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Test of the German Resilience

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Test of the German Resilience*

Fabian Bornhorst[1] and Ashoka Mody[2]

October 2012

Abstract

From its early post-war catch-up phase, Germany's formidable export engine has been its consistent driver of growth. But Germany has almost equally consistently run current account surpluses. Exports have powered the dynamic phases and helped emerge from stagnation. Volatile external demand, in turn, has elevated German GDP growth volatility by advanced countries' standards, keeping domestic consumption growth at surprisingly low levels. As a consequence, despite the size of its economy and important labor market reforms, Germany's ability to act as global locomotive has been limited. With increasing competition in its traditional areas of manufacturing, a more domestically-driven growth dynamic, especially in the production and delivery of services, will be good for Germany and for the global economy. Absent such an effort, German growth will remain constrained, and Germany will play only a modest role in spurring growth elsewhere.

JEL Classifications: E20, E65, N14, O52, P52

Keywords: Economic Performance, Economic Reforms, Economic Recovery, Current Account, Productivity, Labor Market, Spillovers, Germany

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I. INTRODUCTION[1]

In the nearly 70 years since World War II, the German—earlier the West German—economy has enjoyed dynamic phases, interspersed with periods of slow, even anemic, growth. Germany's continuing ability to maintain competitive manufactured exports has been crucial to its resilience and dynamism, but has not always been sufficient. This dependence on exports as the economic driver of the German economy helps understand its post-war evolution, including its recovery following the post-Lehman collapse. It also points to the challenges that Germany faces: the calls to do more for the European and global economy and the risk that the rise of manufacturing capabilities in emerging markets will eventually wear down Germany's stronghold. In this essay, we review Germany's growth record in four phases, and sneak a look into the future.

- For about a decade and a half after World War II, until the early 1960s, the economy responded spectacularly by making up lost ground. German companies exploited their traditional advantage in capital and durable goods production for sale to a growing world economy and also to meet pent-up domestic demand.
- In the next four decades—until about 2003—economic performance gradually turned less impressive. The catch-up potential necessarily waned and the oil shocks of the 1970s raised costs and reduced global demand. By the mid-1980s, with rising wages, West Germany was losing its competitive edge. The unification of West and East Germany in 1990 provided a short domestic boost, but then the German economy again went into a swoon.
- Starting around 2004, a strong global economy combined with reforms that helped Germany regain competitiveness provided a new opportunity to German exporters. With success came a historically-large current account surplus, which was criticized for contributing to global imbalances. But the growth dynamic was summarily interrupted in early 2008 by the onset of the "Great Recession," when the collapse in global trade also swept Germany.
- The recovery from the collapse has once again demonstrated German resilience. German companies deepened their export links to the growing economies of Asia, and policymakers have supported stabilization and growth through measures to maintain employment and a sizeable fiscal stimulus.

New challenges have to be faced. Some are not unique to Germany. With its reliance on exports, a high savings rate, and current account surplus, Germany shares similarities with Japan, to the extent that one country can be like another. Looking ahead, like their Japanese counterparts, German exporters face heightened competition, especially from Asia but also from Emerging Europe. And as in Japan, a rapidly aging population will imply a smaller work force and changes in savings and investment patterns with far-reaching consequences.

[1] This essay is also the introductory chapter to the book *Germany in an Interconnected World* (Mody, 2012). Much of the work underlying the book and its principal policy conclusions was developed for the IMF's Article IV consultation with Germany in 2011 (IMF, 2011).

But Germany's challenges arise also from its unique role in Europe: in particular, Germany's expected contribution to the European recovery and a resolution of the euro area crisis remains controversial.

As this preview suggests, throughout the post-war era, (West) Germany has benefited greatly from its relationship with the global economy, but there have been lingering questions whether the German contributions to global and European growth have been commensurate. From its early catch-up phase, Germany's formidable export engine has been its consistent driver of growth. But with almost equal consistency, Germany has run current account surpluses, with imports lagging exports. As a consequence, despite the size of its economy, Germany's ability to act as global locomotive has been limited. Germany has contributed to global well-being in important ways—notably through its foreign direct investment and, in particular, the production linkages its companies have built throughout Europe. Nevertheless, the calls on Germany to do more remain vigorous, especially as the European crisis has persisted.

The argument in this essay (and in the other chapters in Mody, 2012) is that the German economy has evolved along a particular historical trajectory that tends to reinforce its growth patterns. The innovative manufacturing sector has remained a consistent source of growth, but it has been heavily dependent on external demand. The volatility of external demand, in turn, has caused German GDP growth to be relatively volatile by the standards of advanced countries. Such volatility has likely been a factor in keeping domestic demand growth—especially consumption growth—at surprisingly low levels. As a consequence, the domestically oriented segment of Germany's economy has lagged. This has been so especially in the production and delivery of services. In turn, this has reinforced the drive for foreign markets. Looking ahead, a more domestically-driven growth dynamic will be good for Germany and for the global economy.

The key challenge for Germany is then to generate new domestic sources of growth. One recent episode—reunification—raised domestic demand but that boom proved unsustainable as the economic problems associated with unification surfaced. Labor market reforms in response to the ensuing period of stagnation were a bold response, and have proven largely successful. But much of the gain in competitiveness translated into further growth in manufactured exports and current account surpluses. Therefore, despite the notable service sector advances achieved since the mid-1990s, a further broad-based impetus to services growth is required. Absent such an effort, German growth will remain constrained, and Germany will tend to run current account surpluses while playing only a modest role in spurring growth elsewhere.

Just as the German economy is similar to that of Japan—dependent on exports, running current account surpluses, and generating limited international growth spillovers—the contrast with the United States is marked. The United States is characterized by more reliance on domestic consumption and, as a consequence, persistent current account deficits but high international growth spillovers. Despite popular characterization of the U.S. financial sector's casino capitalism, both the U.S. GDP and its stock market have been less volatile than in either Germany or Japan. In part, this reflects the greater reliance on domestic consumption, which tends to be more stable than exports. But the United States has also been more diversified, with innovations in globally-leading technologies giving it an edge in productivity growth, especially in the services sector. In the future, Germany will perhaps draw on approaches to fostering innovation practiced in the United States, while also maintaining its greater emphasis on social safety nets, where lessons may be available from the Nordic countries.

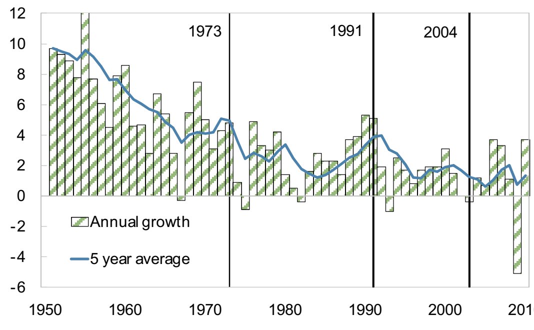
In this essay, we step back from the themes of immediate policy focus to provide a broad overview of German economic growth and international connections over the past half century. The intent is to describe the historical trajectory that has brought Germany to its present balance of strengths and weaknesses, and to use that analysis to explore the best way forward.

This essay is presented in four main parts, reflecting the four relatively distinct phases of German growth. First, the immediate post-war period witnessed a rapid catch up with the United States and, importantly, reestablished its export prowess that has remained Germany's well-spring ever since. Second, growth slowed starting the early 1960s, and the oil shocks of the 1970s and unification in 1990 proved to be particularly onerous. Third, the reemergence from this setback on the back of extended global prosperity was aided by wage moderation and broad-based domestic reform. And forth, the collapse triggered by the Great Recession and the subsequent recovery have brought Germany to a new phase with new challenges to tackle.

II. The Postwar Catch-Up

Emerging from World War II, West Germany set the pace for much of Western Europe as it embarked on a remarkable catch-up. A massive reconstruction effort was mounted and the depleted capital stock was rebuilt. Growth in those immediate post-war years was in the double digits (Figure 1). Aid flowing to Europe through the European Recovery Program (also known as the Marshall Plan) was an important catalyst in addressing infrastructure bottlenecks and reviving trade. Germany also reclaimed its historic advantages as an exporter of capital and durable goods. Between 1948 and 1950, the pent-up demand for consumption and investment drew in substantial imports, but exports started growing rapidly right from the start, with exceptionally high annual growth rates (Table 1). By 1950, exports had exceeded imports and the German trade surplus established then has persisted with some ups and downs ever since. By 1960, West Germany's shares of world exports and imports exceeded those of the German Reich before World War II (Giersch, Paque, and Schmieding, 1992).

Figure 1. Germany's Growth Performance since 1950
(percent)



Source: German Statistical Office. From 1950-1991 data for West Germany.
Data prio to 1970 based on different National Accounts methodology and thus not fully comparable.

