”, Oxford Said Business School Working Paper No. 07/04.

Dew-Becker, I. and Gordon, R. J. (2008), “The Role of Labor Market Changes in the Slowdown of European Productivity Growth”, NBER Working Paper No. 13840.

Diamond, D. and Dybvig, P. (1983), “Bank Runs, Deposit Insurance, and Liquidity”, *Journal of Political Economy*, 91, 401-419.

Dollar, D. and Svensson, J. (2000), "What Explains the Success or Failure of Structural Adjustment Programmes?", *Economic Journal*, 110, 894-917.

Duval, R. (2003), "Retirement Behaviour in OECD Countries: Impact of Old-Age Pension Schemes and Other Social Transfer Programmes", *OECD Economic Studies*, 37, 7-50.

Eddington, R. (2006), *The Eddington Transport Study*. London: The Stationery Office.

Eichengreen, B. (2006), *The European Economy since 1945*. Princeton: Princeton University Press.

Eichengreen, B. (2011), "Crisis and Growth in the Advanced Economies: What We Know, What We Do Not, and What We Can Learn from the 1930s", *Comparative Economic Studies*, 53, 383-406.

Eichengreen, B. and Irwin, D. (2010), "The Slide to Protectionism in the Great Depression: Who Succumbed and Why?", *Journal of Economic History*, 70, 871-897.

Eichengreen, B. and Portes, R. (1990), "The Interwar Debt Crisis and Its Aftermath", *World Bank Research Observer*, 5, 69-94.

Eichengreen, B. and Temin, P. (2010), "Fetters of Gold and Paper", *Oxford Review of Economic Policy*, 26, 370-384.

European Commission (2010), *Surveillance of Intra-Euro-Area Competitiveness and Imbalances*.

Evenett, S. J. and Vines, D. (2012), "Crisis-Era Protectionism and the Multilateral Governance of Trade: An Assessment", *Oxford Review of Economic Policy*, 28, 195-210.

Field, A. J. (2013), "Economic Growth and Recovery in the United States, 1919-41", in N. Crafts and P. Fearon (eds.), *The Great Depression of the 1930s: Lessons for Today*. Oxford: Oxford University Press, forthcoming.

Fishback, P. V. (2007), "The New Deal", in P. V. Fishback (ed), *Government and the Economy: a New History*. Chicago; University of Chicago Press, 384-430.

Fishback, P. and Wallis, J. J. (2013), "What Was New about the New Deal?", in N. Crafts and P. Fearon (eds.), *The Great Depression of the 1930s: Lessons for Today*. Oxford: Oxford University Press, forthcoming.

Furceri, D. and Mourougane, A. (2009), "The Effect of Financial Crises on Potential Output: New Empirical Evidence from OECD Countries", OECD Economics Department Working Paper No. 699.

Gardner, N. (1976), "The Economics of Launching Aid", in A. Whiting (ed.), *The Economics of Industrial Subsidies*. London: HMSO.

Glaister, S. (2002), "UK Transport Policy, 1997-2001", *Oxford Review of Economic Policy*, 18, 154-186.

Graham, D. (2007), "Variable Returns to Agglomeration and the Effect of Road Traffic Congestion", *Journal of Urban Economics*, 62, 103-120.

Greenaway, D. and Milner, C. (1994), "Determinants of the Inter-Industry Structure of Protection in the UK", *Oxford Bulletin of Economics and Statistics*, 56, 399-419.

Griffith, R., Harrison, R. and Simpson, H. (2010), "Product Market Reform and Innovation in the EU", *Scandinavian Journal of Economics*, 112, 389-415.

Griffith, R., Redding, S. and van Reenen, J. (2001), "Measuring the Cost-Effectiveness of an R & D Tax Credit for the UK", *Fiscal Studies*, 22, 375-399.

Guajardo, J., Leigh, D. and Pescatori, A. (2011), "Expansionary Austerity: New International Evidence", IMF Working Paper No. 11/158.

