

EXCERPT

# Jobs and Growth: Supporting the European Recovery



EDITORS

Martin Schindler, Helge Berger, Bas B. Bakker,  
and Antonio Spilimbergo

I N T E R N A T I O N A L M O N E T A R Y F U N D



# **Jobs and Growth: Supporting the European Recovery**

EDITORS

Martin Schindler, Helge Berger, Bas B. Bakker,  
and Antonio Spilimbergo

I N T E R N A T I O N A L   M O N E T A R Y   F U N D

---

# Contents

---

Foreword

Acknowledgments

- 1 | Jobs and Growth: Supporting the European Recovery..... 1  
*Martin Schindler and Helge Berger*

## PART I | REMOVING OBSTACLES TO GROWTH

- 2 | Growth and the Importance of Sequencing Debt Reductions  
across Sectors ..... 11  
*Fabian Bornhorst and Marta Ruiz Arranz*
- 3 | Reducing the Employment Impact of Corporate Balance  
Sheet Repair  
*Bas B. Bakker and Li Zeng*
- 4 | Reducing Public Debt When Growth Is Slow  
*S. Ali Abbas, Bernardin Akitoby, Jochen Andritzky, Helge Berger,  
Takuji Komatsuzaki, and Justin Tyson*

## PART II | LAYING THE FOUNDATIONS FOR JOBS AND GROWTH

- 5 | What Do Past Reforms Tell Us about Fostering Job  
Creation in Western Europe? ..... 37  
*Christina Cheptea, Jaime Guajardo, Ioannis Halikias, Emilia  
Jurzyk, Huidan Lin, Lusine Lusinyan, and Antonio Spilimbergo*
- 6 | Challenges and Solutions for Fostering Job Creation in  
the Balkans  
*Dmitriy Kovtun, Alexis Meyer Cirkel, Zuzana Murgasova,  
Dustin Smith, and Suchanan Tambunlertchai*
- 7 | Assessing the Gains from Structural Reforms for Jobs  
and Growth  
*Derek Anderson, Bergljot Barkbu, Lusine Lusinyan, and Dirk Muir*
- 8 | A Disaggregated Approach to Prioritizing Structural Reforms  
for Growth and Employment  
*Christina Cheptea and Delia Velculescu*

PART III | ACHIEVING SUSTAINABLE GROWTH IN A  
GLOBALIZED WORLD

- 9 | Making Current Account Adjustment in Europe Growth Friendly  
*Ruben Atoyan, Jonathan Manning, and Jesmin Rahman*
- 10 | The Role of Vertical Supply Links in Boosting Growth..... 65  
*Jesmin Rahman and Tianli Zhao*

Contributors

Index

# Jobs and Growth: Supporting the European Recovery

MARTIN SCHINDLER AND HELGE BERGER

Five years after the onset of the global financial crisis, Europe's economy is still fragile. Despite extended crisis management and reform efforts, growth remains anemic and recessions have recurred. In addition, unemployment in many countries has reached stratospheric levels. Notwithstanding recent positive signs amid calmer financial markets, medium-term growth is likely to remain frail owing to continuing weaknesses and vulnerabilities at the country level and in the fabric of European institutions and banks, especially in the euro area.

Some of Europe's maladies were well known before the crisis, but others came as a surprise. Weaknesses in Europe's product and labor markets have been widely documented for some time, but the risks posed by large imbalances and rising debt in an environment of ailing bank balance sheets and financial fragmentation were less well understood. Perhaps the most surprising development during the crisis was how, in the absence of effective shock absorbers, these weaknesses interacted to propagate shocks within individual economies and across national borders, contributing to a period of weakness notable for its depth, breadth, and duration. Without strong growth, the markedly high rates of unemployment and debt in many countries could persist for years, extending the pain of the crisis well into the future. The associated erosion of human capital could depress potential growth in Europe for a generation.

Removing obstacles to growth and employment requires action on multiple fronts. Continued monetary and fiscal support in the near term and progress at the institutional level will be required (however, discussion of monetary policy, and the broader topic of banking union and fiscal union, is left for elsewhere<sup>1</sup>). Taking the right approach to addressing public and private debt overhangs and strengthening bank balance sheets will help reduce uncertainty, support credit and investment, and foster growth both in the short term and the medium term.

Over the medium-term, alongside debt-reduction efforts, real sector reforms, including in product and labor markets, can relieve structural bottlenecks across Europe and create new sources of long-term growth by allowing countries to integrate with global production chains.

---

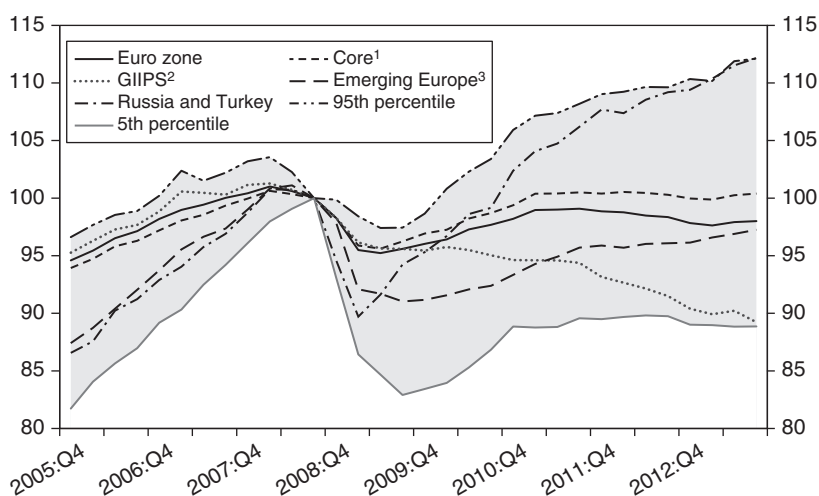
<sup>1</sup>Refer to IMF (2013b) for the required policy mix for the euro area. IMF (2013a, 2013d) discuss banking and fiscal union, respectively. For a discussion of the much broader issues related to inclusive growth see, among others, IMF (2012b).

## CRISIS MANAGEMENT AND REFORMS

When the global crisis first hit, authorities in many countries went beyond the operation of automatic stabilizers and implemented discretionary fiscal stimuli, and central banks reduced policy rates to record lows. Many central banks also introduced unconventional monetary policies, including, in the euro area, a pledge to intervene in sovereign bond markets through Outright Monetary Transactions. The euro area also pursued several institutional reforms, such as installing a collective crisis response mechanism and moving toward a unified pan-European approach to bank supervision and resolution. Many countries, especially those under market pressure, also started structural reform programs.

Despite these efforts, the outlook for growth and employment remains fragile. Five years after the Great Recession began, growth remains sluggish in most of Europe (Figure 1.1), and prospects for a robust expansion are modest even in the medium term. Based on the IMF's October 2013 *World Economic Outlook*, annual growth in Europe is projected to average 1.4 percent between 2013 and 2017, barely half the 2.7 percent achieved in the five years before the crisis. Unemployment is stubbornly high in all but a few countries. Current account imbalances have improved asymmetrically as large surpluses in some core countries have persisted even as external imbalances in deficit countries have shrunk (Figure 1.2).

**Figure 1.1** Real GDP Growth, 2005:Q4–2013:Q3 (SA, 2008:Q3 = 100)



Sources: Haver; and IMF staff calculations.

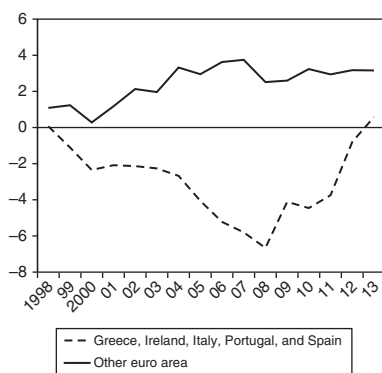
<sup>1</sup>Simple average of Belgium, France, Germany, and Netherlands.

<sup>2</sup>Simple average of Greece, Ireland, Italy, Portugal, and Spain.

<sup>3</sup>Simple average of Bulgaria, Croatia, Czech Rep., Hungary, Latvia, Lithuania, Poland, Romania, and Ukraine.

Note: Due to data availability, Ireland and Luxembourg are excluded from the 2013:Q3 averages.

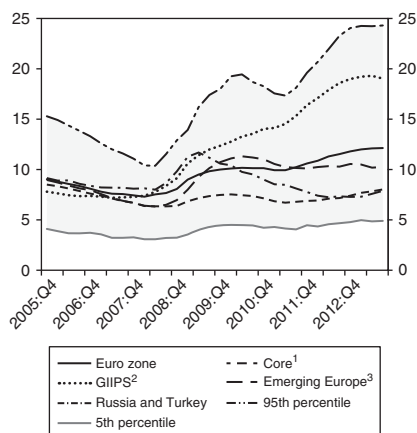
**Figure 1.2a** Current Account Balance, 1998–2013<sup>1</sup> (Percent of GDP)



Sources: Haver; and IMF staff calculations.

<sup>1</sup>2013 is based on projections in the October 2013 World Economic Outlook.

**Figure 1.2b** Unemployment Rate, 2005:Q4–2013:Q3 (SA, percent)



Sources: Haver; and IMF staff calculations.

<sup>1</sup>Simple average of Belgium, France, Germany, and Netherlands.

<sup>2</sup>Simple average of Greece, Ireland, Italy, Portugal, and Spain.

<sup>3</sup>Simple average of Bulgaria, Croatia, Czech Rep., Hungary, Latvia, Lithuania, Poland, Romania, and Ukraine.

## UNRESOLVED WEAKNESSES ARE HOLDING BACK THE RECOVERY

Balance sheets—bank, public, corporate, and household—remain a source of difficulty. Although the immediate crisis response prevented worst-case scenarios and created crucial space for adjustment, it did not actively deal with the unusual combination of balance sheet issues brought about by the crisis. In many European countries, already-high debt ratios among households and corporates worsened as a result of declining asset prices and weak or negative income growth, and public sector debt increased significantly. Given the slow pace of global demand, there is little hope for either sector simply to grow out of its debt. Instead, the resulting pressure to deleverage—the need to bring down debt by reducing consumption, investment, and net government spending—threatens to hamper the recovery. The fact that, at the same time, many banks continue to restrain credit as they build or rebuild capital buffers only adds to these headwinds.

With banks, governments, businesses, and households all trying to repair balance sheets, the risks of negative spillovers from one sector to the others are high. Indeed, Bornhorst and Ruiz-Arranz (Chapter 2) provide evidence suggesting that the harmful growth impact of elevated levels of any one category of private or sovereign debt is amplified when levels of one or more of the others are also high.

In the longer term, structural reform gaps slow growth and adjustment. All European countries would have benefited from structural reform before the crisis, but the need to enable an adjustment of the composition of output—away from precrisis sectors such as construction, which benefited from unsustainable

housing booms, and toward those that can support exports and future growth—is more pronounced in those countries most affected by the crisis, including Greece, Ireland, Italy, Portugal, and Spain. In a number of cases, current account deficits also point to a need for efforts to raise productivity and for more competitive wage setting. In other European economies, including in the euro area core, significant untapped reforms remain that can unleash additional growth momentum, including in investment and the services sector.

## DEALING WITH CRISIS LEGACIES

History confirms that adverse economic conditions do not preclude debt reductions, but they come at a price. As Abbas and others (Chapter 4) show, many past episodes of large and sustained sovereign debt reduction started under adverse conditions, but they were often later supported by accelerating external demand. When output grows rapidly, debt ratios can come down even without substantial deficit reduction. If underlying growth remains low, however, the burden of adjustment falls more squarely on fiscal policy. In a sample of advanced economies between 1980 and 2011, the success rate of attempted fiscal consolidations dropped from about 40 percent to about 25 percent when growth fell below the country median. Under such circumstances, sovereign debt reduction requires a durable commitment by policymakers to sustain fiscal consolidation and strong efforts to limit the impact of budget tightening on growth. A similar mechanism is in play for private sector debt reduction. Bakker and Zeng (Chapter 3) note that past private sector balance sheet consolidations often were facilitated by higher inflation and fiscal support, neither of which is likely to be forthcoming at the current juncture. They warn that, as a consequence, corporate sector deleveraging this time could lead to significant labor shedding, particularly if labor market institutions inhibit wage adjustment.

Good policies can mitigate the short-term costs of deleveraging. Although there is no alternative to bringing down debt levels, policymakers can still work to protect growth:

- *Better microstructures can facilitate the reduction of private sector debt overhangs.* Bornhorst and Ruiz-Arranz note that in the past, the deleveraging after a busting boom tended to match the cumulative pre-crisis buildup in debt almost one to one (typically during a course of 5–10 years), bringing debt ratios back about to where they started. Such large deleveraging efforts require effective insolvency frameworks featuring, among other mechanisms, fast and flexible personal and corporate bankruptcy proceedings to help avoid lengthy periods of deleveraging and to protect growth. However, despite progress in this direction in a number of countries, ample scope for reform remains.
- *Proper sequencing helps.* Another finding emerging from Bornhorst and Ruiz-Arranz's work is that whereas high private sector debt tends to unambiguously lower growth, public sector debt is more harmful if the private sector is highly leveraged. This result would suggest that addressing private sector debt reduction first can help mitigate the impact on growth—a principle



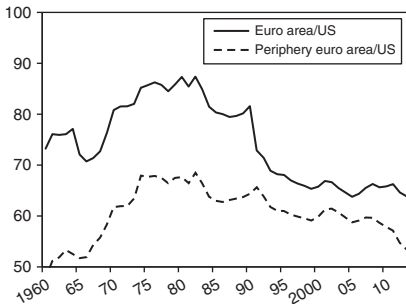
mirrored in current IMF advice that countries seek a gradual pace of fiscal consolidation anchored in a credible medium-term framework, if circumstances allow (IMF, 2013c). Indeed, by protecting growth and thereby facilitating private sector deleveraging now, governments might be able to improve the conditions for self-sustained growth later on. But as Abbas and others warn, “later” must not be “too late”: front-loaded consolidations may be necessary if market confidence is critical, as is the case in economies facing particularly high costs of finance.

- *The design of fiscal consolidation matters.* Abbas and others highlight the importance of designing consolidations to minimize their impact on growth (see also IMF, 2012a). For example, cutting less productive spending, protecting public investment, and shifting the emphasis from direct to indirect taxes will help; some countries might also have scope for additional privatization efforts. More generally, consolidation episodes provide opportunities to implement growth-enhancing tax or subsidy reforms. But most importantly, to protect growth public debt-reduction efforts should be undertaken gradually where financing conditions allow and be anchored in a medium-term framework.
- *Structural reforms to boost growth are key.* As noted above, the easiest way to bring down debt while avoiding unwanted deleveraging is through higher growth. In addition, the right structural setup can facilitate adjustment in the private sector: as Bakker and Zeng show, corporate sector deleveraging has often fallen disproportionately on employment when labor market rigidities have made other types of adjustment more difficult. Labor market reforms can thus help mitigate the extent of labor shedding and, depending on the impact on aggregate demand, boost output growth.