Table 1: West Germany's Foreign Trade
(average annual percentage change)

	1948-1950	1950-1960
Import volume	26.8	15.0
Export volume	84.4	16.1

Source: Giersch, Paque, and Schmieding (1992)

Eichengreen (2006) describes this as a period of *extensive* European growth, with Germany in the vanguard. He defines extensive growth as that which deploys relatively well-established technologies. "It is the process of raising output by putting more people to work at familiar tasks and raising labor productivity by building more factories along the lines of existing factories" (Eichengreen, 2006, p. 6). Millions of refugees arrived in Germany and, in the immediate postwar period, internal labor mobility was also high. Nearly full employment conditions were achieved, with the unemployment rate down to below 1 percent in 1960. In reorganizing production and rebuilding the capital stock, efficiency gains were substantial and quickly realized.

Several factors facilitated this outcome. Not only was plentiful labor available, the workers were also industrially literate—or were readily trainable through the traditional vocational training systems. Such systems met the need of the moment precisely because the challenge at hand was not to build new widgets but to build known widgets in larger quantities with incremental technical improvements in a learning-by-doing process. At the same time, an extensive network of relationship-based banking systems provided the needed patient capital to finance the investments. This confluence led to modest wage demands, which allowed profitable firms the resources and the confidence to invest in their workforce and in growth.

Germany was particularly well-suited to take advantage of these conditions. Giersch (1992, p. 89) writes: "Germany's traditional strength in the production of capital goods paid off handsomely in the 1950s, when these goods were in particularly high demand on the world market. In addition, the change in relative prices testifies to the improving quality and sophistication of these exports goods." In a similar vein, Eichengreen (2006, pp. 93-94) elaborates:

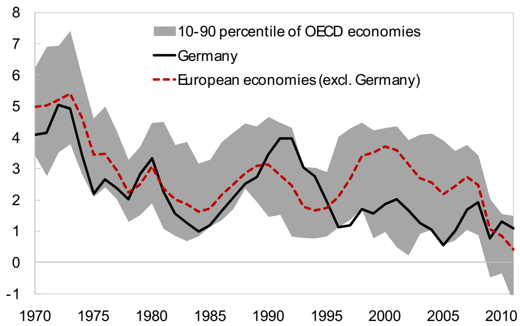
> The country already possessed the relevant range of industries, from coal and steel to transport equipment and electrical machinery…. Small and medium-sized firms competed with legions of other small and medium-sized firms, requiring them to price aggressively and reduce costs in order to survive. In turn this rendered German firms highly competitive on international markets. Exports rose from 9 percent of national income in 1950 to 19 percent in 1960. External conditions were also propitious for German recovery. Investment demand was high throughout Europe, aiding German firms specializing in the production of capital goods. The Korean crisis stimulated demand for capital goods worldwide. And just when Germany's expanding industrial sector began diversifying into the production of consumer goods, private consumption surged across Europe, reflecting rising incomes and in turn helping to sustain the growth of German exports….Investment and exports were the fast-growing components of aggregate demand, and government and private consumption the slow-growing ones.

Thus, while all of Europe did well during this period, Germany did particularly well. Other countries that grew about as rapidly included Austria, which had close economic ties to Germany, and Italy. While Germany was leveraging off an established industrial capability, Italian growth was due to the shift of resources from agriculture to industry.

III. The Slowdown

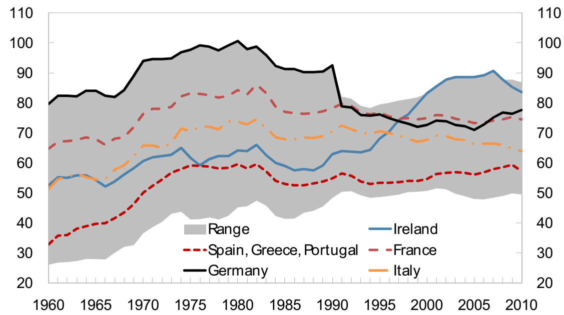
The precise timing of the shift is difficult to pin down, but the growth benefits of the German miracle leveled off in the 1960s. The indicators are clear. From an average growth of about 9 percent in the early 1950s, GDP growth fell to about 4½ percent by the mid-1960s (Figure 1). German growth, which had set the pace for Europe in the immediate postwar years, now fell below the European average growth rate (Figure 2). The rapid process of German catch-up with the United States stalled and even began a modest reversal in the 1980s (Figure 3). The slowdown was to be expected. Growth could not persist at the early giddy levels and, as Germany became richer, the convergence possibilities diminished, while the latecomers started their own catch-up process.

Figure 2. Growth in a Comparative Perspective
(5 year average, percent)



Sources: World Economic Outlook, IMF Staff estimates.

Figure 3. Per Capita GDP relative to the U.S.
(real per capita GDP to U.S. per capita GDP, in percent, PPP constant prices)



Sources: World Economic Outlook, OECD.
1/ Maximum excludes Luxembourg.

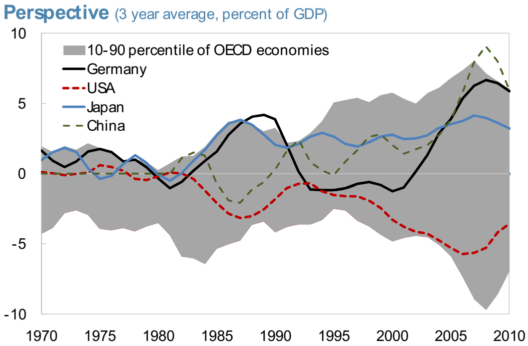
The significance of this phase, therefore, lies in two developments, both of which contributed to the slowdown, but had longer-term implications lasting into the present. First, the gains possible from extensive growth tapered off and a new phase of *intensive* growth created new demands on German firms. Eichengreen (2006, p. 6) defines intensive growth as "…growth through innovation. A larger share of the increase in output is accounted for by technical change, and less by the growth of factor inputs." Thus, it was not merely a matter of narrowing growth opportunities but also a change in the character of those further possibilities and, hence, the resources needed to exploit them.

Second, important changes occurred in the organization of the labor market. The rapid growth drew in much of the surplus labor and with near full employment conditions, the labor market started tightening by the early 1960s. West Germany went from a state of capital shortage to one of labor shortage, which, despite the pursuit of active labor immigration policies (*Gastarbeiter*), led to demands for higher wages. Reduced profits implied lower investment and growth. Moreover, as wages started rising, employment prospects steadily worsened during the 1970s. The response to this conjuncture was central to shaping the period from the 1970s through the late-1990s. Dew-Becker and Gordon (2012, p. 17) write:

> …policies adopted to fight unemployment had adverse effects on employment per capita (see Nickell *et al.*, 2005). To deal with individual hardship caused by higher unemployment, governments increased the generosity and duration of unemployment benefits. To limit the increase in unemployment itself, they attempted to regulate layoffs through employment protection legislation (EPL). To spread the available jobs across the population, they resorted to legislation favoring early retirement and shorter hours of work, so-called "work sharing" (Alesina, Glaeser, and Sacerdote, 2006).

New headwinds gathered momentum in the 1970s with the oil crises and the collapse of the Bretton Woods system, which abruptly changed the external environment for West Germany. Much of the industrial world experienced the angst of declining productivity growth as the pool of innovations appeared to run dry. Germany felt the first taste of competition from newly industrialized economies. German growth slowed to an average of 2½ percent during the 1970s and 1980s. Domestic consumption remained subdued, and as a consequence import demand was low. Despite the greater competition faced by German exporters, current account surpluses continued (Figure 4).

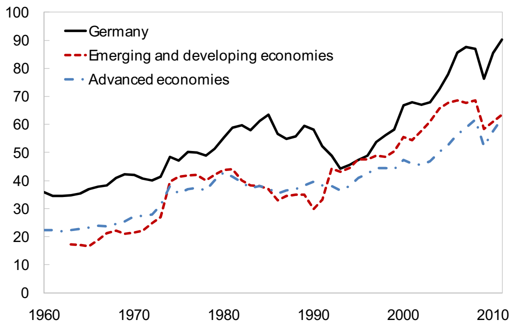
Figure 4. Current Account Balance in Comparative Perspective (3 year average, percent of GDP)



Source: World Economic Outlook, IMF Staff estimates.

German unification in 1990 brought further challenges. The integration of the much less competitive economy of Eastern Germany proved to be economically costly and had a long lasting influence on economic developments. Unemployment increased substantially, and public finances came under pressure. GDP growth in the 1990s averaged just about 1½ percent per year.[2] Unification did bring about a temporary current account deficit due to a boom in publicly led investment, and the trade-to-GDP ratio, already on a mild downward path from the mid-1980s, fell sharply (Figure 5).

Figure 5. Trade Openness
(value of imports and exports, percent of GDP)

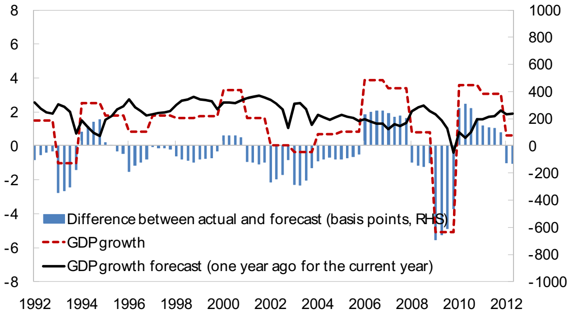


Sources: World Economic Outlook, IMF Staff estimates.