Hagemann, R. P. (2012), "Fiscal Consolidation Part 6: What are the Best Policy Instruments for Fiscal Consolidation?", OECD Economics Department Working Paper No. 937.

Hanushek, E. and Woessmann, L. (2009), "Do Better Schools Lead to More Growth? Cognitive Skills, Economic Outcomes, and Causation", NBER Working Paper No. 14633.

Harris, R. and Moffat, J. (2011), "Plant-Level Determinants of Total Factor Productivity in Great Britain, 1997-2006", London School of Economics Spatial Economics Research Centre Discussion Paper No. 64.

Hendry, J. (1989), *Innovating for Failure: Government Policy and the Early British Computer Industry*. London: MIT Press.

Hillman, A. (1989), *The Political Economy of Protection*. New York: Harwood Academic Publishers.

HMRC (2010), "An Evaluation of Research and Development Tax Credits. ", *Research Report No. 107*. London.

HM Treasury (2007), *Tax Ready Reckoner and Tax Reliefs*. London.

Hoj, J., Jimenez, M., Maher, M., Nicoletti, G. and Wise, M. (2007), "Product Market Competition in OECD Countries: Taking Stock and Moving Forward", OECD Economics Department Working Paper No. 575.

Institute for Fiscal Studies (2010), *Green Budget 2010*.

International Monetary Fund (2009), *World Economic Outlook*.

Irwin, D. A. (2010) "Did France Cause the Great Depression?", NBER Working Paper No. 16350.

Irwin, D. A. (2012), *Trade Policy Disaster*. Cambridge, Mass.: MIT Press.

Jacks, D. S., Meissner, C. M. and Novy, D. (2011), "Trade Booms, Trade Busts, and Trade Costs", *Journal of International Economics*, 83, 185-201.

Johansson, A., Heady, C., Arnold, J., Brys, B. and Vartis, L. (2008), "Taxation and Economic Growth", OECD Economics Department Working Paper No. 620.

Kamps, C. (2005), "Is There a Lack of Public Capital in the European Union?", *EIB Papers*, 10(1), 73-93.

Kee, H. L., Neagu, C. and Nicita, A. (2010), "Is Protectionism on the Rise?: Assessing National Trade Policies during the Crisis of 2008", World Bank Policy Research Working Paper No. 5274.

Kneller, R., Bleaney, M. and Gemmell, N. (1999), "Fiscal Policy and Growth: Evidence from OECD Countries", *Journal of Public Economics*, 74, 171-190.

Krueger, A. (1990), "Asymmetries in Policy between Exportables and Import-Competing Goods", in R. Jones and A. Krueger (eds.), *The Political Economy of International Trade*. Oxford: Blackwell.

Kumar, M. S. and Woo, J. (2010), "Public Debt and Growth", IMF Working Paper No. 10/174.

Laeven, L. and Valencia, F. (2012), "Systemic Banking Crises Database Update", IMF Working Paper No. 12/163.

Leunig, T. and Overman, H. (2008), "Spatial Patterns of Development and the British Housing Market", *Oxford Review of Economic Policy*, 24, 59-78.

Lindert, P. H. (2004), *Growing Public*. Cambridge: Cambridge University Press.

Maddison, A. (2003), *The World Economy: Historical Statistics*. Paris: OECD.

Mehrotra, A. and Valila, T. (2006), "Public Investment in Europe: Evolution and Determinants in Perspective", *Fiscal Studies*, 27, 443-471.

Miles, D., Yang, J. and Marcheggiano, G. (2013), "Optimal Bank Capital", *Economic Journal*, forthcoming.

Millward, R. (2011), "Public Enterprise in the Modern Western World: an Historical Analysis", *Annals of Public and Cooperative Economics*, 82, 375-398.

Mirrlees, J., Adam, S., Besley, T., Blundell, R., Bond, S., Chote, R., Gammie, M., Johnson, P., Myles, G. and Poterba, J. (2011), "The Mirrlees Review: Conclusions and Recommendations for Reform", *Fiscal Studies*, 32, 331-359.