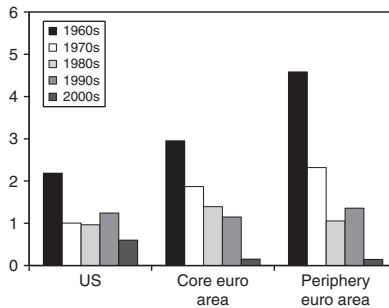
## LAYING THE FOUNDATIONS FOR LONG-TERM GROWTH

Improving Europe's growth potential is crucial. Although the crisis has made the quest for growth more urgent, many observers have noted that growth in the euro area and in other advanced European economies has lagged that of peers since the 1980s (Figure 1.3). Having reached about 90 percent of U.S. per capita GDP in 1980, euro area output today stands at about 70 percent of that mark, with economies such as Greece, Ireland, Italy, Portugal, and Spain measuring less than 60 percent. Much of the relative decline has been explained by weak total factor productivity growth—and action on many fronts will be required to address this shortcoming.

Labor market reform will have an important role, and pursuing the right reforms is especially important in the current context. Millions of young people are out of work, and starting off into their working lives without a job not only affects them directly but also hampers Europe's future growth potential. Unemployment at a young age means a lack of on-the-job training, depreciating skills, and a less productive workforce tomorrow. By reducing savings and pensions, it also means a longer working life, a less prosperous retirement, or both.

**Figure 1.3a** PPP GDP per Working-Age Population (Relative to U.S. levels)

Sources: World Economic Outlook and OECD.

**Figure 1.3b** TFP Growth (Average by decade)

Source: European Commission.

- *Making up for lost ground.* Cheptea and others (Chapter 5) trace many of the dismal labor market dynamics in Western Europe back to choices made since 1990—which suggests that better choices in the future have the potential to improve the functioning of these markets significantly. Here and elsewhere, however, structural problems extend beyond the labor market: product market reforms are also required. Simultaneous product and labor market reforms will maximize the impact on potential growth, although reform priorities and their design will differ across countries. For example, many of the Balkan economies that are not members of the European Union (Albania, Bosnia and Herzegovina, Kosovo, Macedonia, Montenegro, and Serbia) need to address deep-rooted problems arising from a delayed transition process, poor investment climates, and the resulting low flows of foreign direct investment (Kovtun and others, Chapter 6).
- *Fighting the disadvantages of dualism.* Labor market dualism has been advancing in recent years, with larger shares of employees in temporary contracts with low employment protection. As Bakker and Zeng show, this dualism increases the likelihood that cost-cutting measures in the corporate sector will result in employment cuts. Dual labor markets also bring a host of other potential problems, including income inequality and inefficient training because both workers and firms have lower incentives to invest in human capital when worker turnover is expected to be high. Although some degree of market-driven labor market dualism can provide needed flexibility to respond to economic shocks, evidence indicates that asymmetric regulation has moved the balance too far in many countries.

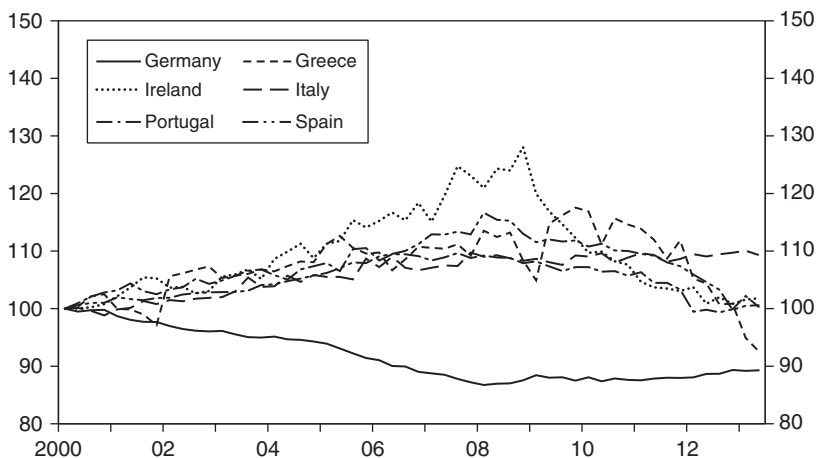
A comprehensive reform effort that includes the product and services markets promises sizable gains. Simulations using the IMF's Global Integrated Monetary and Fiscal model undertaken by Anderson and others (Chapter 7) suggest that comprehensive product market, labor market, and tax reforms could raise real GDP by 4 percent over a medium-term horizon and by up to 12 percent in the

long term. The boost to long-term real GDP is largest in the periphery countries, reflecting larger scope for reform as well as positive trade and technology spillovers from the relatively larger core economies. This is a welcome finding because some of the largest deleveraging needs are in the periphery. The reforms would also boost competitiveness through lower unit labor costs, another area in which large intra-euro area gaps have developed (Figure 1.4). The analysis also points to competitiveness benefits in periphery economies, exactly where external demand support is most needed. Thus, reforms could contribute to the needed rebalancing of current accounts across Europe (see also Atoyan, Manning, and Rahman, Chapter 9).

Smart design will increase benefits. Structural reforms are critical to improving the long-term capacity of economies to grow through both more intensive use of resources and higher productivity, but their full impact will take time to develop (Anderson and others).

- *Comprehensive reforms are better than piecemeal ones.* For example, although product market reforms would have a particularly large effect in the euro area, simultaneous labor market reforms will maximize the impact on potential growth. Piecemeal reforms should be avoided not just across markets, but also within them. Cheptea and others find that 85 percent of past labor market reforms in Western Europe focused on only a small aspect of institutions, were incremental, or both. The explosive growth of youth unemployment in some European economies marked by partial labor market reform is a particularly telling case. The specific reform priorities and their precise design will, however, differ across countries.
- *Tailoring reforms to needs is important.* As Cheptea and Velculescu (Chapter 8) explain, a one-size-fits-all approach does not work when it comes to structural

**Figure 1.4** Unit Labor Costs Relative to EMU Average, 2001:Q1–2013:Q3 (*Nominal, 2001:Q1 = 100*)



reforms. Their analysis illustrates that different countries can have widely different reform needs and cautions that a complete review of policy options should assess not only the benefits of reform but also the costs. Reform costs are hard to measure with any precision, and are likely to differ across countries, which will affect what structural reform strategy works best. Together with the analysis in other chapters of this book, this underscores how small differences in the institutional setup of countries, their starting conditions, and their strategies can matter greatly for the outcome of reforms. Further research in this area is clearly needed.

## **TAKING ADVANTAGE OF CHANGES IN THE GLOBAL ECONOMY**

Structural reforms can also play a key role in allowing countries to profit more from the export dynamics provided by global supply chains. As Atoyan, Manning, and Rahman (Chapter 9) document, progress in reducing some of the external current account imbalances in the euro area has been uneven (Figure 1.2). Although many factors play a role, a significant share of these imbalances can be attributed to a lack of external competitiveness, most strongly in the periphery economies (Figure 1.4). In contrast, many countries in emerging Europe have experienced strong export growth over the last decade by tapping into global production chains. Such production links are gaining in importance as firms seek to unbundle their production processes to take better advantage of low-cost foreign factors of production. By some measures, the importance of supply links in world manufacturing exports has increased by more than one quarter during 1995–2008 (Rahman and Zhao, Chapter 10). As Rahman and Zhao note, some of the same structural reforms that promise to improve competitiveness and raise an economy's growth potential can also help to build links to other economies, European or other, and to strengthen its integration into cross-border vertical supply networks. As they argue, smaller economies may benefit from a competitive labor force and from focusing on niches that are complementary to the production processes in larger production hubs.

## **BAD NEWS AND GOOD NEWS**

The global financial crisis has been unique in its severity and its complexity, and also in the challenges it has thrown at policymakers. Five years of crisis management and reform have brought a measure of stability and prevented worse outcomes. But growth remains weak, and many of the underlying vulnerabilities exposed by the crisis are still unaddressed.

In the near term, efforts to bolster the nascent recovery should include further demand support and an effective resolution of the balance sheet weaknesses of the banking sector to jump start credit and private investment. The expeditious completion of the banking union with the ability to undertake a timely, effective

and least cost resolution of ailing banks would help remove uncertainty and support growth. If growth remains lackluster and monetary policy options were to be depleted, there may be need for more fiscal support for activity.

There is, however, a road map to chart the course toward stronger and sustained growth in Europe over the medium term. Although more work is needed, the IMF research collected in this book provides a number of guideposts. Following them offers an opportunity for stronger and better balanced growth and employment after what has been a long and dismal period of crisis.

- With prolonged economy-wide deleveraging a major threat to medium-term growth, more effective private sector insolvency frameworks are needed to help reduce household and corporate debt. At the same time, fiscal consolidation will need to be designed to protect growth, and should be anchored by credible medium-term frameworks.
- Europe's longer-term growth potential needs to be enhanced by closing structural reform gaps in product and labor markets in a comprehensive manner. Closing these gaps would also position countries to explore new sources of growth in a globalized world.
- At the same time, the measures examined here will need to be complemented by further efforts to ensure the effective operation of the infrastructure of the common currency area, especially banking and fiscal union.

Recent macroeconomic and financial developments offer encouraging signs that the worst of the crisis and its aftermath may finally be over. A sustainable recovery—one sufficient to reduce unemployment and debt—is however still elusive. Now is the time for governments to get to work on implementing the reforms needed to ensure that more Europeans can at last get back to work.

## REFERENCES

- International Monetary Fund (IMF), 2012a, *Fiscal Monitor—Taking Stock: A Progress Report on Fiscal Adjustment*, October (Washington: International Monetary Fund).
- , 2012b, “Income Inequality and Fiscal Policy,” Staff Discussion Note No. 12/8 (Washington: International Monetary Fund).
- , 2013a, “A Banking Union for the Euro Area,” Staff Discussion Note No. 13/1 (Washington: International Monetary Fund).
- , 2013b, *Euro Area Policies*, 2013 Article IV Consultation, Country Report No. 13/231 (Washington: International Monetary Fund).
- , 2013c, *Fiscal Monitor—Fiscal Adjustment in an Uncertain World*, April (Washington: International Monetary Fund).
- , 2013d, “Toward a Fiscal Union for the Euro Area,” Staff Discussion Note No. 13/9 (Washington: International Monetary Fund).



# Growth and the Importance of Sequencing Debt Reductions across Sectors

FABIAN BORNHORST AND MARTA RUIZ ARRANZ

## DEBT IN THE EURO AREA

High debt in the euro area is weighing on growth. Countries that experienced a rapid increase in private sector debt in the run-up to the global financial crisis of 2008–09 have had worse unemployment and growth outcomes, and some are still in the middle of deep recessions. Their medium-term growth outlooks are also weak in many cases.

Balance sheet adjustment in the euro area may prove more challenging than in other regions or in other past episodes. Private sector deleveraging is occurring while sovereigns are working to repair their balance sheets, making the overall task daunting in some countries, and a fragmented financial sector with its own balance sheet problems amplifies the effect of private sector balance sheet stress on economic outcomes. Countries in need of adjustment are constrained by a common monetary and exchange rate policy, leaving them little space for maneuver. Finally, simultaneous deleveraging in several euro area members can lead to negative spillovers, further amplifying the harmful impact of country-specific deleveraging on economic activity.

This chapter evaluates indebtedness in the euro area and its implications for growth. The analysis suggests that although the negative growth impact of debt in one sector depends in part on the level of indebtedness in the other sectors, private sector debt may be more detrimental to growth than public sector debt. Policies that directly support the workout of bad debt in the financial and private sectors could therefore yield important benefits. At the same time, the negative impact of private sector deleveraging could be reduced through a more supportive policy mix. The chapter is organized as follows: The next section discusses the links between private sector indebtedness and growth, including the way in which balance sheet stress can arise from high indebtedness, and identifies the feedback loops across sectors. It is followed by a section that takes stock of indebtedness across the euro area, identifying vulnerabilities across sectors and countries. The subsequent section looks at historical episodes to gauge the extent of deleveraging that can be expected, and at the macroeconomic environment that supported previous deleveraging episodes. It also presents econometric evidence linking high

debt in the private and public sectors to growth outcomes. The penultimate section offers policy considerations for the euro area, including the lessons that can be drawn from past experience, and the last section offers some conclusions. Chapters 3 and 4 in this book provide a more in-depth look at the reasons for and consequences of high corporate and public debt beyond the euro area.

## WHY DEBT MATTERS

### Balance Sheet Stress

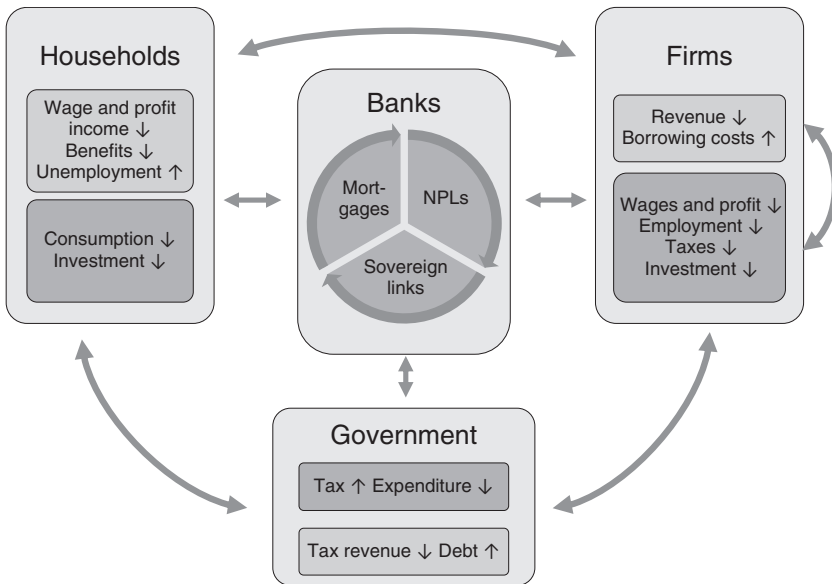
Indebted private sector agents are more vulnerable to sudden asset price or interest rate shocks or increased volatility. In the context of high debt, adverse economic developments can cause balance sheet stress through both lower asset valuations (e.g., house or equity price declines) and increases in liabilities (e.g., rising interest rates). Deteriorating macroeconomic conditions (higher interest rates or lower growth) can lead to tighter financing conditions and increased rollover risk. Households and firms then often focus on repaying debt and strengthening their balance sheets by improving equity ratios or building liquidity buffers, and life-cycle consumption smoothing or investment return considerations become secondary. This shift in behavior can depress demand and create self-reinforcing feedback loops across sectors.