[2] That is about half of the potential growth rate of the U.S. economy.

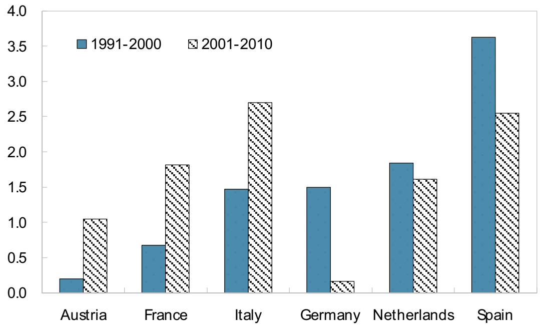
By the end of the 1990s, Germany was dubbed “the sick man of Europe.” Growth came to a standstill, and the economy underperformed for much of the early 2000s (Figure 6). Despite high unemployment, the institutional responses of the previous decades had raised wages to unsustainably high levels, and for the first time in decades Germany lost a competitive edge (Figure 7). Indeed, even as the global economy recovered in the early 2000s, Germany failed to respond, reinforcing the view that Germany faced serious problems. Pessimism about economic prospects became widespread with growth expectations trailing the actual growth rate for several years into the ensuing global boom.

Figure 6. Growth Expecations in Germany
(one-year consensus forecast vs. actual growth, percent)



Sources: Consensus Forecasts; World Economic Outlook; and IMF Staff calculations.

Figure 7. Change in Unit Labor Costs
(average annual percentage change)



Sources: OECD.

IV. Reemergence

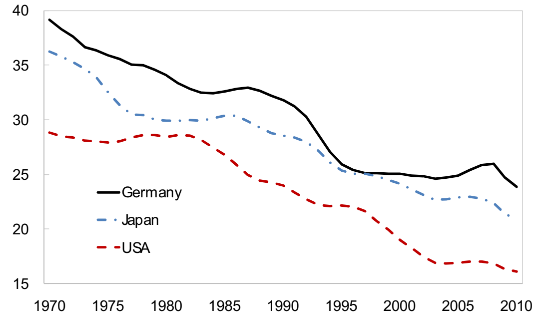
The “reemergence” period, from 2004 to 2008, is a relatively short one, more so when compared to the previous period lasting nearly four decades, which we treated above in summary fashion. Yet this short period is noteworthy because of the rapid turnaround experienced and because, along with the post-Great Recession recovery, it defined the prevailing sense of German dynamism. The transformation not only reestablished the German economy’s strengths but also brought calls from the international community for Germany to play a more active role as a “global citizen.” However, as German growth accelerated following years of secular decline, Germany developed large current account surpluses—large even by its own historical standards. Thus, while it came to be regarded with new respect, it was also caught in the storm of “global imbalances”. The papers in Mody (2012) reflect on both the dynamics of this reemergence phase and on Germany’s role in the international economy.

We focus on four themes characterizing this period, reflecting the break and renewed sense of confidence as well as the significant continuities. First, manufacturing productivity growth remained solid, and services productivity growth picked up modestly. Second, wage restraint was widespread. Third, global growth buoyancy was key to maintaining export growth. And, to a large extent, current account surpluses were the consequence of global developments and less of “distortionary” domestic policies.

Poirson (2012) shows that productivity performance varied greatly across sectors. Manufacturing productivity continued to grow respectably, not just in absolute terms but also relative to international benchmarks. Productivity growth was relatively low in the newly-emerging sectors of communications and information technology, and was also relatively low in the services sector.

These sectoral distinctions are important because they highlight the challenge ahead. Despite Germany's manufacturing prowess, the share of manufacturing value-added in German GDP has steadily declined over the past several decades (Figure 8). This is not surprising. With the rise of lower-cost manufacturing in the newly-industrializing nations of East Asia, manufacturing has played a smaller role in all advanced economies. Germany is remarkable only to the extent that the manufacturing share of total value-added remains somewhat higher than in Japan. Nevertheless it is salient that Germany's high manufacturing productivity growth cannot be a dependable source of greater well-being in the future as manufacturing inevitably continues to cede ground to international competitors.

Figure 8. Importance of the Manufacturing Sector
(value added manufacturing in percent of total value added, 3 year average)

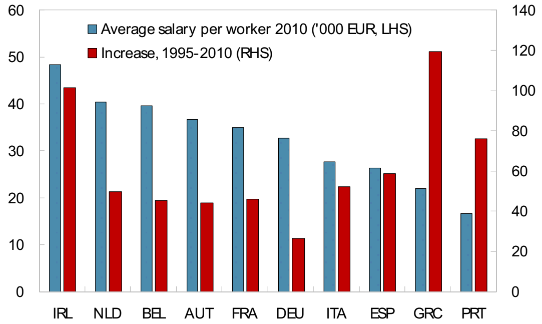


Source: OECD, IMF Staff calculations.

In this respect, Poirson's (2012) analysis has an optimistic note. She finds some evidence of a rise in services productivity starting in the early 2000s. However, her analysis does not establish a clear trend. And since the Great Recession created so much dislocation, any trend may only be discernible in a few years. Poirson (2012) offers advice that is in line with that of other students of productivity growth: greater use of information technology in the delivery of services and more impetus to small and innovative service firms through incubation in higher centers of learning and greater access to venture capital. More controversially, she suggests a role for the government in procuring services with a public-good purpose, especially where that may help establish open standards.

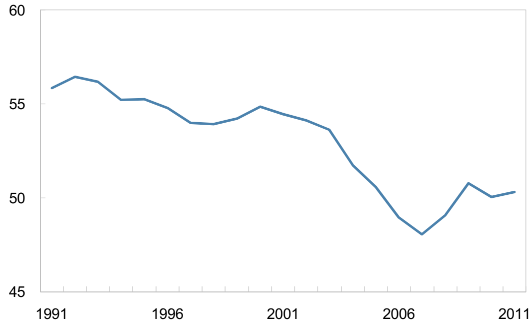
The second theme of this period is wage restraint. Wage moderation has become central to characterizing Germany—and hence to the policy measures it must adopt in deference to its global commitments. It is the case that German wages have been relatively steady in the past several years (Figures 9 and 10). Yet, as described above, the restraint followed years of significant wage increases. Thus, even after the restraint, German wages are among the highest in Europe. What is remarkable about the recent years is the rapid rise in wages elsewhere in Europe. The Irish rise is particularly explosive. But wage increases elsewhere in the European periphery clearly outstripped productivity growth in those economies.

Figure 9. Wage Levels and Wage Growth



Sources: OECD, and IMF Staff estimates

Figure 10. Wage Share in Germany
(gross wages as percent of GDP)



Sources: World Economic Outlook and IMF Staff estimates

There is an open question why German wage increases were modest during this phase. One explanation is the introduction of labor market reforms, in particular the Hartz reforms, introduced around 2003 in association with a broader reform package to regain competitiveness.[3] Posen (2007) concludes that the key reform was the reduced duration of unemployment benefits. This increased the labor supply with the effect of dampening wage growth.[4] Schindler (2012a) argues, as do Burda and Hunt (2011), that the remarkable stability of German unemployment during the Great Recession was due not just to the work-sharing schemes, discussed below, but also to the longer-term effects of the Hartz reforms.

While a proper retrospective of the Hartz measures and wage moderation must necessarily be undertaken elsewhere, two cautionary notes on the policy measures are worth considering. First, Dew-Becker and Gordon (2012) point out that starting in the mid-1990s, similar reforms were undertaken throughout much of Europe. This was in response to the rigidities that had become increasingly evident and onerous following the efforts to protect employment in the mid-1970s. The Hartz-like reforms that were undertaken throughout much of Europe had the broad effect of raising employment per capita. The essays in Buti (2009), especially that by Boeri (2009), indicate that more competition was also a feature of Italian labor reforms, with the growth in the incidence of temporary workers.

That Germany seems to have harnessed these reforms particularly effectively is, in our view, due to a second consideration. German firms were facing increasing competition in international market and were able to reach an accommodation on wage demands, much in the manner that occurred during the immediate postwar years. The pressure from international competition and globalization forced German enterprises to integrate with (Eastern) Europe and Asia in worldwide supply chains. Such links have been somewhat pejoratively described as the evolution of Germany as a “bazaar economy,” with German

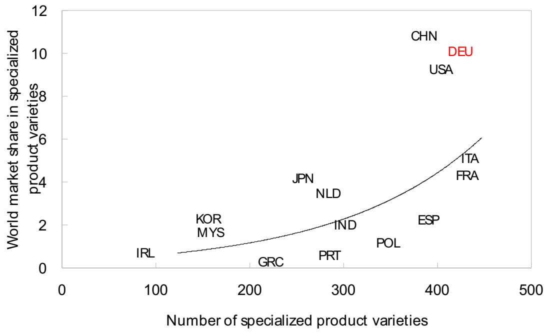
[3] Slow German growth in the early 2000s, while the world economy was beginning to embark on a new dynamic phase, led to a concerted policy effort to renew growth. After years of political deadlock on key reform initiatives, the *Agenda 2010* reform program agreed in the early 2000s led to wide-ranging changes in the labor market institutions, a re-organization of the economy, and changes to the pension system.