Molnar, M. (2012), "Fiscal Consolidation Part 5: What Factors Determine the Success of Consolidation Efforts?", OECD Economics Department Working Paper No. 936.

NERA (2007), *Key Factors in Attracting Internationally-Mobile Investments by the Research-Based Pharmaceutical Industry*. London.

Nickell, S. J. (2003), "A Picture of European Unemployment: Success and Failure", London School of Economic Centre for Economic Performance Discussion Paper No. 577.

OECD (2012), *Economic Outlook*.

Oulton, N. (2010), "Long-term Implications of the ICT Revolution: Applying the Lessons of Growth Theory and Growth Accounting", London School of Economics Centre for Economic Performance Discussion Paper No. 1027.

Quinn, D. P. and Toyoda, A. M. (2008), "Does Capital Account Liberalization Lead to Growth?", *Review of Financial Studies*, 21, 1403-1449.

Rae, D. and Sollie, M. (2007), "Globalisation and the European Union: Which Countries are Best Placed to Cope?", OECD Economics Department Working Paper No. 586.

Reinhart, C. M. and Sbrancia, M. B. (2011), "The Liquidation of Government Debt", NBER Working Paper No. 16893.

Rice, P., Venables, A. J. and Patacchini, E. (2006), "Spatial Determinants of Productivity: Analysis for the Regions of the UK", *Regional Science and Urban Economics*, 36, 727-752.

Rodrik, D. (2000), "How Far will International Economic Integration Go?", *Journal of Economic Perspectives*, 14(1), 177-186.

Sapir, A. (2006), "Globalization and the Reform of European Social Models", *Journal of Common Market Studies*, 44, 369-390.

The Conference Board (2012), Total Economy Database.

Thomas, L.G. (1994), "Implicit Industrial Policy: the Triumph of Britain and the Failure of France in Global Pharmaceuticals", *Industrial and Corporate Change*, 3, 451-489.

Timmer, M., Inklaar, R., O'Mahony, M. and van Ark, B. (2010), *Economic Growth in Europe: a Comparative Economic Industry Perspective*. Cambridge: Cambridge University Press.

Vickers, J. and Yarrow, G. (1988), *Privatization: an Economic Analysis*. London: MIT Press.

Vietor, R. H. K. (1994), "Contrived Competition: Economic Regulation and Deregulation, 1920-1980s", *Business History*, 36(4), 1-32.

Voth, H-J. (2003), "Convertibility, Currency Controls and the Cost of Capital in Europe, 1950-1999", *International Journal of Finance and Economics*, 8, 255-276.

Wilson, D., Trivedi, K., Carlson, S. and Ursua, J. (2011), "The BRICs 10 Years On: Halfway Through the Great Transformation", Goldman Sachs Global Economics Paper No. 208.

Woessmann, L., Ludemann, E., Schutz, M. and West, M. R. (2007), "School Accountability, Autonomy, Choice and the Level of Student Achievement: International Evidence from PISA 2003", OECD Education Working Paper No. 13.

Wolf, N. (2008), "Scylla and Charybdis: Explaining Europe's Exit from Gold, January 1928 to December 1936", *Explorations in Economic History*, 45, 383-401.

Wolf, N. (2012), "Crises and Policy Responses within the Political Trilemma: Europe, 1929-36 and 2008-2011", EHES Working Papers in Economic History No. 16.

Wren, C. (1996a), "Grant-Equivalent Expenditure on Industrial Subsidies in the Postwar United Kingdom", *Oxford Bulletin of Economics and Statistics*, 58, 317-353.

Wren, C. (1996b), *Industrial Subsidies: the UK Experience*. London: Macmillan.

Wyplosz, C. (2001), "Financial Restraints and Liberalization in Postwar Europe" in Caprio, G., Honohan, P. and Stiglitz, J. (eds.), *Financial Liberalization: How Far, How Fast?*. Cambridge: Cambridge University Press, 125-158.