Declines in asset prices have economy-wide consequences. Falling asset prices go beyond one sector of the economy because they affect both borrowers and creditors. For example, falling house prices reduce household wealth, decrease the value of collateral held by banks, increase nonperforming loans (NPLs), and when weak banks require public support, affect the public sector's balance sheet. Public finances are also affected by lower tax revenue derived from transactions in this asset (e.g., stamp duties). Falling equity prices also reduce a firm's valuation, thus raising the cost of capital and increasing its financial vulnerabilities, reflected in rising debt-to-equity ratios.

Feedback loops exacerbate downturns, particularly in cases of simultaneous deleveraging of the private, financial, and public sectors (Figure 2.1; IMF, 2012b). Managing deleveraging becomes particularly challenging if all sectors of the economy, including the public and the financial sectors, deleverage simultaneously. These actions can depress activity further because no sector can expand its balance sheet. The following feedback loops can be at play in a balance sheet recession with a weak financial sector:

- Indebted households that need to repair their balance sheets consume and invest less, reducing firms' profitability and the public sector's tax revenue.
- Firms faced with a slump in household demand begin to reduce their debt burdens by increasing profit margins, reducing wage costs, and scaling back investment (also see Chapter 3). These maneuvers, in turn, feed into lower household income through lower wages and higher unemployment, and also lead to lower tax revenues for the sovereign.



**Figure 2.1** Adverse Feedback Loops from Balance Sheet Effects

- The government's own consolidation effort requires higher taxes and lower spending, which reduces households' disposable income, thereby worsening households' debt-servicing capacity and firm profitability. In turn, public balance sheet weaknesses limit the scope for further assistance to the financial sector (e.g., bank recapitalizations).
- Banks, faced with increasing NPLs from households and firms and high exposure to a potentially weak sovereign, need to rebuild their capital positions by tightening lending standards and increasing lending rates, in turn depressing demand for investment and consumption loans.

## Diagnosing Balance Sheet Stress

Gross debt matters, but so do other indicators. A sector's indebtedness is a key variable driving balance sheet stress and the ability of the sector to absorb shocks. But focusing exclusively on gross debt is not sufficient. The level of sustainable debt in a sector varies across countries depending on initial conditions, including the characteristics of the housing market and the degree of intermediation provided by the banking sector. Debt-to-income ratios can help gauge a sector's capacity to service debt, and leverage ratios, which link debt to assets, are relevant for assessing debt in relation to a sector's own balance sheet. Liquid assets, including financial, and to a lesser extent housing wealth, can be important buffers because they allow agents to draw down savings, and they are relevant for assessing

debt sustainability. And because debt stocks tend to change slowly over time, financial flows can be useful for detecting changes in behavior that signal balance sheet stress, for example, when agents increase their financial surpluses. Other considerations that may alter the implications of the debt overhang include the characteristics of the debt profile, such as the composition, redemption profile, and structure of the investor base.

Analysis of aggregate balance sheet data has its limitations. It cannot identify pockets of vulnerability that may exist within sectors, and it abstracts from distributional aspects. For example, assets and liabilities could be concentrated in different subsets of the population, and conclusions from an aggregate perspective can be misleading. This chapter provides an overview of indebtedness in the euro area, but it also takes into account more detailed country and sector-specific analyses made available in other studies.

## **INDEBTEDNESS AND DELEVERAGING IN THE EURO AREA: STYLIZED FACTS**

### **The Euro Area Debt Level**

Debt levels for the euro area as a whole are at par with those in the United States or the United Kingdom, but the deleveraging process has yet to translate into debt reduction (Figure 2.2). In aggregate, household debt is lower than in the United States or the United Kingdom. Corporate debt appears to be higher in the euro area and the United Kingdom than in the United States, though important differences in the size of intercompany loans and trade credit complicate comparisons in levels.<sup>1</sup> Government debt in the euro area is at comparable levels, but increased less since 2003 than in the United States or the United Kingdom. The euro area also enjoys a comfortable net international investment position. Yet, since 2009 the United States and the United Kingdom have seen a reduction in household debt, and the United Kingdom has also experienced a reduction in corporate debt, whereas the deleveraging process in the euro area has not yet translated into an area-wide reduction in debt. Looking at flows in the euro area shows the private sector's deleveraging effort, with firms and households in a contractionary net lending position in comparison with other sectors (Figure 2.3; ECB, 2013b).

### **Variation across Countries**

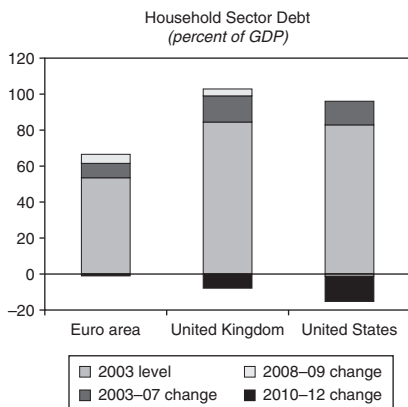
Indebtedness varies across countries and sectors (Figure 2.4). Since early in the first decade of the 2000s, private and public debt increased most sharply in countries now under stress, and both are particularly high in Ireland, Portugal, and

---

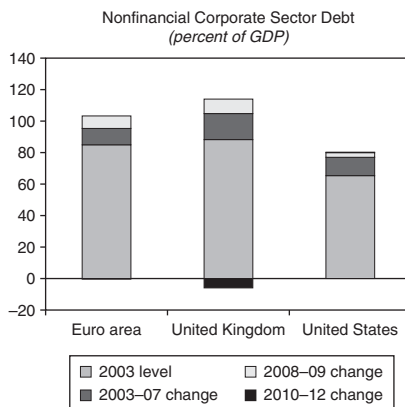
<sup>1</sup>See Cussen and O'Leary (2013) for a discussion of consolidated and nonconsolidated corporate debt in the euro area, in particular for Ireland.

**Figure 2.2** Indebtedness in the Euro Area, U.S. and the UK

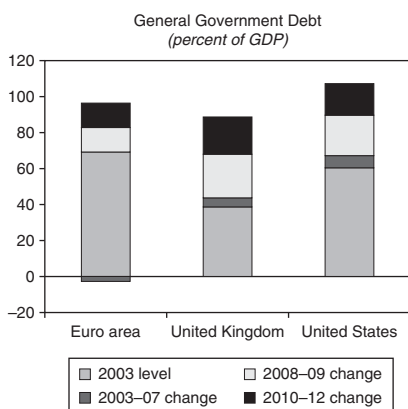
*Households in the euro area are not highly indebted, and overall debt has decreased only little.*



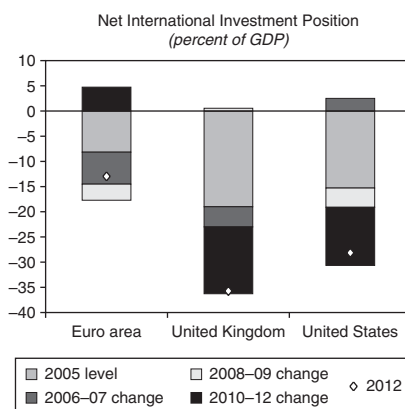
*Nonfinancial corporate debt in the euro area is somewhat higher than in the United States.*



*General government debt in the euro area is at par with other advanced economies.*



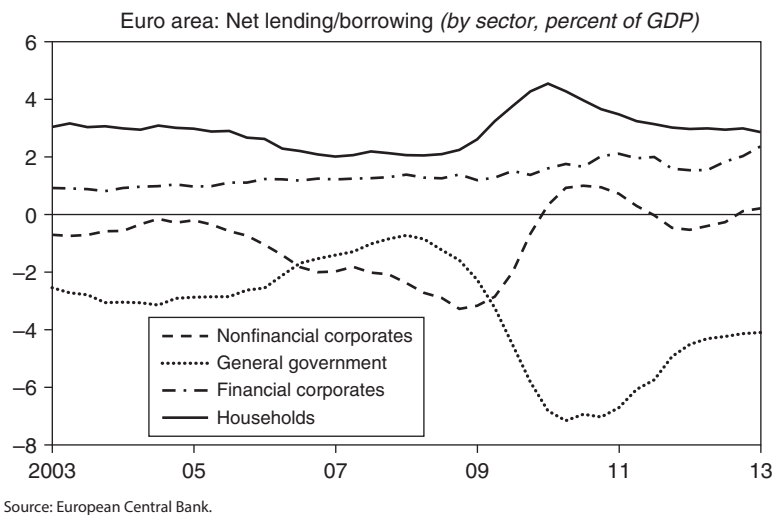
*The euro area enjoys a comfortable net international investment position.*



Spain, where households, the nonfinancial corporate sector, and the government are all highly indebted compared with their euro area peers. In addition, a number of other countries have high debt in one or two sectors.<sup>2</sup> And when all sectors are highly indebted, sizable net external liabilities have accumulated.

<sup>2</sup>See Cuerpo and others (2013) for an identification of countries currently facing private sector deleveraging pressures based on various indebtedness indicators. For an overview, see Buiter and Rahbari (2012) and McKinsey (2012).

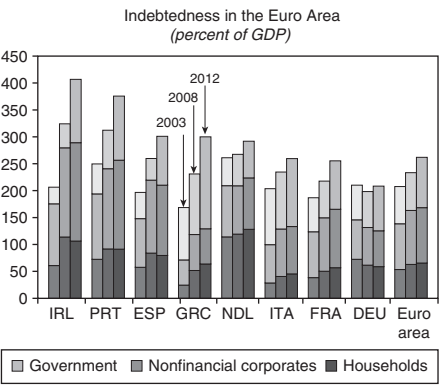
**Figure 2.3** Financial Surplus in the Euro Area



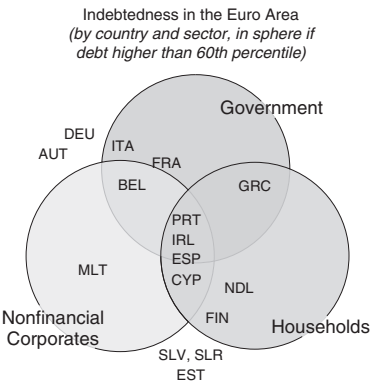
**Figure 2.4** Indebtedness Across the Euro Area

Private and public indebtedness has increased sharply in periphery economies.

And many economies have high debt in more than one sector of the economy.



Sources: European Central Bank; IMF staff estimates.  
Note: For the Netherlands, first observation is 2005.  
Corporate debt includes intercompany loans, which can differ significantly across countries.



Sources: European Central Bank; Haver Analytics; and IMF staff estimates.

## Nonfinancial Firms

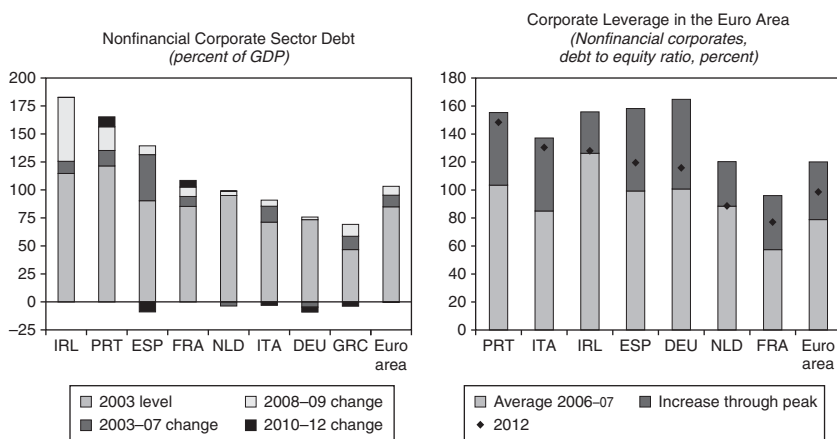
### Corporate debt and leverage

Indebtedness of euro area firms increased substantially in the first decade of Economic and Monetary Union as the result of low real interest rates and prospects of high growth. Higher bank debt, combined with falling equity valuations,

boosted corporate leverage during the crisis, threatening debt sustainability. Although firms' leverage ratios have since fallen, they remain elevated in a number of countries (Figure 2.5). Firm-level data suggest that in some euro area economies up to 20 percent of corporate debt may not be sustainable (IMF, 2013g).

Procyclical financial conditions are weighing on corporate balance sheets. Despite very low monetary policy rates, bank lending rates in many crisis economies remain high because of fragmented financial markets and the impaired transmission of monetary policy (IMF, 2013c). Higher bank lending rates are felt strongly by the bank-dependent small and medium-sized enterprises (SMEs), which constitute a large share in value added. Lending conditions are tight, further reducing available financing for solvent firms.

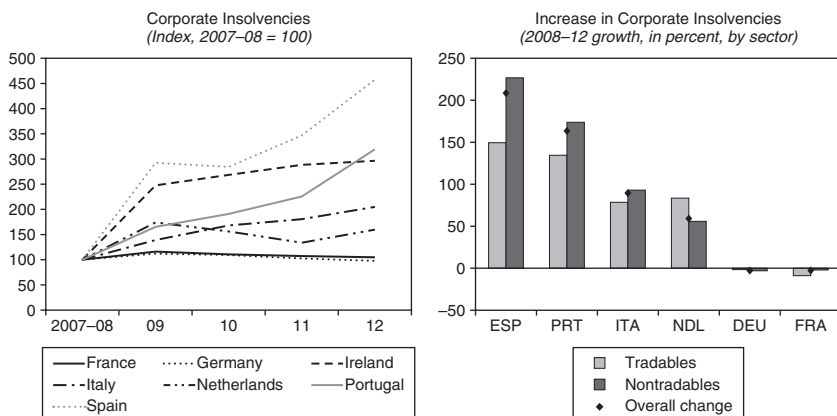
**Figure 2.5** Corporate Debt



Sources: European Central Bank.

Note: Includes intercompany loans, see Cussen and O'Leary (2013). First observation for the Netherlands is 2005.

Sources: Haver Analytics; IMF staff calculations.



Sources: Creditreform (2012).