[4] Posen is less convinced of the effectiveness of other elements of the reform package, including the so-called active labor market policies (see also Jacobi and Kluve, 2006).

companies increasingly engaged in "outsourcing" (e.g., Sinn, 2006). However, this was clearly the way forward, both for Germany and for emerging Europe. Why companies in other countries were less successful in using this opportunity and how the differences in the particulars of reforms and the corporate response played out across Europe remains an important topic for further analysis.

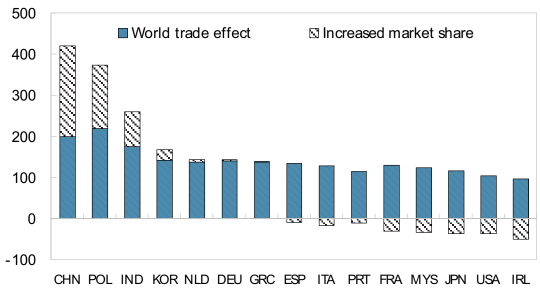
With wage moderation and despite the high *level* of wages, our analysis (see IMF, 2011 and Ivanova, 2012) suggests that Germany's export engine hummed during these years because of two factors. First, Germany specialized in a range of quality products that were in high demand during this period and for which German exporters faced limited competition. German firms have specialized in a large variety of capital goods, consumer durables, and pharmaceuticals, and they enjoy significant world market shares in these products (Figure 11). Germany was able to hold market share, allowing exports to ride the global trade wave (Figure 12). Second, because Germany was unable to gain global market share, German export success depended crucially on global prosperity. Before the crisis hit in 2008, global GDP and trade, in particular outside the euro area, expanded at an unusually strong pace (Figure 13 and 14), and Germany was well-positioned to take advantage of that growth.

Figure 11. Product Specialization and Market Share
(product varieties and market shares)



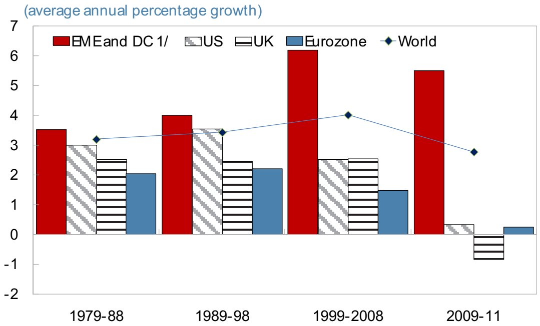
Sources: IMF Staff estimates based on SITC 4 level trade data for 2007.

Figure 12. Decomposition of Export Growth
(percent increase)



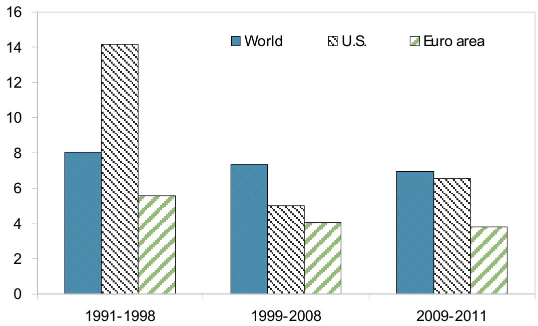
Source: IMF Staff estimates.
Notes: Increase in exports between 2001-08, as percent of exports in 2001, decomposed into the effect of world trade growth and that of increased market share, computed with SITC 4 level trade data.

Figure 13. GDP Growth Rates: World and Major Regions
(average annual percentage growth)



Sources: World Economic Outlook, and IMF Staff estimates.
1/ Emerging markets and developing countries.

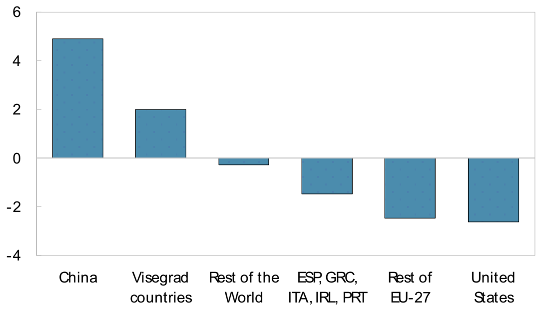
Figure 14. Import Growth Rates
(average annual percentage growth)



Sources: Netherlands Bureau for Economic Policy Analysis (CPB), and IMF Staff estimates.

These developments paralleled the emergence of so-called intra-European imbalances, whose sources and implications have been generally misinterpreted. German surpluses vis-à-vis other European economies grew through the 2000s, and Germany is sometimes called on to reverse these surpluses by allowing its wages to rise faster. Aside from the fact that there are no direct ways in which policy can cause wage increases, the analysis focusing on German policies as the reason for intra-European imbalances does not take into account competitiveness gains realized by countries outside of Europe. Thus, Germany continued to maintain its traditional exports to Europe, where it was able to fend off competition from Asian sources. But while it continued European imports of intermediate goods, especially from Visegrad countries (Czech Republic, Hungary, Poland, and Slovakia), German imports increasingly tilted towards products produced most cost-effectively by China (Figure 15) which became Germany's second most important import partner in 2011 after the Netherlands, overtaking France. In other words, German exports stayed largely insulated from Asian and lower-wage European competition due to Germany's specialization, but much of advanced Europe—including the periphery—faced the new reality of global low-wage competition, including when selling to Germany. This suggests that even if higher German wages were to reduce German exports to Europe, those exports would most likely be replaced by imports from Asia, thus making little dent in the European current account deficits.

Figure 15. Change in German Import Sources
(change in Germany's import shares between 2000-2009)



Source: IMF Staff estimates.
Note: Visegrad countries include Czech Republic, Hungary, Poland, and Slovakia.

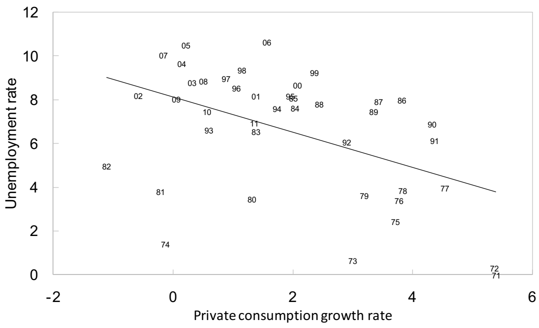
There is the more complex issue of Germany's current account surplus vis-à-vis the rest of the world. Here there are two separate questions: First, why did the surplus rise to such high levels by 2007-8? Second, even absent that rise, is the surplus too large by some benchmark? Ivanova (2012) deals with both these questions. On the first, she concludes that the rise in surplus was mainly cyclical. In other words, there was a parallel increase in Chinese, Japanese, and German surpluses that largely mirrored the increased U.S. deficits. The point she makes is that these shifts occurred over a short period of time and so could not principally reflect structural (e.g., labor market policies, regulation) causes. More precisely, her econometric analysis is unable to attribute the rise in the German imbalances to particular policy choices.

Ivanova (2012) does note that as German exports boomed, corporate profits rose handsomely but investment stayed moribund. Thus, there was a big increase in the domestic savings-investment imbalance, which mirrored the current account surplus. Corporate profits also rose elsewhere, for example in China and Japan. But in China and, to a lesser extent, in Japan, investment also picked up. Why investment in Germany remained so low during these buoyant years is a mystery, although demographic trends combined with the prevailing pessimism about the viability of the German business model in the early 2000s, may point to the answer (IMF, 2012).

On the second question—whether the German external surplus is too large by some benchmark—Ivanova (2012) does find that Germany's current account surplus implied by fundamentals is somewhat smaller than its observed surplus. But she cautions that the difference is small and the policy measures to engineer it are imprecisely known. That said, she concludes that measures to raise both domestic investment and employment generation (and hence consumption) would be the right way to go.

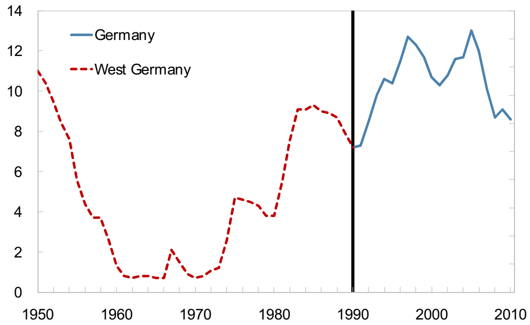
There remains the longer-standing question of Germany's low consumption growth. After the early post-war years of satisfying pent-up demand, consumption growth tended to fall, along with GDP growth. Moreover, as Figure 16 shows, there was an inverse relationship between consumption growth and the unemployment rate. In the 1970s, unemployment became a *structural* problem, and during every downturn until the mid 2000s, the unemployment rate rose significantly, while subsequent recoveries did not see meaningful reductions. The depressed labor market outlook lowered consumption growth, and by placing an additional burden on the fiscal sector, it limited the scope for fiscal policy to stimulate domestic demand (Figure 17).