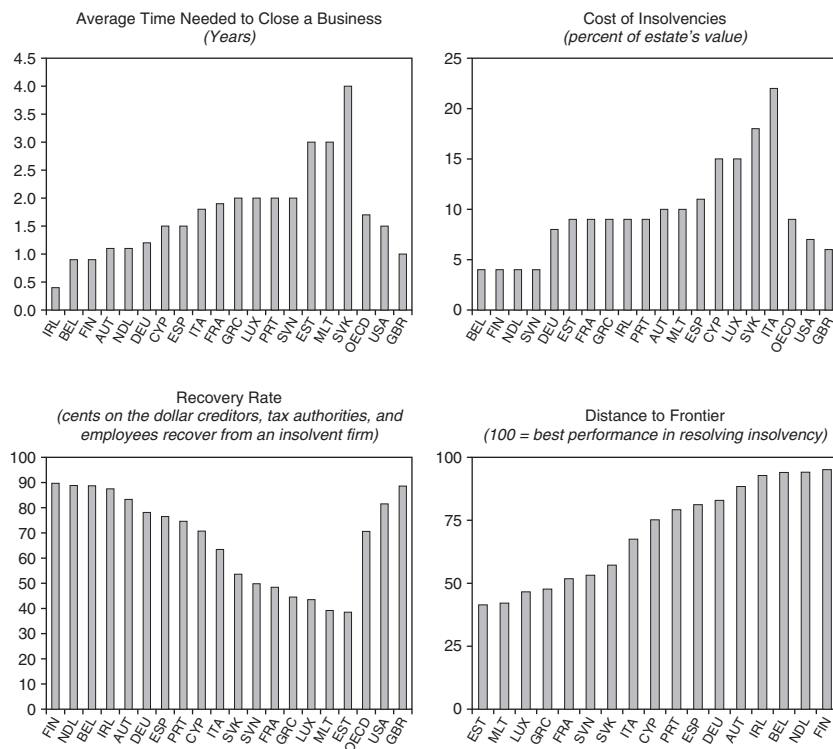
Sources: Creditreform (2012); IMF staff estimates.

## Corporate insolvencies and vulnerabilities

Insolvencies have increased markedly where corporate debt is high (see Figure 2.5). In most crisis economies, the increase in insolvencies in the nontradables sector is somewhat higher than in the tradables sector, indicative of initial stages of economic rebalancing. This increase is noteworthy in view of the fact that, despite recent reforms, insolvency procedures in many euro area countries are generally lengthy and costly, and the recovery rate of claims is very low (Figure 2.6; World Bank, 2013).

Pockets of vulnerabilities exist in the corporate sector. In Spain, firms in most sectors are highly leveraged. In particular, corporate indebtedness is high in the real estate and construction sectors, where firms are highly reliant on bank financing, making them vulnerable to interest rate and earnings shocks. In 2010, about a quarter of a sample of 7,000 firms was financially distressed (IMF, 2012c). In Portugal, firm profitability is low, particularly for small and medium-sized enterprises and micro firms, which account for nearly two-thirds of corporate value added. As a result, the share of debt at risk is increasing, with 20 percent of firms in financial distress, and concentrated in the nontradables sector (IMF, 2013h). In Italy,

**Figure 2.6** Insolvency Regimes



Source: World Bank (2013).

corporate leverage is particularly high, with firms, especially small and medium-sized enterprises, heavily reliant on short-term bank financing (IMF, 2013f).

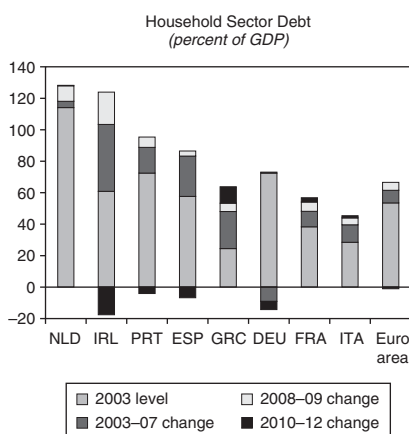
## Households

### *Household debt and the housing boom*

The turn of the housing cycle triggered sector-wide deleveraging in countries in which real estate bubbles had driven up debt (Figure 2.7), especially in those in which real interest rates had declined and incomes had risen rapidly. Mortgages represent the largest share of household debt in euro area countries (Cussen, O'Leary, and Smith, 2012), and they have been the most significant driver in the

**Figure 2.7** Household Debt

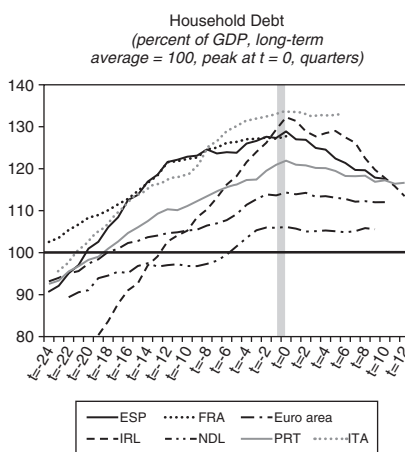
*Household debt increased rapidly until 2009.*



Source: European Central Bank.

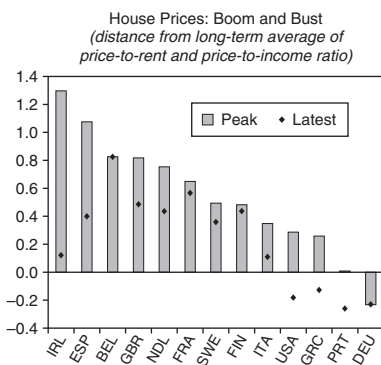
Note: First observation for the Netherlands is 2005.

*And adjustment in euro area countries has just begun.*

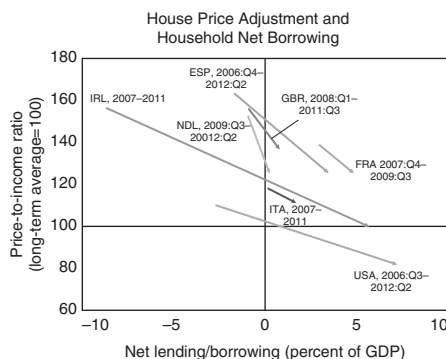


Sources: European Central Bank; IMF staff estimates.

Note: Long-term average since 2000 but varies with data availability.



Sources: OECD; IMF staff estimates.



increase of household debt since the start of the euro. When the housing boom burst in 2007–08, households were left with high debt and overvalued assets, particularly in Ireland and Spain. As house prices started to adjust, households moved from a financial deficit to a financial surplus position. In Ireland and Spain, for example, households have now begun to dispose of financial assets and repay debt, and have slashed the acquisition of nonfinancial assets (Box 2.1). Despite these efforts to repair balance sheets, household debt continued to increase until 2009. It has since started to decline in Ireland, and to a lesser extent, in Portugal and Spain. Although the adjustment in house prices has gone far in some countries (e.g., Ireland), prices remain high in others (Spain, France, Netherlands).<sup>3</sup>

### *Buffers and vulnerabilities*

Household assets are important buffers, but are also often illiquid. In Spain, for example, high levels of assets and low wealth dispersion—a result of high ownership rates—have been important mitigating factors, because households can dispose of assets to smooth consumption. But in a depressed housing market with high owner occupancy rates, disposing of housing wealth is often difficult. Indebted households have less-liquid financial assets in periphery economies (Figure 2.8; ECB, 2013a), although the sector as a whole has, in many countries, moved toward safe and liquid financial assets since the crisis (Cussen, O’Leary, and Smith, 2012).

## **BOX 2.1**

### **The Saving Rate and Household Balance Sheets**

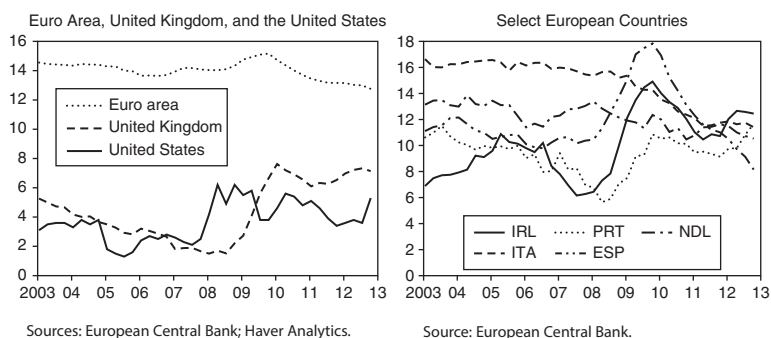
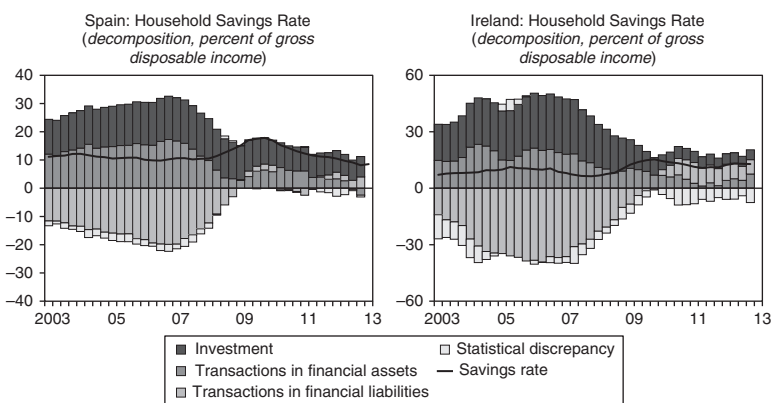
The rise in the household saving rate during 2008–10 in many advanced economies can be explained by the sharp decline in asset prices and increase in fiscal deficits.<sup>1</sup> The decrease in wealth associated with the decline in housing and asset prices prompted households to lower consumption and increase saving. In turn, the deterioration in the fiscal position had a strong positive impact on savings—partly reflecting Ricardian equivalence in which the expectation of a future tax increase drives households’ saving relative to their income today.

Since 2010, the deteriorating macroeconomic environment, lower disposable incomes, and higher unemployment have caused a decline in the household saving rate (Figure 2.1.1). Cyclical factors such as higher unemployment lowered the household saving rate as households ran down accumulated assets to smooth consumption.

Indeed, since the crisis the financial transactions that determine household saving have changed considerably, a sign of household balance sheet stress.<sup>2</sup> Precrisis, households were acquiring financial and nonfinancial assets, and at the same time incurring debt. Postcrisis, households have slashed their acquisition of nonfinancial assets, depressing aggregate demand, and are repaying debt by disposing of financial assets (Figure 2.1.2). Although households may still be saving a similar fraction of their incomes, they are doing so by reducing their financial wealth and investing less, with negative consequences for the broader economy.

<sup>3</sup>A full assessment of house prices would have to go beyond affordability ratios (price-to-income and price-to-rent ratios) and include other fundamentals, including supply constraints (IMF, 2013d, 2013g).



**Figure 2.1.1** Household Savings Rate**Figure 2.1.2** Financial Account Decomposition of the Household Savings Rate

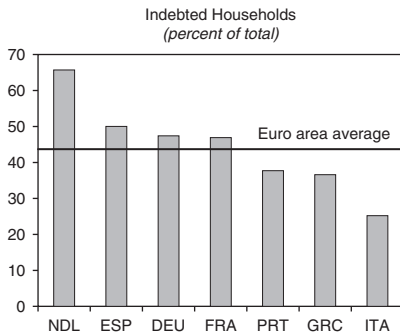
<sup>1</sup>Econometric results are based on a sample comprising Canada, France, Germany, Ireland, Italy, Japan, Spain, the United Kingdom, and the United States for the period 1980–2012. The correlates to explain household saving behavior include wealth, fiscal policy, interest rates, cyclical factors, and demographic factors (see IMF, 2013e).

<sup>2</sup>Aggregate savings have a real and financial representation. In real terms, savings are defined as  $S = (Y^D - C)$ , in which  $Y^D$  is disposable income and  $C$  is consumption. The concept of savings can also be derived as a result of financial transactions: the savings and investment balance for each sector is equal to its net lending  $S - I = NL$ ; savings are thus also equal to the difference between transactions in assets and liabilities plus investment (Cussen, O'Leary, and Smith, 2012).

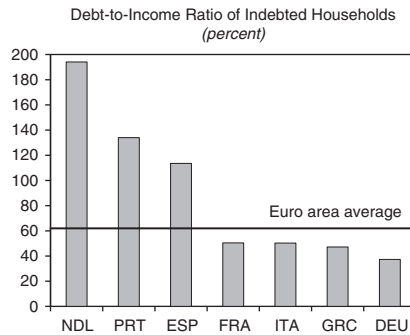
Household balance sheets are vulnerable to income declines, further asset price corrections, and, down the road, interest rate increases. In most countries with high household debt, sustainability indicators such as debt-to-income or debt-service-to-income ratios have deteriorated (see Figure 2.8) owing to falling incomes, with young and low-income households particularly vulnerable. For

**Figure 2.8** Household Balance Sheets—Survey Results

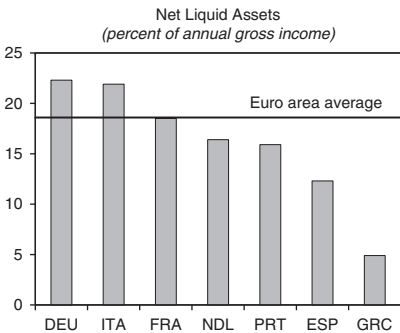
*The share of indebted households is high in the Netherlands but low in Italy.*



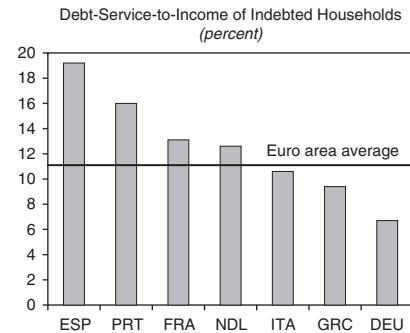
*In the Netherlands, Portugal, and Spain debt is high compared to income.*



*Buffers are low in some periphery countries.*



*And debt service is high.*

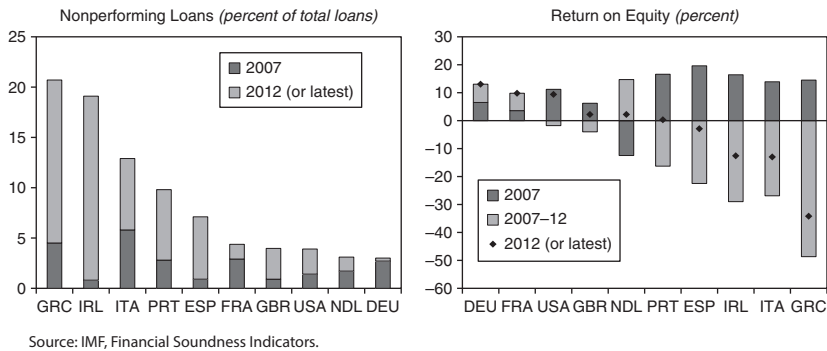
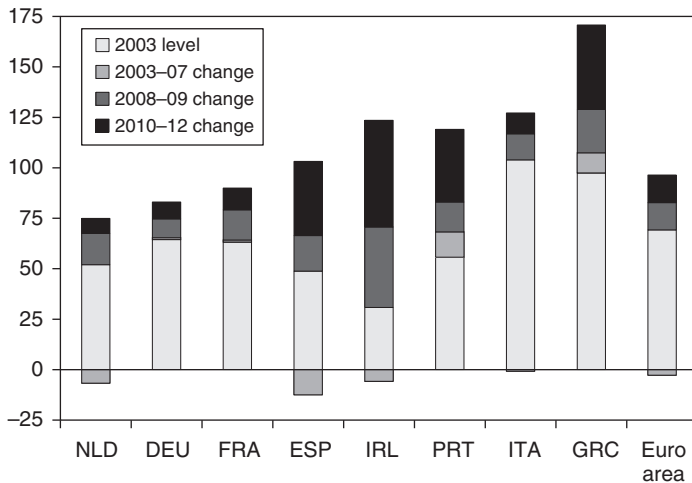


Source: European Central Bank.

example, in Spain, 22 percent of households in 2011 were estimated to be vulnerable to stress, but the shares were much higher among poor and young households, where debt-service-to-income ratios can reach 80 percent. The main risk for Spain arises from a further adjustment of housing prices and an increase in interest rates because most mortgages are indexed to the Euribor (IMF, 2012c). In the Netherlands, house prices are still overvalued based on a range of metrics, and young cohorts would be especially vulnerable to a further drop in prices (IMF, 2013g).

## Financial Sector

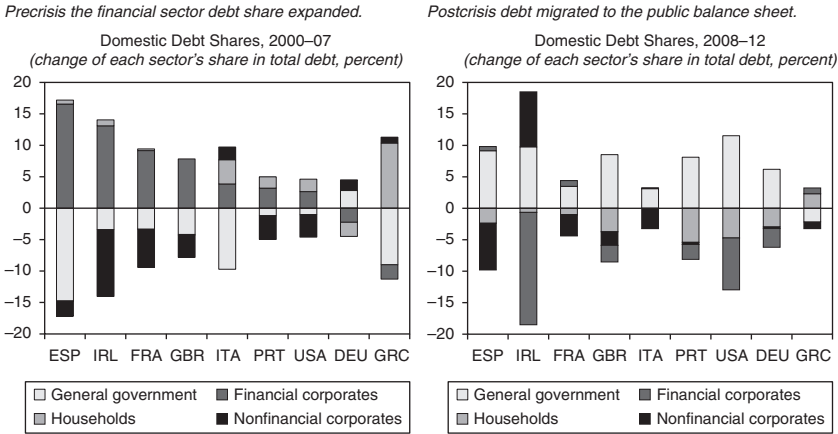
In many euro area countries, a highly leveraged financial sector impairs intermediation and burdens the sovereign. Many banks in periphery economies had traditionally relied on wholesale funding, and had built large exposures to sovereigns and the real estate market (IMF, 2013a). The share of NPLs—both from households and firms—has risen rapidly, increasing uncertainty surrounding the banks' asset quality, and in turn, increasing funding costs and driving down share prices (Figure 2.9). In a fragmented European financial market, such banks face an uphill battle to strengthen their capital positions so they can provision for NPLs, buffer their sovereign exposure, and meet new regulatory requirements.

**Figure 2.9** A Weak Financial Sector**Figure 2.10** Sovereign Debt

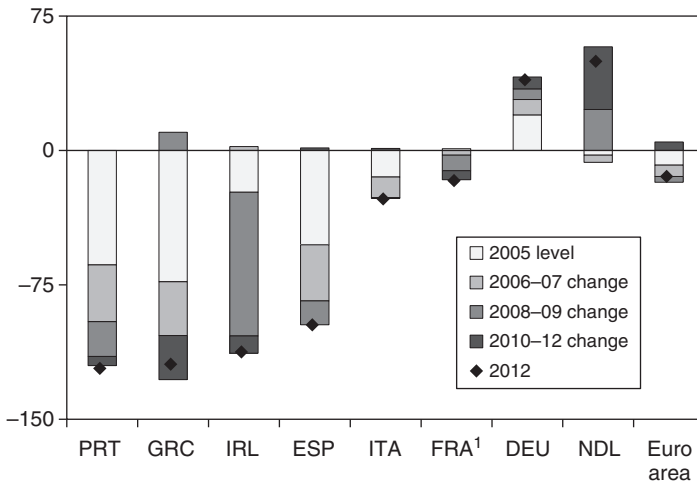
## Public Debt and the Migration of Debt

Debt migration from the private to the public sector has played an important role as a buffer in the euro area. In the boom phase, the private sector, in particular financial firms, increased their indebtedness while governments were able to reduce debt. As the private sector entered the deleveraging cycle, debt “migrated” to the public sector—through bank recapitalization, automatic stabilizers, or debt-financed fiscal demand support—and other sectors moved to reduce their debt burdens (Figures 2.10 and 2.11). But with saving lower than investment across all sectors for a number of years, many periphery economies accumulated sizable external debt (Figure 2.12).

**Figure 2.11** Debt Migration

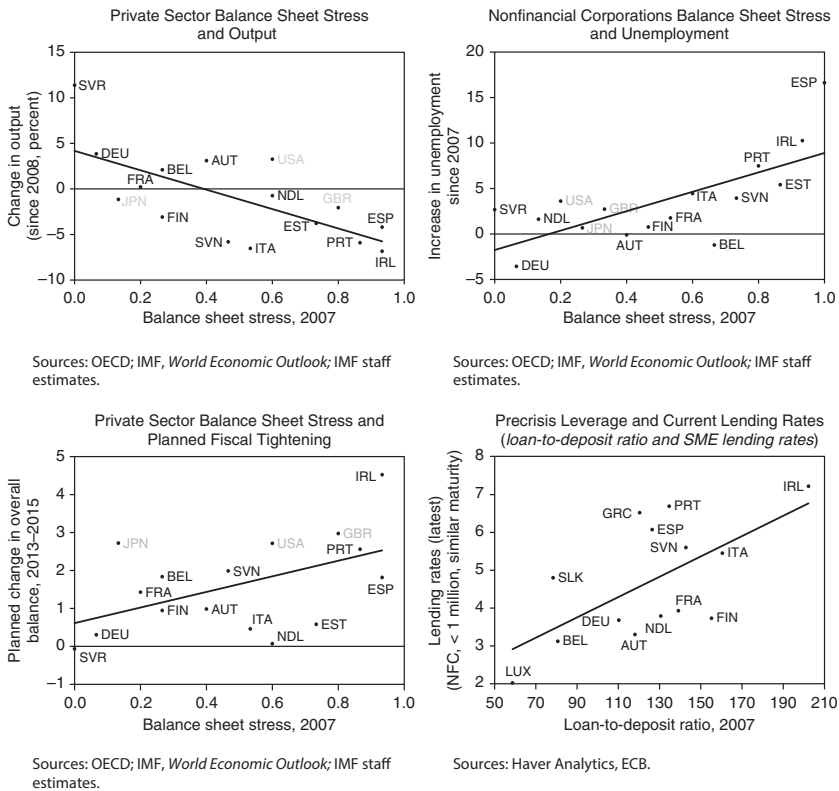


**Figure 2.12** External Indebtedness



## High Debt and Economic Outcomes

Balance sheet stress has been associated with weaker economic outcomes (Figure 2.13). In countries in which private sector debt rapidly increased through 2007, growth outcomes have since been weaker. This association also holds for household debt and consumption, as well as for corporate debt and investment. Moreover, in countries in which the corporate sector was highly leveraged in 2007, the increase in unemployment

**Figure 2.13** Balance Sheet Stress and Economic Activity

since the crisis has been higher.<sup>4</sup> Finally, a highly leveraged financial sector before the crisis has also been associated with higher lending rates after the crisis, creating procyclical financial conditions. Looking ahead, fiscal policy is tightening most in countries in which private sector balance sheet stress was the highest, creating procyclical fiscal conditions.

## EXPERIENCE WITH PREVIOUS PRIVATE SECTOR DELEVERAGING EPISODES<sup>5</sup>

### Household Deleveraging

The magnitude of the post-2000 credit boom was unprecedented. A look at historical episodes can illustrate the scale of the present challenge. In the run-up to the crisis, the increase in household indebtedness in many advanced economies was, on average, 20 percentage points of GDP higher than in past credit

<sup>4</sup>In the euro area, high corporate debt is also associated with lower per capita GDP growth during the period 1999–2011 (ECB, 2012). Chapter 3 picks up on this finding and analyzes some of the possible reasons for it.

<sup>5</sup>Chapter 4 also studies previous deleveraging episodes, but with a focus on public debt and the possible policy measures needed to facilitate debt reductions during episodes of low growth.

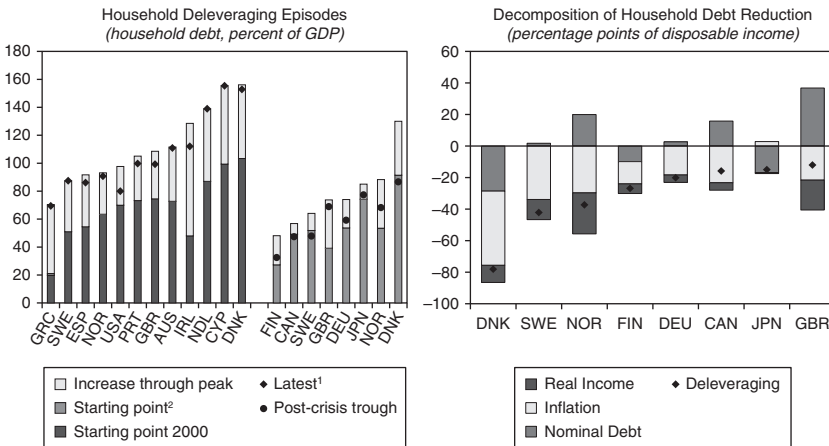
cycles.<sup>6</sup> As a result, the level of household debt in 2013, and thus the need to deleverage, is exceptionally large compared with historical episodes.<sup>7</sup>

Household debt reduction has barely started. Most banking crises preceded by rapid credit expansions are followed by a protracted period of debt reduction (Tang and Upper, 2010). Historical episodes suggest that the extent of deleveraging after the bust matches the size of the debt built up during the boom period almost one-to-one. That is, in most cases, household debt returned to the pre-credit boom level after a protracted period of deleveraging (lasting between 5 and 10 years). With household debt barely off its peak level, the deleveraging process in euro area countries can be expected to take many more years if debt is to return to the 2000 level. By contrast, in the United States, households are two-thirds of the way back to the preboom debt level (Figure 2.14).

In many historical episodes, household deleveraging was facilitated by higher inflation and expansionary fiscal policy:

- Most deleveraging during these episodes was passive—households did not actively pay down debt, instead the debt ratio was eroded by nominal income growth. Indeed, the reduction in the stock of debt was small, except in Japan. In episodes without a banking crisis, the stock of debt even increased during the deleveraging period (see Figure 2.14).

**Figure 2.14** Household Deleveraging Episodes



Sources: Eurostat; Haver Analytics; National statistical agencies; and IMF staff calculations.

<sup>1</sup>September 2012, except for Denmark, Ireland, and the Netherlands: June 2012; and Cyprus and Norway: end-2011.

<sup>2</sup>Canada: 1970; Germany and Japan: 1990; others: 1980.

Sources: IMF, World Economic Outlook; Haver Analytics; OECD.

<sup>6</sup>Historical episodes include Canada (1979–84), Denmark (1987–94), Germany (2000–11), the United Kingdom (1990–96), Finland (1989–97), Japan (2001–11), Norway (1988–95), and Sweden (1989–95). In the last four, household deleveraging was associated with a banking crisis. These episodes were selected from advanced economies that experienced a reduction in the household-debt-to-disposable-income ratio of more than 10 percentage points.

<sup>7</sup>Historical experience offers one possible benchmark. Model-based approaches can also be employed to derive optimal levels of leverage or indebtedness to gauge deleveraging needs (see, e.g., Cuerpo and others, 2013).

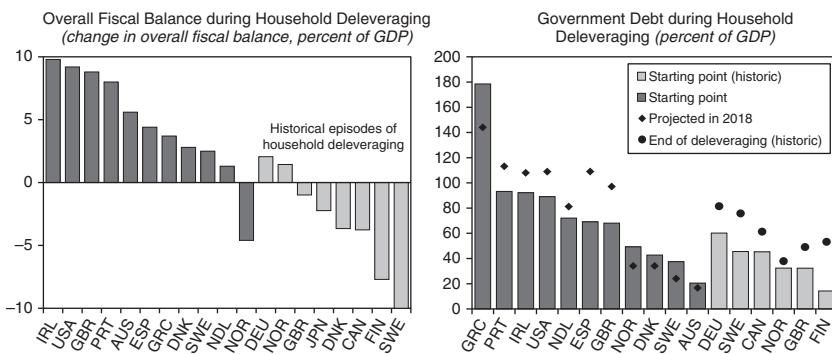
- Fiscal deficits often increased during deleveraging periods. The magnitude of the fiscal impulse varied across countries, but the cumulative impact was greater than 10 percentage points in Sweden and almost 8 percentage points in Finland (Figure 2.15).<sup>8</sup> Public support was generally larger if deleveraging was the result of a banking crisis because it was complemented by support to the financial sector.

Projections suggest that the macroeconomic environment this time around will be more challenging. Euro area inflation is expected to undershoot the price stability objective and economic activity will remain subdued. Therefore, the role of nominal income growth in assisting the deleveraging process will be much more limited than in the past.<sup>9</sup> Deleveraging this time will have to rely more on paying down debt and is likely to put additional stress on households. Likewise, fiscal policy will be less supportive of private sector deleveraging than in past episodes, because public debt levels are now significantly higher in most countries than in most previous episodes. At the current juncture, market pressures and institutional factors constrain fiscal policy; fiscal consolidation will continue with a turn to primary surpluses in many countries in 2014.

## Corporate Deleveraging

Corporate deleveraging has yet to begin in full, as of late 2013. Although the levels of debt are comparable to previous episodes, the increase in corporate debt in the boom cycle was particularly large in Ireland and Spain, compared with historic episodes (Figure 2.16).<sup>10</sup> Episodes of significant corporate deleveraging

**Figure 2.15** Fiscal Policy During Deleveraging Episodes



Sources: Eurostat; Haver analytics; National statistical agencies; and IMF staff calculations.