Figure 16. Unemployment and Consumption in Germany
(unemployment rate and annual private consumption growth rate)



Sources: World Economic Outlook and IMF Staff estimates.

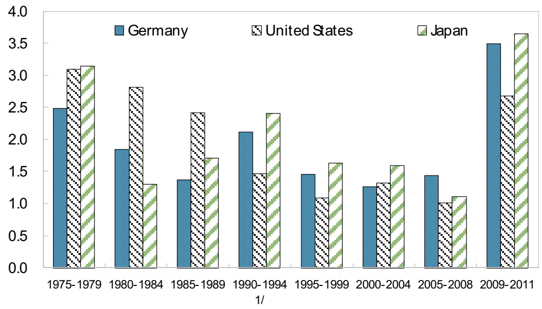
Figure 17. Unemployment in Germany since 1950
(unemployment rate, percent)



Source: Statistical Office, national definition.

With weak domestic demand, the role of exports in generating growth became particularly important in the 2000s. And, while incomes rose, so did household income uncertainty. Despite GDP growth, unemployment remained stubbornly high, amplified by the uncertainty over the outcome of labor market reforms. At the same time, the unification shock and specialization of the manufacturing sector towards external markets raised growth volatility. Growth volatility had been lower in Germany than in the United States until the end of the 1980s but since then has been typically higher—and even higher than in Japan since the crisis (Figure 18 and Carare and Mody, 2012).

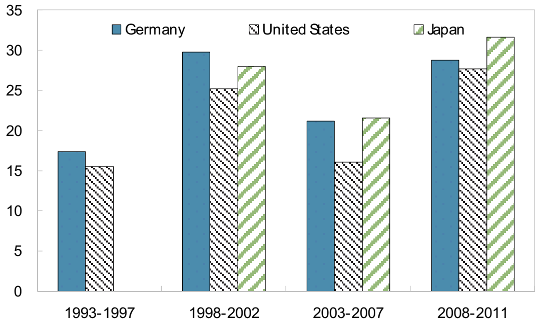
Figure 18. Output Volatility
(average of 20 quarter rolling standard deviation of y-o-y GDP growth)



1/ German unification falls in this period.
Sources: OECD, IMF Staff estimates.

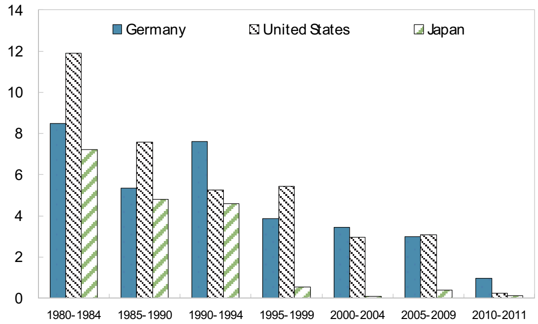
High GDP volatility in Germany is therefore, in part, the result of the growth model Germany pursues. Income is volatile, the level of uncertainty is high, saving ratios are higher, and consumption growth is low. These dynamics are reinforced by a longer-standing risk aversion, reflected in relatively high stock market volatility (which has consistently been higher than in the United States) and relatively low short-term risk-free rates (which have typically been lower than in the United States except for a brief period after unification and in the most recent crisis period) (Figures 19 and 20). Similar factors apply to Japan. Weitzman (2008) suggests that persistent high stock market volatility and low interest rates are a reflection of deep consumer uncertainty about structural parameters of the economy.

Figure 19. Stock Market Volatility
(5 year average of the VDAX, VIX, and VNKY)



Sources: Datastream, IMF Staff estimates.

Figure 20. Short-term Interest Rates
(Yield on Government paper with residual maturity of 1 year)



Sources: Haver Analytics, IMF Staff estimates.

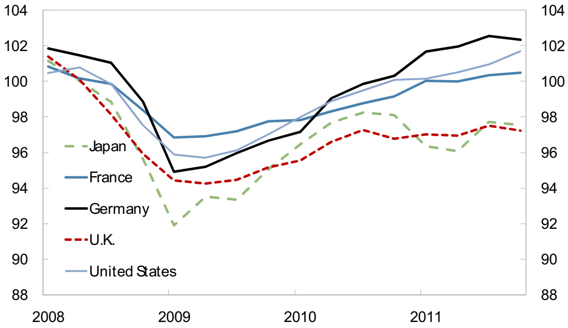
V. The Great Recession

Although Germany initially took a big hit, the recovery has strengthened its reputation for resilience. With that success have come new demands on Germany to play a more active role in resolving the problems of peripheral Europe. In this section, we describe the German recovery, the policy measures that contributed to it, the interaction of those measures (especially the incentives for work sharing) and corporate strategies, and, finally, the possibilities and limits of Germany's ability to help beyond its borders. Four of the six papers in Mody (2012) cover themes that deal with the analysis of this period and the policy approaches that are implied.

A. The Recovery

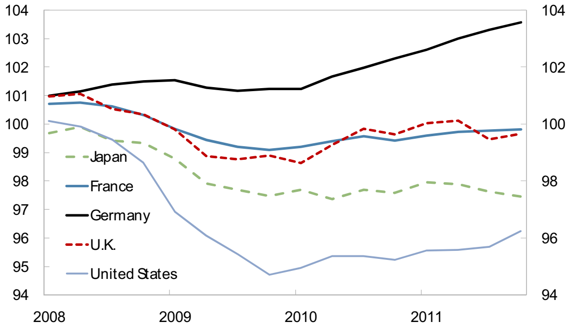
In the immediate wake of the crisis, the fall in German output was substantial, but the recovery was impressive. The decline in output, at over 5 percent, was greater than in the United States and in France and about the same as in the United Kingdom (Figure 21). Only with respect to Japan was the fall less severe. Note that both the United Kingdom and Japan have continued to underperform, as if their initial contraction represented, in part, some longer-term downward shift. German exports fell by 14 percent, and German investment also fell precipitously. However, by the end of 2011, Germany had not only recovered past its pre-crisis output level but, despite its greater initial fall, the German excess over pre-crisis GDP was greater than in the United States or France.

Figure 21. GDP during the Great Recession
(Real GDP, 2007=100)



Sources: IMF World Economic Outlook; and IMF Staff calculations.

Figure 22. Employment during the Great Recession
(Employment, 2007=100)



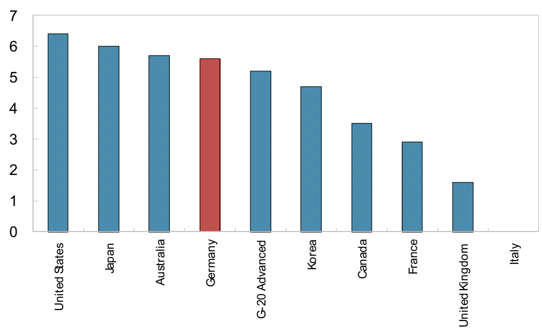
Sources: IMF World Economic Outlook; and IMF Staff calculations.

It is important to recognize that the German output recovery impresses mainly because it compares favorably with even weaker performances elsewhere in the advanced world. Almost four years after the start of the crisis, the German output level is now only a few percentage points above its precrisis levels. Germany has recovered, but it would be a mistake to characterize Germany as "booming." The slow pace of the recovery in Germany and elsewhere and the persistent sense of crisis in the eurozone have meant that this period continues to be described as the Great Recession.

With respect to employment, the German story is more remarkable. Employment did not fall much and is significantly above its pre-crisis levels (Figure 22). Forecasters, including the IMF and the German authorities, did not see this coming. In mid-2009, when the unemployment rate stood at about 9 percent, the projections were pointing to a continued rise into double digit rates. In retrospect, the German performance is noteworthy not only in comparative terms (with other major advanced economies still struggling well below their precrisis employment levels) but also in absolute terms, the gain in employment relative to that before the crisis is a major achievement.