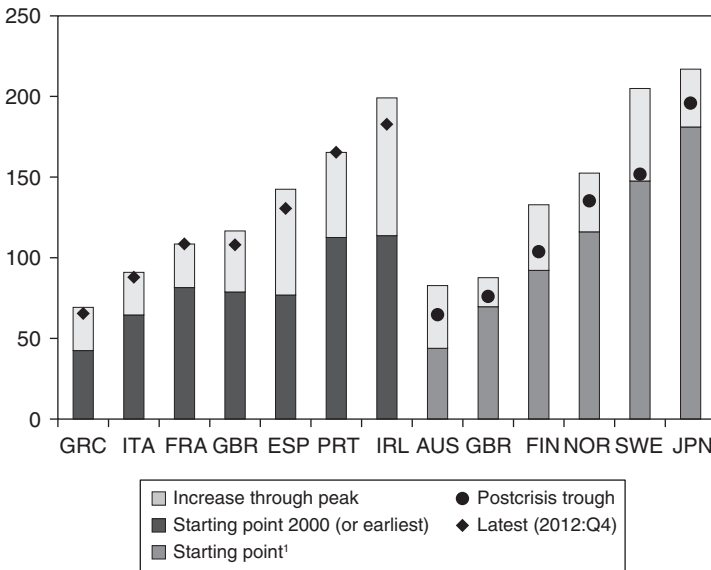
Note: For current episodes, measured as the difference between projected overall balance in 2018 and the start of the household deleveraging phase.

<sup>8</sup>The data on fiscal balances in Figure 2.15 exclude bank recapitalization costs.

<sup>9</sup>For a discussion of the role of inflation in assisting the deleveraging process, including its costs, see IMF (2013b).

<sup>10</sup>Identification of historic corporate deleveraging episodes is based on Ruscher and Wolff (2012), who use the sector's net lending and borrowing data as a marker, combined with indebtedness data from Cecchetti, Mohanty, and Zampolli (2011). It comprises episodes with significant debt reductions (10 percent of GDP or more), which, on average, lasted six years. A number of shorter episodes of corporate deleveraging identified by Ruscher and Wolff (2012) did not result in significant debt reductions.

**Figure 2.16** Corporate Deleveraging Episodes (*Corporate debt, percent of GDP*)



Sources: BIS, ECB, Bruegel, and IMF staff estimates.

<sup>1</sup>Historic episodes: AUS: 1988–96; FIN: 1993–96; GBR: 1990–96; JPN: 1989–97; NOR: 2000–05; SWE: 2001–04.

suggest that after large booms, an average of two-thirds of the increase in debt is subsequently paid off. In the euro area, corporate leverage has receded from its crisis peak in some countries, but debt-to-income ratios remain high.

## The Debt and Growth Nexus

The debate about the relationship between high public debt and growth remains open. A large body of research concludes that high public debt leads to higher interest rates and slower growth (among others, Kumar and Woo, 2010; Reinhart and Rogoff, 2010; Cecchetti, Mohanty, and Zampolli, 2011; Reinhart, Reinhart, and Rogoff; Baum, Checherita-Westphal, and Rother, 2013), although estimates of the debt level considered to be “high” are inconclusive.<sup>11</sup> High debt also makes public finances more vulnerable because it constrains the government’s ability to engage in countercyclical policies.

Fewer studies have attempted to quantify the impact of private sector debt on growth. A notable exception is Cecchetti, Mohanty, and Zampolli (2011), who find that corporate debt of more than 90 percent of GDP and household debt of more than 85 percent of GDP become a drag on growth. IMF (2012a) concludes that recessions that are preceded by a run-up in household debt tend to be more

<sup>11</sup>See, for example, Herdon, Ash, and Pollin (2013) who challenge the findings by Reinhart and Rogoff (2010) and Reinhart, Reinhart, and Rogoff (2012) of a 90 percent of GDP threshold, above which dramatically worse growth outcomes are observed. Another school of thought argues that weak growth causes high debt and not the other way around (e.g., Panizza and Presbitero, 2012).



severe and protracted. This section looks at growth performance in previous household deleveraging episodes and presents econometric evidence of the way in which high private sector debt hampers growth.

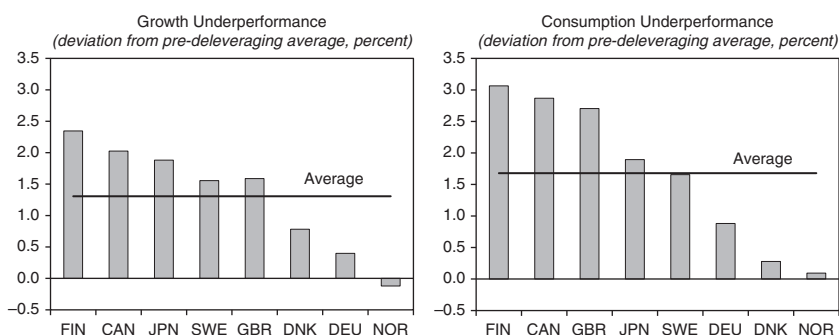
Historical experience suggests that household deleveraging in the euro area will continue to weigh on growth. Average annual real GDP and consumption growth were about 1.5 percentage points lower during the deleveraging period than in the preceding period. The growth underperformance is not found to be higher in those countries in which household deleveraging was also associated with a banking crisis (Figure 2.17). Although history is not destiny, and the number of historical episodes from which to draw lessons is limited, the analysis above suggests that headwinds from high debt and deleveraging are likely to persist.

## Econometric Analysis

An econometric analysis suggests that the negative growth impact of debt in one sector depends, in part, on the level of indebtedness in the other sectors (Figure 2.18).<sup>12</sup> When the three sectors—government, households, and corporate—have above-average debt levels, the negative growth impact of each category of debt is highest. Results support the hypothesis that the confluence of debt in multiple sectors exacerbates the negative feedback loops that arise in times of crisis. Therefore, headwinds are likely to be particularly strong in those periphery countries in which all sectors are highly indebted.

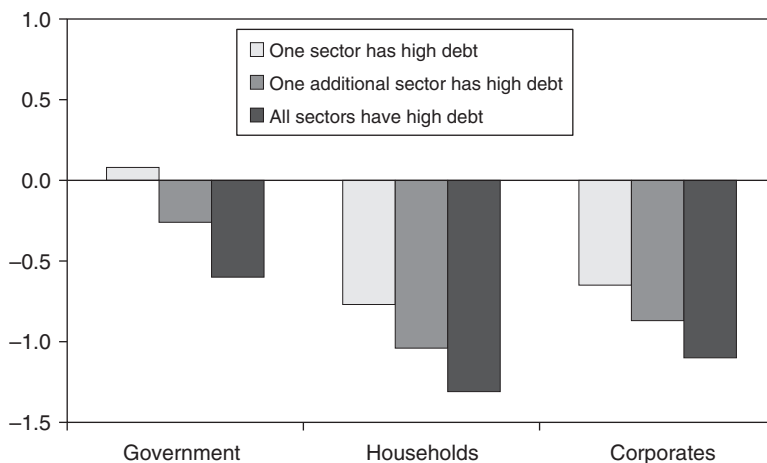
The analysis also suggests that private sector debt may be more detrimental to growth than public sector debt. Regressions identify a stronger and more

**Figure 2.17** Historical Growth and Consumption Underperformance



Sources: Haver Analytics; IMF staff estimates.

<sup>12</sup>See Appendix 2A for details on the econometric analysis. Growth is measured by the average five-year forward annual real GDP per capita growth rate. Debt is considered to be “high” if it is greater than the mean value in the sample. The mean values, which are technical in nature and specific to the country-years in the sample, are 73 percent of GDP for government debt, 48 percent of GDP for household debt, and 98 percent of GDP for corporate debt. The thresholds identified in Cechetti, Mohanty, and Zampolli (2011) are also used as a robustness test. The main results hold, but the higher thresholds relative to the mean, particularly for household debt, imply that there are very few observations for which debt is high in all sectors at the same time.

**Figure 2.18** The Impact of High Debt on Growth

Source: IMF staff estimates; see footnote 11 and Appendix 2A for details.

statistically significant association between private sector debt and growth than between government debt and growth.

- High corporate debt and high household debt are associated with negative growth even if each is the only sector indebted in the economy. The negative impact becomes larger the higher the number of sectors with high debt. In particular, an increase in the corporate-debt-to-GDP ratio of 10 percentage points more than the sample average is associated with a subsequent reduction in average annual growth of 7–11 basis points, depending on whether the other sectors are highly indebted. Similarly, an increase in the household-debt-to-GDP ratio of 10 percentage points more than the sample average is associated with a subsequent reduction in average annual growth of 8–13 basis points.
- High public debt is negatively associated with growth only when both the household and corporate sectors are also indebted. In this case, an increase in the government-debt-to-GDP ratio of 10 percentage points more than its sample average is associated with a 6 basis point reduction in subsequent average annual growth. In contrast, when only the government is indebted or only one additional sector has high debt, the relationship becomes statistically insignificant.

## POLICY OPTIONS

### Dealing with High Debt in the Euro Area

Experience suggests that decisive and properly sequenced policy actions can support deleveraging while mitigating the impact on growth. Where private sector deleveraging is more advanced (e.g., the United States), measures were taken early

on to strengthen financial institutions' balance sheets. Bank and private debt restructuring mechanisms have been used more widely, facilitating the workout of NPLs and dispelling doubts about asset quality. These processes were supported by appropriate legislation and institutions. Historical debt-restructuring episodes also show that policies can help facilitate the deleveraging process, including through government-sponsored programs, direct government purchases of distressed assets, and the use of asset management companies to resolve distressed assets. In all such cases, the sequencing and country-specific circumstances are important (Laryea, 2010). Two successful cases of household debt restructuring are the U.S. Home Owners Loan Corporation in 1933 and the experience in Iceland in the recent crisis.

### *Targeted policies*

Progress on improving insolvency frameworks in the euro area has so far been uneven. Reforms to insolvency frameworks take time, and effective implementation is key to success but often difficult to achieve. A number of countries have moved to strengthen their insolvency frameworks and institutions (Liu and Rosenberg, 2013), including Austria, Germany, Greece, Ireland, Italy, Portugal, and Spain. Despite this progress, insolvency procedures are not widely used and the insolvency regimes remain inefficient and costly in many countries (see Figure 2.6). National insolvency regimes may need to be made more effective, for example, by facilitating out-of-court settlements, reducing time for insolvency proceedings, and providing more flexibility to deal with personal or corporate bankruptcy. Stronger institutions—experienced judges and insolvency administrators—would also help support insolvency processes. In many cases, the stigma associated with bankruptcy also needs to be overcome.

Debt reprofiling, restructuring, or default in the corporate and financial sectors can reduce private sector indebtedness, often with overall macroeconomic benefits. When creditor seniority is respected and common principles are applied, the workout of bad debt can help catalyze new economic activity. But debt restructuring also damages creditor-debtor relationships, imposes losses on other agents, and creates moral hazard.

Policies can help guide this restructuring process, thereby mitigating its costs. Repairing the financial sector is, however, essential to addressing the balance sheet problems in the corporate and household sectors.

- Strengthening bank balance sheets and working out NPLs is a precondition. The workout of private debt requires adequate provisioning and capital buffers in the banking system to absorb losses. Only then will banks have incentives to restructure their exposures to distressed borrowers. This acceptance of restructuring could be helped further by the provision of tax incentives (or the removal of tax disincentives) for debt write-offs. Policies to encourage debt write-offs and help facilitate the transfer of nonperforming assets to new owners would also support the repair of bank balance sheets. A pan-European backstop for solvent banks would help break the negative feedback loop between banks and sovereigns and reduce financial market

fragmentation. Debt restructuring in the corporate sector could be supported further by making more use of debt-equity swaps and out-of-court procedures to support the early rescue of viable firms. Asset management companies, private or with some government participation, could in some cases help accelerate the restructuring of corporate debt while taking weak assets off the banks' balance sheets (Laryea, 2010).

- In the household sector, direct debt-service support (e.g., through guarantees or deferred interest) can help vulnerable households avoid bankruptcy while minimizing moral hazard. Government-sponsored programs can also encourage banks to reschedule household debt (Laeven and Laryea, 2009). Wealth encumbrance could be modified where needed, for example, by easing mortgage payments for highly indebted, low-income households whose property has been foreclosed upon. Personal insolvency frameworks should be geared toward facilitating a fresh start for financially responsible individuals.

### *Policy mix and structural policies*

A measured pace of fiscal adjustment, and monetary policy actions to reduce financial fragmentation, would further facilitate balance sheet adjustment. Countercyclical fiscal policy is effective in balance sheet recessions, but debt sustainability and market access considerations constrain its use. Within these constraints, getting the pace of consolidation right is essential. Monetary policy should aim to address impairments to the normal transmission of the monetary policy stance, thereby reducing financial market fragmentation, and helping to help reduce corporate and household borrowing costs, especially in the euro area periphery.

Structural policies can also help support private sector deleveraging or mitigate its impact. For example, the development of capital markets could help reduce firms' reliance on bank financing. And labor market reforms could increase firms' flexibility to absorb demand shocks through adjustments in working hours and pay or, when needed, by freeing up labor to facilitate sectoral reallocation. More generally, structural reforms can help the process of private sector deleveraging through their longer-term impact on growth. Chapters 7 and 8 in this book discuss many of the challenges associated with designing and implementing the right structural reform mix.

## **CONCLUSION**

Balance sheet adjustment in the euro area is an uphill battle at the current juncture. In other deleveraging episodes, high nominal and real growth, exchange rate depreciation, and monetary easing supported balance sheet adjustments. For many euro area economies, however, the policy space is much more constrained: exchange rate devaluations can only happen internally, and if successful, put downward pressure on prices. The real growth outlook is weak throughout the region and beyond. And, because monetary transmission is impaired, monetary

easing is not, at present, effective in lowering interest rates, especially with a fragmented financial sector amplifying the negative effects of protracted private sector deleveraging.

The results of this chapter support the hypothesis that the presence of debt in more than one sector exacerbates the negative feedback loops that arise in times of crisis. When all sectors (government, households, and firms) are highly indebted, the negative growth impact of each category of debt is highest. The analysis also suggests that private sector debt may be more detrimental to growth than public sector debt, which indicates that headwinds are likely to be particularly strong in the periphery, where all sectors are highly indebted.

An accelerated cleanup of private and financial sector balance sheets can help prevent a protracted period of stagnation. Delays and resistance to working out NPLs in the banking system, and lengthy procedures for personal and corporate bankruptcies, increase uncertainty about the extent of the problem and put further downward pressure on asset prices and firm performance. At the aggregate level, these feedback loops can trigger debt deflation dynamics. Therefore, in addition to providing a supportive macroeconomic environment, targeted policies to support debt workouts should be considered.

## APPENDIX 2A. ECONOMETRIC ANALYSIS

The econometric analysis builds on Cechetti, Mohanty, and Zampolli (2011) and their data on debt levels for a panel of 18 Organization for Economic Cooperation and Development countries for 1980–2009.

The empirical specification is derived from the neoclassical Solow growth model in which per capita income growth depends on the initial level of physical and human capital, the saving rate, population growth rate, and technology. Measures of public and private sector debt are also added to the specification. Panel data regressions are estimated using country-specific and time-specific fixed effects. More specifically, the equation is

$$g_{i,t+1,t+k} + \Phi y_{i,t} + \beta' X_{i,t} + \alpha' D_{i,t} + \mu_i + \gamma_t + \varepsilon_{i,t,t+k},$$

where

- $g_{i,t+1,t+k}$  is the  $k$ -year forward average of annual real GDP per capita growth between years  $t+1$  and  $t+k$  (the analysis uses  $k = 5$ );
- $y_{i,t}$  is the log of real per capita GDP at time  $t$ ;
- $X_{i,t}$  includes gross saving as a share of GDP; population growth; number of years spent in secondary education as a proxy for the level of human capital; the dependency ratio; openness to trade measured by the sum of the ratio of exports and imports to GDP; consumer price index inflation as a measure of macroeconomic stability; the ratio of liquid liabilities to GDP as a measure of financial development; and a dummy to control for banking crises;
- $D_{i,t}$  includes, depending on the specification, the ratio of debt to GDP of the public or private sectors (household and corporate sectors) as well as interactions with dummy variables indicating whether the debt ratios are above a threshold level;
- $\mu_i$  and  $\gamma_t$  are country-specific and time-specific dummies.

Least squares dummy variable (LSDV) estimation is used. The presence of a lagged dependent variable in the right-hand side (dynamic panel) implies that the estimates may be biased, but given the small panel size ( $N = 18$ ), neither generalized method of moments nor instrumental variables have been shown to outperform LSDV.

The analysis tries to assess whether the growth impact of high debt in one sector depends on the level of indebtedness in other sectors. Debt is considered “high” if it is above the sample mean. The thresholds are 73 percent of GDP for public debt, 98 percent of GDP for corporate debt, and 48 percent of GDP for household debt. For instance, in the specification for estimating the impact of public debt on growth and its differential impact depending on the level of indebtedness in the private sector, the regressor  $\alpha' D_{i,t}$  becomes

$$\alpha_1 D_{i,t}^P + \alpha_2 D_{i,t}^P H^P + \alpha_3 D_{i,t}^P H^H + \alpha_4 D_{i,t}^P H^C,$$

in which  $D_{i,t}^p$  is the ratio of public debt to GDP,  $H^j$  is a dummy variable taking the value of one if public ( $j = P$ ), household ( $j = H$ ), or corporate ( $j = C$ ) debt is above the sample mean, respectively. Given the above specification,  $\alpha_1 + \alpha_2$  is the estimated impact of high public debt on growth when the household and corporate sectors are not highly indebted. Similarly,  $\alpha_1 + \alpha_2 + \alpha_3$  is the estimated impact when the household sector, in addition to the public sector, is highly indebted. When all sectors are highly indebted, the estimated impact of government debt on growth is given by  $\alpha_1 + \alpha_2 + \alpha_3 + \alpha_4$ .

## REFERENCES

- Baum, A., C. Checherita-Westphal, and P. Rother, 2012, "Debt and Growth: New Evidence for the Euro Area," ECB Working Paper No. 1450 (Frankfurt: European Central Bank).
- Buiter, W., and E. Rahbari, 2012, *Debt of Nations: Mr. Micawber's Vindication: Causes and Consequences of Excessive Debt*, Citi GPS, Global Perspectives and Solutions.
- Cecchetti, S.G., M.S. Mohanty, and F. Zampolli, 2011, "The Real Effects of Debt," BIS Working Paper No. 352 (Basel: Bank for International Settlements).
- Creditreform, 2012, *Insolvencies in Europe 2011/12* (Frankfurt: Creditreform).
- Cuerpo, C., I. Drumond, J. Lendvai, P. Pontuch, and R. Raciborski, 2013, "Indebtedness, Deleveraging Dynamics and Macroeconomic Adjustment," European Economy, Economic Papers 477 (Brussels: European Commission).
- Cussen, M., and B. O'Leary, 2013, "Why Are Irish Non-Financial Corporations So Indebted?" *Quarterly Bulletin* 01/13 (Dublin: Central Bank of Ireland).
- , and D. Smith, 2012, "The Impact of the Financial Turmoil on Households: A Cross Country Comparison," *Quarterly Bulletin* 02/12 (Dublin: Central Bank of Ireland).
- European Central Bank (ECB), 2012, "Corporate Indebtedness in the Euro Area," *Monthly Bulletin*, February, pp. 87–103.
- , 2013a, *The Eurosystem Household Finance and Consumption Survey: Results from the First Wave*, Statistics Paper Series 2/13 (Frankfurt).
- , 2013b, "Integrated Euro Area Accounts for the Fourth Quarter of 2012," Box 4 in *Monthly Bulletin*, May (Frankfurt), pp 46–50.
- Herdon, T., M. Ash, and R. Pollin, 2013, "Does High Public Debt Consistently Stifle Economic Growth? A Critique of Reinhardt and Rogoff," PERI Working Paper No. 322 (Amherst, Massachusetts: Political Economy Research Institute).
- International Monetary Fund (IMF), 2012a, "Dealing with Household Debt," Chapter 3 in *World Economic Outlook*, April (Washington: International Monetary Fund).
- , 2012b, "Household Consumption, Wealth, and Saving," Chapter 1 in *Ireland: Selected Issues Paper*, IMF Country Report No. 12/265 (Washington: International Monetary Fund).
- , 2012c, Spain: Vulnerabilities of Private Sector Balance Sheets and Risks to the Financial Sector: Technical Note, Financial Sector Assessment Program (Washington: International Monetary Fund).
- , 2013a, *European Union: Financial System Stability Assessment*, IMF Country Report No. 13/75 (Washington: International Monetary Fund).
- , 2013b, "Fiscal Adjustment in an Uncertain World," in *Fiscal Monitor*, April (Washington: International Monetary Fund).
- , 2013c, "Fragmentation, the Monetary Transmission Mechanism, and Monetary policy in the Euro Area," Chapter 1 in *Euro Area Policies: Selected Issues*, Country Report No. 13/232 (Washington: International Monetary Fund).
- , 2013d, *France: Housing Prices and Financial Stability*, Technical Note, Financial Sector Assessment Program (Washington: International Monetary Fund).
- , 2013e, "Household Savings Ratio in Spain—How Low Can it Go?" in *Spain: Selected Issues Paper*, IMF Country Report No. 13/245 (Washington: International Monetary Fund).

- , 2013f, *Italy: The Financial Situation of Italian Households and non-Financial Corporations and Risks to the Banking System*, Technical Note, Financial Sector Assessment Program (Washington: International Monetary Fund).
- , 2013g, *The Kingdom of the Netherlands: Staff Report of the 2013 Article IV Consultation*, IMF Country Report No. 13/48 (Washington: International Monetary Fund).
- , 2013g, *Global Financial Stability Report: Old Risks, New Challenges*, April (Washington: International Monetary Fund).
- , 2013h, “Portugal’s Corporate (De) Leveraging,” Chapter 3 in *Portugal: Selected Issues Paper*, IMF Country Report No. 13/19 (Washington: International Monetary Fund).
- Kumar, M.S., and J. Woo, 2010, “Public Debt and Growth,” IMF Working Paper 10/174 (Washington: International Monetary Fund).
- Laeven, L., and T. Laryea, 2009, “Principles of Household Debt Restructuring,” IMF Staff Discussion Note 09/15 (Washington: International Monetary Fund).
- Laryea, T., 2010, “Approaches to Corporate Debt Restructuring in the Wake of the Financial Crisis,” IMF Staff Discussion Note 10/02 (Washington: International Monetary Fund).
- Liu, Y., and C.B. Rosenberg, 2013, “Dealing with Private Debt Distress in the Wake of the European Financial Crisis: A Review of the Economics and Legal Toolbox,” IMF Working Paper 13/44 (Washington: International Monetary Fund).
- McKinsey Global Institute, 2012, *Debt and Deleveraging: Uneven Progress on the Path to Growth* (New York, New York: McKinsey Global Institute).
- Panizza, U., and A.F. Presbitero, 2012, *Public Debt and Economic Growth: Is There a Causal Effect?* Money and Finance Research Group Working Paper No. 65 (Ancona: Univ. Politecnica Marche).
- Reinhart, C.M., and K. Rogoff, 2010, “Growth in a Time of Debt,” *American Economic Review: Papers and Proceedings*, Vol. 100, No. 2, pp. 573–78.
- Reinhart, C.M., V.R. Reinhart, and K. Rogoff, 2012, “Debt Overhangs Past and Present,” NBER Working Paper No. 18015 (Cambridge, Massachusetts: National Bureau of Economic Research).
- Ruscher, E., and G.B. Wolff, 2012, “Corporate Balance Sheet Adjustment: Stylized Facts, Causes and Consequences,” Bruegel Working Paper 2012/03 (Brussels: Bruegel).
- Tang, G., and C. Upper, 2010, “Debt Reduction after Crises,” *Bank for International Settlements Quarterly Review*, September, pp. 25–38.
- World Bank, 2013, *Doing Business 2013* (Washington: World Bank). <http://www.doingbusiness.org/>.



# What Do Past Reforms Tell Us about Fostering Job Creation in Western Europe?

C. CHEPTEA, J. GUAJARDO, I. HALIKIAS, E. JURZYK,  
H. LIN, L. LUSINYAN, AND A. SPILIMBERGO

## SHOCKS AND LONG-STANDING REFORM GAPS

Between 2007 and 2012, Western Europe lost about 4 million jobs. Unemployment, youth and long-term unemployment in particular, reached unprecedented levels, especially in the euro area (EA) periphery. However, the effect of the crisis differed across countries, with only some experiencing very large surges in unemployment. To a great extent, these unprecedented unemployment levels can be understood through the prism of cyclical adjustment and as a reflection of the deleveraging needs in many sectors, as discussed in Chapter 3: faced with having to repair their balance sheet exposures and restore profitability, many firms resorted to reducing their wage bills, often through employment reductions. This chapter complements that analysis by taking a longer, more structural view of labor market performance in Western Europe.<sup>1</sup> Its main conclusion is that recent labor market outcomes were also significantly influenced by structural policies undertaken in the past 20 years and the way these policies interacted with institutions and longer-term or structural shocks.

The past two decades presented European economies with two main changes in the economic environment: the information and communication technology (ICT) revolution and globalization. Many European countries' delays in adopting new technologies left them vulnerable to increased competition from emerging market countries. Inflexible labor market institutions became an important impediment to allocating labor efficiently given that these two global shocks created the need for vast labor reallocation across sectors, which, in turn, required more flexible labor markets, especially as concurrent euro adoption meant that nominal wage increases could no longer be accommodated by nominal exchange rate adjustments. The next section discusses in a cross-country context how these shocks interacted with preexisting institutions and their implications for labor market outcomes, in light of findings from the literature. The subsequent section

---

<sup>1</sup>Chapter 6 focuses on labor market experiences in the Balkan economies.

describes the policy responses to these challenges and the labor market implications of different policy choices. It is followed by a section that discusses individual country experiences, in particular those in Germany, Italy, and Spain.

## DIAGNOSIS—INTERACTION OF SHOCKS AND INSTITUTIONS

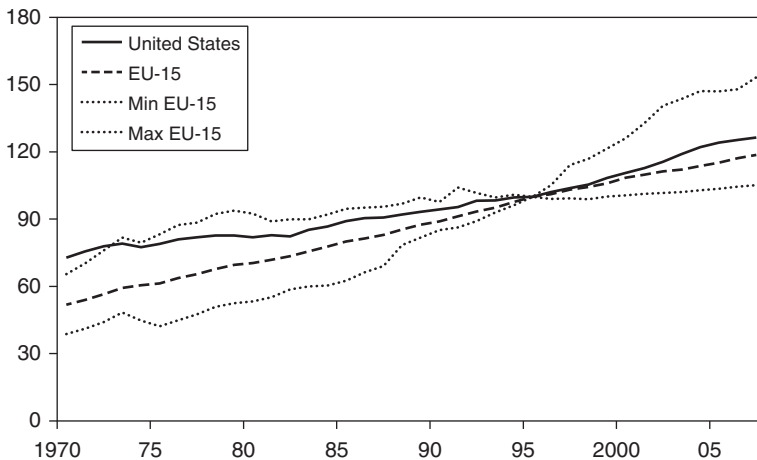
### Two Structural Shocks and the Euro

In the late 1990s, the United States experienced high levels of investment in rapidly advancing ICT, followed by strong productivity growth in the services sector] early in the first decade of the 2000s (Jorgenson, Ho, and Stiroh, 2005). In contrast, during the same period the European Union (EU) economies registered, on average, a significant productivity slowdown. As a result, the productivity gap between the two began widening about 1995 (Figure 5.1). The EU productivity slowdown was largely due to slower multifactor productivity growth in services, particularly in trade, finance, and business services (van Ark, O'Mahony, and Timmer, 2008).

Some EU countries also faced strong competition from emerging markets because globalization resulted in the entry of major exporters into the world market and in large flows of foreign direct investment. On the trade side, increased competition came mainly from the EU's enlargement via Eastern Europe and from China's entry into the global supply chain.

At the same time, adoption of the euro limited member countries' ability to accommodate nominal wage increases by devaluation—any real exchange rate adjustment had to fall on relative prices, reflected in the correlation between

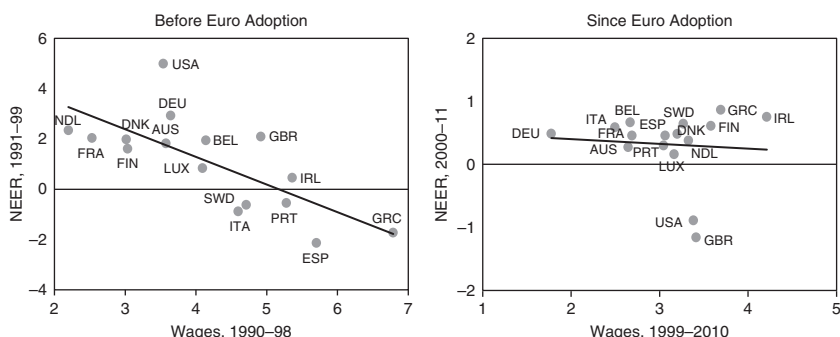
**Figure 5.1** Labor Productivity per Hour Worked (*Index, 1995=100*)



Source: Klems database.