Three factors stand out in explaining the German recovery. First, active and coordinated policy measures taken across the globe were crucial in preventing a free fall and fostering a resumption of growth. Eichengreen and O'Rourke (2010) highlight the fact that the initial output collapse in what was subsequently dubbed the Great Recession was, in fact, more severe than in the Great Depression of the 1930s. They attribute the more rapid pace of recovery this time around to a keener perception of the danger of inaction. With the G-20 economies acting in a rare moment of policy coordination to support the global economy, the significantly greater monetary and financial stimulus on this occasion prevented another Great Depression. There was equally a major effort to backstop the financial sector in order to prevent its meltdown. Germany played its role in the coordinated action, through both its financial sector operations and its fiscal stance. In the financial sector, lifelines were provided to

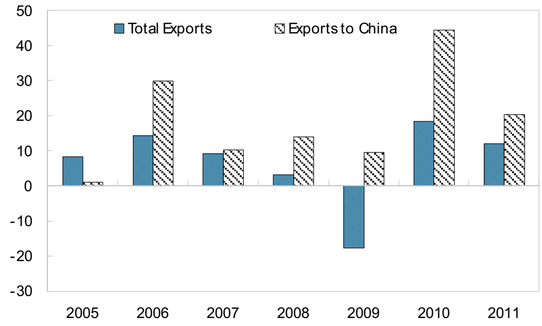
Figure 23. Fiscal Stimulus during the Great Recession
(2009-2011, cumulative, percent of GDP)



Source: IMF Fiscal Monitor, November 2010 banks through the newly constituted SoFFin.[5] Although there were some initial concerns that the German authorities might be reluctant to use fiscal stimulus, the German stimulus between 2009 and 2011 was above the average of that in the advanced G-20 economies and only modestly less than that in the United States or Japan (Figure 23). Indeed, as Krugman (2010) pointed out, German government consumption between 2007:Q4 and 2010:Q2 rose at a significantly faster clip than in the United States. It may well be that such expansion of consumption had a greater multiplier effect than the tax cuts did in the United States.[6]

Second, some parts of the world, in particular Asian economies, recovered quickly and their demand boosted Germany's exports. China's investment-driven growth was a major source of world growth (as the advanced world struggled) and played directly to Germany's strength. Chinese imports of German goods ranged from cars to high-speed rail. And although the Chinese share of German exports was small before the crisis, its incremental contribution to German exports during the recovery phase was substantial (Figure 24). China advanced to become Germany's sixth most important export destination country in 2010, almost on par with the United Kingdom and Italy.

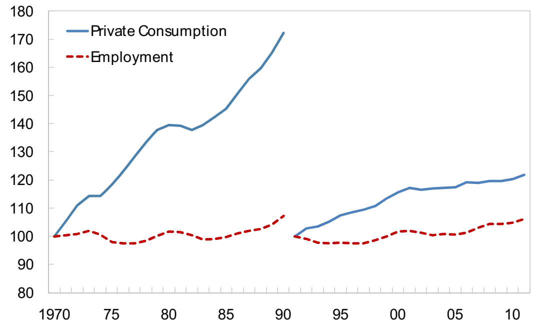
Figure 24. Growth of German Exports to China
(average annual percentage change)



Sources: Deutsche Bundesbank, IMF Staff estimates.

Finally, the labor market played a key role. Its resilience is important in itself—both for minimizing the social costs—and for the consumption gains it brought to support the economy. However, looking ahead, the strength of the consumption trends remains unclear. The recovery has been driven primarily by exports, especially to areas beyond the eurozone. In turn, exports have pulled up investment. The steadiness of employment notwithstanding, the contribution of consumption to growth has been erratic

Figure 25. Employment and Consumption
(Levels, 1970=100 and 1991=100)



Sources: World Economic Outlook and IMF Staff estimates

[5] The *Sonderfonds Finanzmarktstabilisierung* (SoFFin) was created in late 2008 to stabilize the financial system by providing bank guarantees, funds for bank recapitalizations, and the transfer of risky assets by creating "bad banks" (IMF 2010).

[6] Allen (2005) argues that there has been a historical aversion in Germany to Keynesian demand-oriented remedies in favor of a policy more driven by the goal of expanding the economy's supply capacity (see also Carlin and Soskice 2009). Yet, this has also meant a significant social safety net, which provides so-called automatic stabilizers to protect the vulnerable and, thereby operates to stabilize the economy. Moreover, as this crisis showed, further discretionary stimulus is pragmatically used in Germany, even if it is often downplayed in public discourse.

from quarter to quarter; over the period 2009-2012:Q2 it has been about 30 percent. This is not a surprise. As Figure 25 shows, the relationship between employment and consumption growth has weakened since reunification. Note also from Figures 18 and 20 that GDP and stock market volatility have risen sharply during the Great Recession, with the United States still the lowest, and Germany and Japan maintaining their historically-higher uncertainty. Thus, while incomes have grown, so has uncertainty, with the net effect yet to be resolved.

B. Labor Market Performance

The factors behind the strength of Germany's labor market are discussed by Schindler (2012a). He concludes that the outcome is a mix of at least four different factors. First, much attention has been paid to government subsidies to maintain employment while reducing the number of hours worked. In Germany, this was implemented through the *Kurzarbeit* scheme. When the crisis hit, the government increased both the duration and the coverage of subsidies. This allowed work to be shared and human capital to be maintained.[7] Boeri and Bruecker (2011) point out that similar approaches were adopted in a number of countries, but with less success. They argue that complimentary institutions are needed to make this policy effective, pointing especially to employment protection legislation and collective bargaining. Schindler (2012a) points to a second factor. He notes that the strategy and response of German firms was important. Firms and workers had prior agreements that they could deviate from collectively bargained work arrangements to avoid layoffs, and introduce work-time accounts at the firm level. For workers in the core labor market, this was a reasonable approach: in the face uncertainty in export markets, they opted for job security and flexibility at the firm level. Thus, work-sharing schemes were already a part of the relationship between German firms and their workers. Burda and Hunt (2011) note, moreover, that because workers had credits on these accounts, firing them in the midst of the downturn would have required compensating them for the credits. In this setting, the subsidies were helpful in reinforcing the preexisting contractual relationship. Third, as Schindler (2012b) concludes, for Germany the Great Recession was mainly an external export shock, not a supply shock. Despite the uncertainty, firms largely saw this as a temporary shock and relied on accumulated work time and short work schemes instead of layoffs. With the recovery, this judgment was vindicated. Burda and Hunt (2011) argue that the precrisis expansion of exports was viewed by firms as temporary, so firms held back their hiring—this is consistent with the relatively low level of corporate investment in the boom years, as Ivanova (2012) has noted. Thus, firms did not have as much of a need to fire people.

Looking beyond the near term, Schindler (2012a) suggests that German unemployment had begun a secular downward trend prior to the crisis, possibly triggered by the Hartz reforms. The evidence for this conclusion is still preliminary, although it is plausible since these reforms increased labor flexibility both among the core work force and also at its margins. Once again, it helps to look beyond Germany. As noted above, other European countries

[7] This would be of particular importance if skilled labor was in short supply. Schindler (2012a) notes that the firms' more intensive use of the core labor force, combined with an adjustment in the temporary workforce (typically less skilled) is consistent with such considerations.

adopted similar labor market reforms in the mid-1990s. Boeri (2009) finds that similar reforms to the Italian labor market led to favorable labor market responses in that country: he estimates that the level of unemployment consistent with non-accelerating inflation came down. However, Boeri goes on to argue that Italian firms' essential lack of dynamism implied that employment did not respond in meaningful numbers. Here again, Germany's historical strengths and corporate-labor relationships distinguish it from other European nations.

C. Germany's International Role

Germany's economic size and its recovery from the Great Recession have led to calls for more German support to global growth, but especially to the euro area. We do not deal here with the broader issues of euro area governance and financial arrangements to support "bailouts." Rather, our focus is on the specific role that German economic policy can play in fostering growth and stability in the eurozone. In this context three sets of issues arise[8]:

- Germany as a growth "locomotive"
- German fiscal policy as stimulus for Europe, and
- The support provided to peripheral nations through the Target 2 system.

Germany's ability to act as either a global or even a European locomotive is limited. This follows from the theme that this essay has developed, namely, that German growth has itself depended to a large extent on global growth. While there is some optimism that growth will become more domestically driven with structural improvements in the labor market, the evidence for that, as discussed above, is at best preliminary. For a nation to act as a growth locomotive for others, it must originate growth impulses. This, in essence, is the finding of the paper by Poirson and Weber (2012). Growth spillovers from Germany to the rest of the world remain limited because domestically-originated growth is limited. Rather, Germany acts as a *transmitter* of global trade impulses, mainly from the United States and Asia, to Europe. German supply chains that seek inputs for the delivery of Germany's own exports extend to its eastern trading partners. But these supply chains are set in motion by demand that predominantly originates outside of Europe.

For Germany to assume more of a locomotive role would require autonomous sources of demand from within the country. There are no easy policy steps to achieve this outcome. Ultimately, efforts to raise German growth potential, in a manner that raises labor participation and emphasizes the production and delivery of services, are likely to raise both German economic welfare and the contribution to global growth.

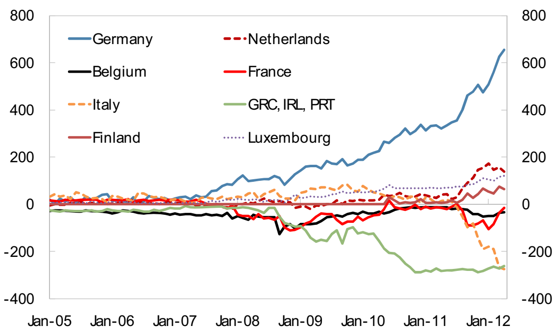
But what if Germany used its fiscal space to stimulate demand for goods and services produced in the periphery? Would that not provide much needed temporary relief? The

[8] We have addressed above the issue of intra-European imbalances. As noted, a policy that weakens German competitiveness may reduce German surpluses but not necessarily improve the current account positions of the peripheral countries.

answer is, in principle, yes. However, Ivanova and Weber (2012) conclude that the quantitative effect would be small. Spillovers from an activist fiscal policy in Germany to the periphery are small, because trade links are weak. They show that the arithmetic works against fiscal spillovers, because the quantitative effect is further reduced if the German domestic multiplier is less than one, and is further diluted since only a share of domestic spending is diverted to imports, of which only a small share benefits the periphery.

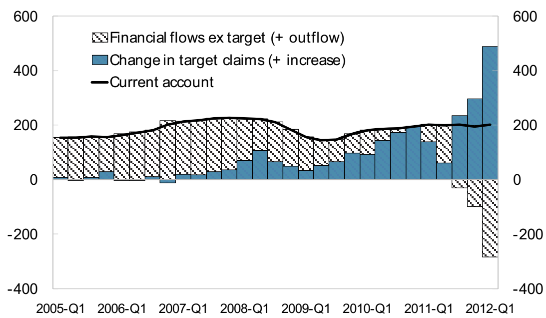
While support to European growth, either through general economic activity or through fiscal policy, is likely to be limited, as part of the Eurosystem, Germany has somewhat unwittingly played an important role in providing financial stability and hence preventing a more serious growth collapse. This has occurred through the so-called Target2 system. Target2 balances are the mechanism through which national central banks within the Eurosystem lend to each other. Target2 positions are intended to smooth over temporary liquidity needs of the member countries, and the system has typically been close to balance. Since 2007, however, imbalances have grown steadily, and as of this writing Germany has a large creditor position (Figure 26), while a number of countries have become net debtors (Bornhorst and Mody, 2012). In effect, as the crisis deepened, capital flows in the eurozone reversed. The creditor countries (especially Germany and the Netherlands) opted not to roll over their financial exposure to much of the rest of the eurozone (especially to the most stressed economies), including to the cross-border interbank market. This was yet more evidence that the flows in the first place had not generated productive investments. The process gained momentum in the fall of 2011, and with the debtor nations unable to meet these repatriation obligations, the only vent to ease what would have been unbearable pressure was the ECB’s Target2 system (Figures 27 and 28). Essentially, the ECB mediated excess balances in the creditor central banks to banking systems of the stressed economies.

Figure 26. Target2 balances
(EUR billion)



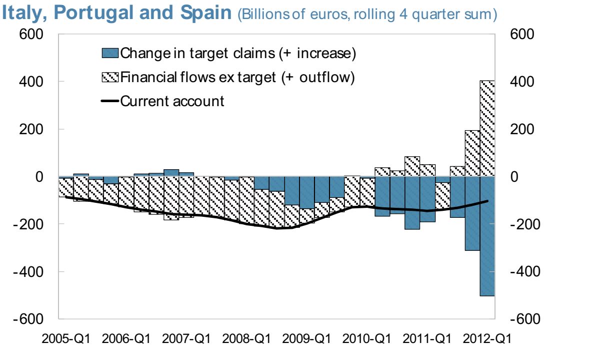
Sources: IFS, NCBs, IMF Staff estimates.

Figure 27. Current and Financial Account of Germany, Finland, and The Netherlands (Billions of euros, rolling 4 quarter sum)



Sources: Haver Analytics; IFS; and IMF staff calculations.

Figure 28. Current and Financial Account of Greece, Ireland, Italy, Portugal and Spain (Billions of euros, rolling 4 quarter sum)



Sources: Haver Analytics; IFS; and IMF staff calculations.

VI. THE EMERGING CHALLENGES

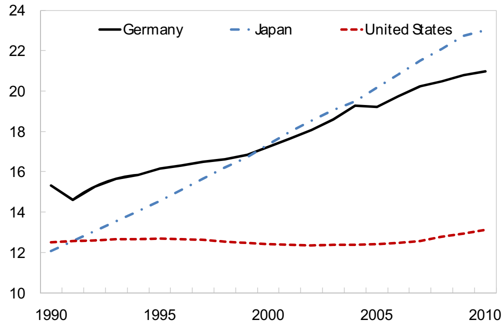
We end this review with a cautionary gaze into the future. We ask two questions. Can Germany continue to assume leadership in high-end manufacturing as the basis for its economic strength? And, how important could the consequences of population ageing be?

Over the past few decades, advanced economies have gradually ceded ground in manufacturing to newly industrializing economies. The initial challenge came in labor-intensive products, such as garments, shoes, and consumer electronics, where cheap labor played an important role. But over time, as their wages have risen and their industrial competency has grown, the new competitors have expanded their line of products and raised their quality standards. While the first televisions from Korea came in boxes with Japanese brand names, today Korean televisions can carry their own premium. Similar progress has been achieved in semiconductors and automobiles. The entry of China as the export machine has rendered this process even more dynamic. The gap between emerging and advanced nations is narrowing fast, and know-how is increasingly mobile.

Germany has so far warded off this challenge. First, German specialization has been particularly resistant to international competitive challenge. Thus, German producers have continuously built on their strengths to maintain their lead in their product niches. Also, they have recognized the opportunities from the opening up of lower wage economies and brought them in as partners who supply various inputs and assembly services. But will this be sufficient? The United States also enjoys specialization in a large number of products, but has been losing market share in the past decade. Similarly, Japan has been ceding ground in an increasing range of products. It would be a surprise if even the areas of traditional German dominance do not face stepped-up competition in the next generation.

The threat from ageing is well recognized. As this essay has highlighted, Germany and Japan share a number of common features. Japan, however, has aged much faster. As Figure 29 shows, the ratio of Japanese over 65 shot up in the two decades from 1990 to 2010 and now stands at about 22 percent. This has resulted in important changes in the Japanese economy. Recent research (Braun, Ikeda, Joines, 2007) shows that the single most important cause of the decline in Japanese savings rates is lower savings as people get older. Yet this has not necessarily meant a consumption boom. Rather, even with the fall in savings, Japan has experienced subdued demand and deflation. The relationship between ageing and deflation is, of course, more tenuous but it is presumably related to the shrinking workforce (Figure 30 and 31). Germany is about to go through a more intensive ageing phase, following Japan. The pressures are rising as the population ages, and migration, even by the most optimistic scenarios, cannot fill the emerging gap in the working age population. This will call for policies, possibly following the Nordic model, directed towards increasing the labor force

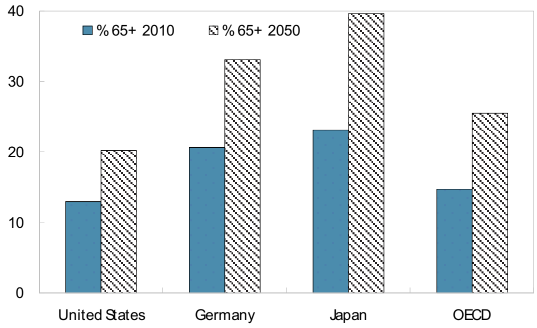
Figure 29. Population Ageing, 1990-2010
(population over 65 in percent of total population)



Source: OECD.

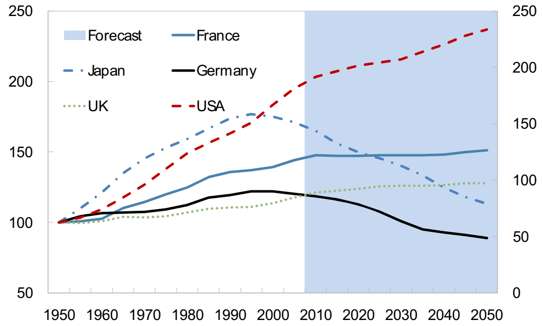
participation especially of women (Figure 32 and 33). This in turn implies adjustments to effective tax rates to enhance female labor supply along with supportive child care policy.

Figure 30. Population Ageing, 2010-2050
(population over 65, in percent of total population)



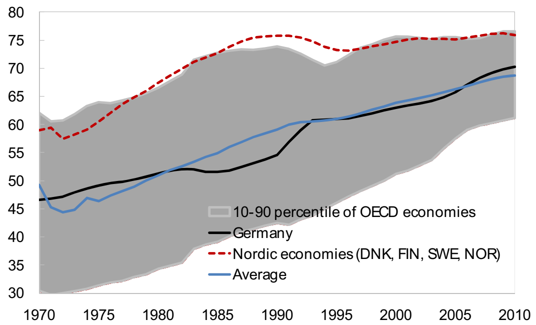
Source: OECD Labour Force and Demographic Database, 2010.

Figure 31. Working Age Population
(1950=100)



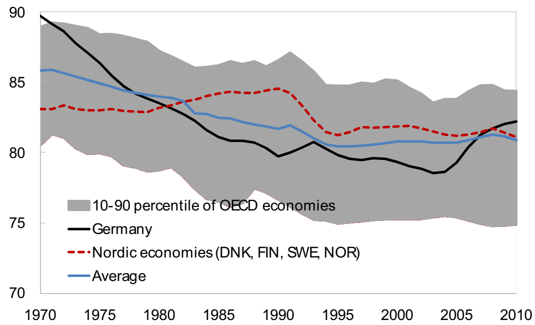
Source: United Nations

Figure 32. Female Labor Force Participation
(18-64 years old)



Sources: OECD, IMF Staff estimates.

Figure 33. Male Labor Force Participation
(18-64 years old)



Sources: OECD, IMF Staff estimates.

VII. Conclusion: Germany in an Interconnected World

Despite economic ups and downs, Germany has held a commanding position in the global economy over the past half century. This position primarily reflects an industrial strength that has been tested in global competition over decades and has proven resilient to severe setbacks. Most recently, the period after German unification saw the economy in doldrums with seemingly intractable high unemployment rates. Yet the German economy has continually displayed a capacity to regenerate itself. Its emergence from the Great Recession—and especially the ability to generate jobs—has been widely, and rightly, lauded. In turn, this resilience is due to a network of innovative firms that have adapted to global changes—for example, through increased sourcing from Eastern Europe and exploiting new market opportunities in Asia. It is also due to the ability of firms and labor to find common ground. Finally, it is due to a pragmatic bent in policymaking.

Following World War II Germany experienced a particularly robust reconstruction phase. This was followed by an extended period of slowing growth. First, there was a natural slowing after the rapid postwar catch-up. Then the external shocks of rising oil prices and the collapse of the Bretton Woods system caused further deceleration. The unification episode was unique to Germany. After a short-lived unification boom in the early 1990s growth fell again. When in the 1990s, the world economy began a new expansion phase, the German economy appeared ill-prepared to take advantage of the favorable environment. But by the mid 2000, economic reform and corporate and labor responses to the changed circumstances led to a German reemergence. Since then, the German economy has displayed considerable strength and maturity, not least by robustly navigating the crisis of 2008-9. In particular, German employment levels weathered the recent crisis surprisingly well.

With its success, Germany has been called on to assist the global recovery, questions about its current account surplus have resurfaced, and Germany's wage moderation and proposed pace of fiscal consolidation following the recovery from the 2008-9 crisis have, at times, been regarded with concern. However, while proposals for more rapidly raising German wages or delaying fiscal consolidation have a plausibility, a closer examination suggests that they could compromise German strengths with dubious short-term stimulative value for other countries.

The real German challenge is to strengthen its areas of weakness. Although significantly down from their peak levels, unemployment rates remain elevated, including when judged by Germany's own past history. These high rates, along with the emergence of relatively low-paying and temporary jobs, also act as a drag on German consumption growth. The key is to counteract medium-term growth constraints in a way that also supports sustainable rebalancing via higher domestic demand growth. Meeting this challenge will require a new generation of pragmatism in policy decisions. A greater emphasis is needed on innovation that extends Germany beyond its traditional manufacturing strengths and on a new model of social safety nets, drawing possibly on the Nordic experience, to increase labor force participation needed to counter rapid ageing. Such actions would also be good for Europe and the global economy.

References

Allen, Christopher S., 2005, "Ordo-Liberalism Trumps Keynesianism: Economic Policy in the Federal Republic of Germany" in Monetary Union in Crisis: The *European Union as a Neo-Liberal Construction*, ed. by Bernard Moss, (London: Palgrave).

Alesina, Alberto F., Edward L. Glaeser and Bruce Sacerdote, 2006, "Work and Leisure in the U.S. and Europe: Why So Different?", in *NBER Macroeconomics Annual 2005*, ed. by Gertler, Mark and Kenneth Rogoff (Cambridge, MA: MIT Press).

Boeri Tito and Herbert Bruecker, 2011, "Short-time Work Benefits Revisited: some Lessons from the Great Recession", *Economic Policy*, 26, pp. 697-765.

Boeri, Tito, 2009, "Comments to 'Two Italian Puzzles: Are Productivity Growth and Competitiveness Really so depressed?'by Lorenzo Codogno", in *Italy in EMU: The Challenges of Adjustment and Growth* ed. by Marco Buti (London: Palgrave Macmillan).

Bornhorst, Fabian and Ashoka Mody, 2012, "Target imbalances: Financing the capital-account reversal in Europe", article published online by VoxEU.org, http://voxeu.org/article/target-imbalances-financing-capital-account-reversal-europe (7 March 2012)

Braun, R. Anton, Daisuke Ikeda and Douglas H. Joines, 2007, "The Saving Rate in Japan: Why It Has Fallen and Why It Will Remain Low", CIRJE Working Paper F-535, (Tokyo: Faculty of Economics, University of Tokyo).

Burda, Michael C. and Jennifer Hunt, 2011, "What explains the German Labor Market Miracle in the Great Recession?" SFB 649 Discussion Paper 2011-031 (Berlin: Humboldt Universität Berlin).

Buti, Marco, ed, 2009, *Italy and EMU: The Challenges of Adjustment and Growth,* (London: Palgrave Macmillan).

Carare, Alina and Ashoka Mody, 2010, "Spillovers of Domestic Shocks: Will They Counteract the Great Moderation?" IMF Working Paper 10/78 (Washington: International Monetary Fund).

Carlin, Wendy and David Soskice, 2009, "German economic performance: disentangling the role of supply-side reforms, macroeconomic policy and coordinated economy institutions", *Socio-Economic Review*, 7, pp. 67–99.

Dew-Becker, Ian and Robert J. Gordon, 2012, "The role of Labor Market Changes in the Slowdown of European Productivity Growth", *Review of Economics and institutions*, 3(2), pp. 1-45.

Eichengreen Barry and Kevin O'Rourke, 2010, "A tale of two depressions", available at http://voxeu.org/index.php?q=node/3421.

Eichengreen, Barry, 2006, *The European Economy Since 1945: Coordinated Capitalism and Beyond* (Princeton University Press).

Giersch, Herbert Karl-Heinz Paque and Holger Schmieding, 1992, *The Fading Miracle: Four decades of market economy in Germany* (Cambridge: Cambridge University Press).

International Monetary Fund, 2010, *Germany: Staff report of the 2010 Article IV Consultation*, IMF Staff Country Report No. 10/85 (Washington).

International Monetary Fund, 2011, *Germany: Staff report of the 2011 Article IV Consultation*, IMF Staff Country Report No. 11/168 (Washington).

International Monetary Fund, 2012, *Germany: Staff report of the 2012 Article IV Consultation*, IMF Staff Country Report No. 12/161 (Washington).

Ivanova, Anna, 2012, "Current Account Imbalances: Can Structural Policies Make a Difference?" in *Germany in an Interconnected World,* ed. by Ashoka Mody, (Washington: International Monetary Fund).

Ivanova, Anna and Sebastian Weber, 2012, "Do Fiscal Spillovers Matter?" in *Germany in an Interconnected World,* ed. by Ashoka Mody (Washington: International Monetary Fund).

Jacobi, Lena and Jochen Kluve, 2006, "Before and After the Hartz Reforms: The Performance of Active Labour Market Policy in Germany" IZA Discussion paper Nr. 2100.

Krugman, Paul, 2010, "Ever expanding government", September 10 posting in "The Conscience of a Liberal" blog, *New York* Times, http://krugman.blogs.nytimes.com/2010/09/10/ever-expanding-government/

Mody, Ashoka (ed.), 2012, *Germany in an Interconnected World* (Washington: International Monetary Fund)

Nickell, Stephen, Luca Nunziata and Wolfgang Ochel, 2005, "Unemployment in the OECD since the 1960s: What do we know?" *Economic Journal,* 115(500), pp. 1-27.

Poirson, Helene, 2012, "German Productivity Growth: an Industry Perspective" in *Germany in an Interconnected World,* ed. by Ashoka Mody (Washington: International Monetary Fund).

Poirson, Helene and Sebastian Weber, 2012, "Growth Spillover Dynamics from Crisis to Recovery" in *Germany in an Interconnected World,* ed. by Ashoka Mody (Washington: International Monetary Fund).

Posen, Adam, 2007, "Hartz IV Worked—As Far As It Went", Op-ed in Die Welt, March 14, available at http://www.iie.com/publications/opeds/oped.cfm?ResearchID=717.

Schindler, Martin, 2012a, "What Does The Crisis Tell Us About The German Labor Market?" in *Germany in an Interconnected World,* ed. by Ashoka Mody (Washington: International Monetary Fund).

Schindler, Martin, 2012b, "The Crisis Impact on Potential Growth in Germany: The Nature of the Shock Matters" in *Germany in an Interconnected World,* ed. by Ashoka Mody (Washington: International Monetary Fund).

Sinn, Hans Werner, 2006, "The Pathological Export Boom and the Bazaar Effect - How to Solve the German Puzzle", CESifo Working Paper Series 1708 (Munich: CESifo Group).

Weitzman, Martin L., 2008, "Subjective Expectations and Asset Return Puzzles," *American Economic Review*, 97 (4), pp. 1102-1130.

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