Note: EU-15 comprises Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden, United Kingdom.

**Figure 5.2** Correlation between Wages and Nominal Effective Exchange Rate (NEER) (Annual percent change)

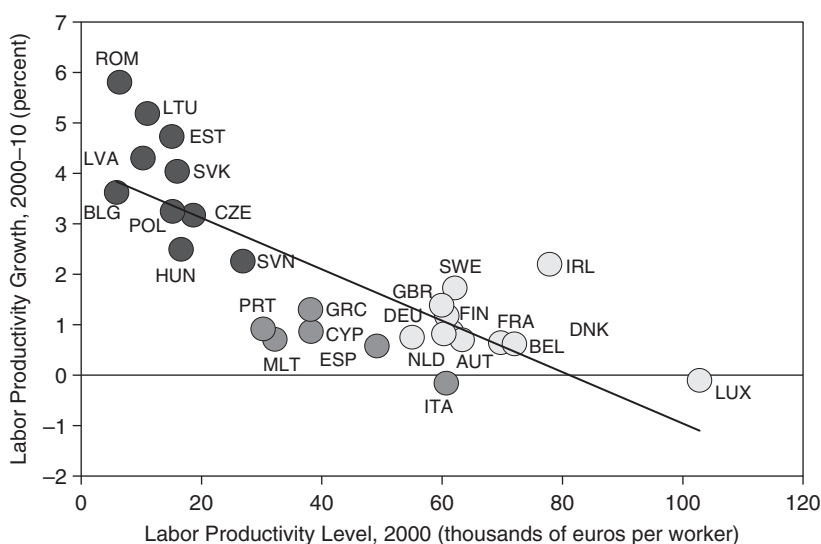


Source: OECD database.

wages and the nominal effective exchange rate, which turned from strongly negative in the pre-euro era to insignificant after its adoption (Figure 5.2).

Economic and Monetary Union (EMU) also created expectations that the periphery economies, on the back of a rapid decline in borrowing costs and abundant global liquidity, would catch up with higher-income EMU countries, which led to large foreign capital inflows to the periphery. However, the bulk of the inflows financed consumption and investment that yielded low returns, particularly in the nontradables sector, with limited impact on potential growth. Additionally, real appreciation following euro adoption favored nontradables and reduced export competitiveness, limiting the pace of convergence for some countries, relative to others in the EU (Figure 5.3).

**Figure 5.3** Convergence Growth in European Union



Sources: AMECO database; and IMF staff estimates.

## Structural Shocks and Institutions Interact

Although not the only impediment, the existing labor market institutions proved inadequate for coping with the ICT revolution, delaying new technology adoption and improvement in productivity growth, and potentially contributing to lower investment in human capital.<sup>2</sup> Slow productivity growth also left many European countries vulnerable to competition from non-European emerging markets, with existing institutions hampering the needed labor reallocation across sectors.<sup>3</sup> These hindrances had implications for employment, unemployment, and wages.

### *High unemployment and long unemployment duration*

Relatively strict employment protection legislation (EPL) in much of Europe adversely affected labor market outcomes. Although its impact on unemployment is theoretically and empirically ambiguous because it tends to lower both entry into and exit from employment, high EPL increased average unemployment durations and gave rise to dual labor systems in many economies.<sup>4</sup> Because employment protection was higher for workers on permanent contracts, firms shifted hiring toward more temporary workers,<sup>5</sup> especially affecting the young and the low skilled and making them more vulnerable to employment losses, particularly in downturns. Firms also had less incentive to train temporary workers, limiting human capital accumulation and longer-term growth.

Generous unemployment benefits are also thought to increase the level and duration of unemployment by raising reservation wages. By protecting labor market insiders from the risk of income loss, unemployment benefits reduce the sensitivity of wages to general economic conditions, thereby preventing a swift adjustment in the aftermath of shocks (Blanchard and Wolfers, 2000).

Moreover, wage-setting institutions in several Western European countries made wages less responsive to the productivity slowdown, often forcing adjustment through employment.<sup>6</sup> Theory suggests a hump-shaped relationship between unemployment and the degree of centralization and coordination of wage bargaining: both full decentralization and full centralization lead to lower unemployment rates, while an intermediate level of coordination yields the worst labor market outcome (Calmfors and Driffill, 1988). Intermediate systems are characteristic of many Western European economies.

<sup>2</sup>See Colecchia and Schreyer (2002) on how ICT adoption increases productivity growth and Chapter 7 of this book on how structural reforms could boost productivity growth.

<sup>3</sup>This chapter complements Blanchard (2005) by introducing two recent shocks and studying the interaction of these shocks and labor institutions.

<sup>4</sup>Blanchard, Jaumotte, and Loungani (2013) discuss in more detail how high employment protection and generous unemployment benefits could hamper the reallocation of workers to jobs, a reallocation that is needed to sustain growth (micro flexibility).

<sup>5</sup>See OECD, 2006; Betcherman, 2012; Bentolila and Dolado, 1994; Blanchard and Landier, 2002; Cahuc and Postel-Vinay, 2002; Dolado, García-Serrano, and Jimeno, 2002; Jaumotte, 2011; and Nunziata and Staffolani, 2007.

<sup>6</sup>Blanchard, Jaumotte, and Loungani (2013) also discuss in more detail how certain types of bargaining systems can hamper an economy's ability to adjust to macroeconomic shocks (macro flexibility).

### *High unit labor cost*

Some features of European labor market institutions may constrain productivity through more than one channel. First, they may dampen firms' incentives to innovate and grow (Braguinsky, Branstetter, and Regateiro, 2011). Second, strong EPL could interfere with optimal labor reallocation across sectors (OECD, 2010; Betcherman, 2012; Martin and Scarpetta, 2012). Third, high unemployment benefits can hinder optimal matching, for example, by discouraging the low-skilled from accepting productive jobs (OECD, 2007).<sup>7</sup>

In addition to affecting export competitiveness directly, the initially higher unit labor cost (ULC) in the EA periphery relative to Eastern European newcomers to the EU may have prevented early entry into the global supply chain. The experience of successful Eastern European countries suggests that attracting upstream producers or hubs that will locate a part of their downstream production in these countries can be helpful for economic performance: over time, this action created a virtuous circle whereby domestic value added increased hand in hand with foreign value added, enhancing the role of exports in growth and encouraging new technology adoption (see Chapter 10 in this book).

## **POLICY RESPONSES AND LABOR MARKET OUTCOMES**

### **Similar Global Shocks but Different Domestic Policy Responses**

Overall, technology and globalization shocks have resulted in a substantial and steady decline in the relative demand for low-skilled labor in most countries. However, policymakers responded differently to these changes. The United States relied mainly on wage flexibility to absorb these structural shocks, resulting in strong employment growth, but also a widening wage-skill gap. By contrast, many continental European countries made more use of redistributive (typically wage-compressing) institutions—including EPL, unemployment insurance (UI) systems, and early retirement—to limit income inequality, but at the cost of lower employment (Bertola, 1999; and Layard and Nickell, 1999).

Although capturing general trends, this characterization masks important institutional asymmetries among European countries. Esping-Andersen (1990) divides European labor markets into four broad models:

- Anglo-Saxon countries, featuring limited government intervention, weak unions, decentralized bargaining allowing for substantial wage dispersion, low labor taxes, and employment-linked social benefits and active labor market (ALM) policies.
- Continental European countries, featuring strong unions and centralized bargaining, high labor taxes, generous UI, and in some cases, strong EPL.

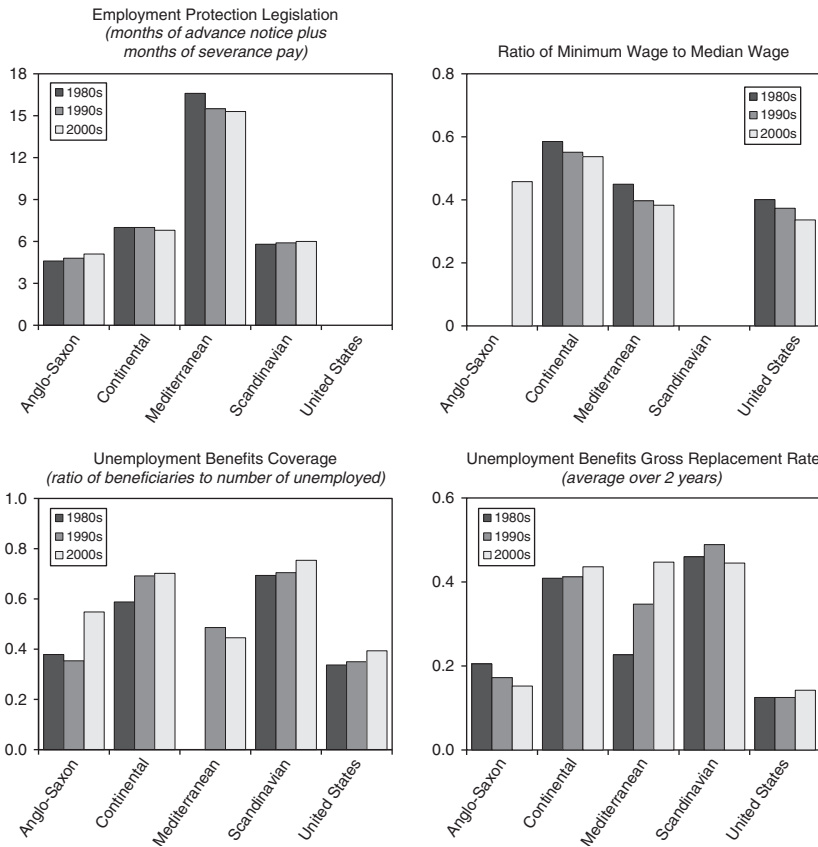
---

<sup>7</sup>However, it should be noted that very low unemployment benefits may also hinder optimal matching because many unemployed have to leap at the first offer.

- Mediterranean countries, relying heavily on stringent EPL and centralized bargaining, but offering low UI and limited ALM policies.
- Scandinavian countries, relying more on UI rather than EPL to address unemployment risk, and also featuring high labor taxes, strong unions, and compressed wage structures.

This taxonomy remains broadly relevant today, with the notable exception of recent developments in wage dispersion and UI replacement rates for the Mediterranean country group (Figure 5.4).<sup>8</sup>

**Figure 5.4** Evolution of Labor Institutional Arrangements



Source: Aleksynska and Schindler (2011).

<sup>8</sup>Although the broad labor market taxonomy proposed by Esping-Andersen (1990) remains instructive, a finer gradation could be devised, for example, based on differences in EPL across workers or on different durations of unemployment benefit eligibility.

## Partial Reform and Dualism—Analytical Issues

An assessment of partial reforms requires taking a general equilibrium perspective with a focus on the impact on labor wedges of long-term changes in job creation and destruction rates.<sup>9</sup> To provide a perspective on the analytics, the general equilibrium effects of certain market policies studied by Boeri (2011), holding other policies unchanged, are summarized here:

- *Increase in unemployment benefits (UB)*. This reform's short- and long-term effects are in the same direction. Higher UBs increase workers' reservation wages and, in the medium term, the job separation rate, and lower the job-finding rate, unambiguously raising unemployment and average wages.
- *Increase in firing taxes (EPL)*. On impact, EPL lowers the job destruction rate (by maintaining lower-productivity matches) and increases wages (through a stronger employee bargaining position). In the longer term, however, a tighter labor market could offset these effects, depending on ALM policies and the generosity of UB. The overall impact on unemployment and wages is thus ambiguous, entailing both lower job-loss and job-finding probabilities, potentially even reversing the short-term effects.
- *Increase in employment-conditional incentives (ALM)*. On impact, these incentives decrease wages at the low end and reduce unemployment. Long-term effects include a lower productivity threshold at which matches can be maintained and longer average job duration, unambiguously reinforcing the partial equilibrium effects. The overall result is lower unemployment and lower average wages, with the effects being larger in the long term (higher job-finding rate combined with lower job-loss probability).<sup>10</sup>
- *Increase in activation programs (ALM)*. The short-term effects are similar to the ALM scheme discussed above because lower recruitment costs raise the vacancy-to-unemployment ratio. Longer-term effects are in the opposite direction, however, because lower turnover costs lead to job destruction at a higher productivity threshold. The overall impact includes both higher job-finding and job-loss rates, with an ambiguous effect on unemployment and wages, possibly reversing the partial equilibrium effect.

A comprehensive reform strategy necessary to support employment would generally extend beyond the labor market sphere. Therefore, addressing features of the broader tax and welfare system may also be crucial. High marginal tax rates and social welfare systems with high replacement rates could generate additional "second-best" issues, entailing supply constraints, demand constraints, or both, in specific segments of the labor market even if substantial labor market liberalization has already been achieved. For instance, reforms that focus

<sup>9</sup>Search models by Mortensen and Pissarides (1999), Blanchard and Diamond (1989), and Boeri (2011) formalize these insights.

<sup>10</sup>However, this analysis does not internalize the government's budget constraint: higher distortionary taxes to finance the employment subsidy would partly offset the beneficial labor market impact.

only on reducing wages at the low-skill end would not appreciably improve labor market performance to the extent that high marginal tax rates or welfare benefit replacement rates for this segment of the labor market keep reservation wages high. These factors appear especially relevant in the current context because the low-skilled are also the main victims of the recent ICT and globalization shocks.

### *Implications of labor market dualism*

Given the asymmetric impact of the ICT and globalization shocks, some governments opted for separate institutional regimes for low-skilled workers, typically in the form of temporary contracts exempted from regulations applying to regular contracts. Dualism can affect labor market outcomes in two broad ways: (1) indirectly through interaction with labor market and fiscal reforms and (2) directly by affecting employment volatility over the cycle and by altering the stabilizing properties of the social safety net. Asymmetric labor market reforms in a dual setting can have a profoundly different impact on labor market outcomes compared with the homogeneous case. To illustrate, three of the reforms discussed above are examined, drawing again on Boeri (2011):

- *Increase in UB.* If applied only to regular jobs, the impact on job destruction remains as above. However, with a different regime now available for entry jobs under temporary contracts, the job creation rate is unaffected. The end result is still an increase in unemployment, but lower than in the homogeneous case, and a larger skill wage premium on continuing jobs.
- *Increase in firing taxes (EPL).* If applied only to regular jobs, increased firing taxes would increase the wage tenure profile and the share of employment in entry jobs, exacerbating dualism—because the rate of conversion of temporary into regular contracts falls and the average duration of continuing jobs increases. Compared with the homogeneous case, dualism is accompanied by less ambiguity, that is, unemployment is more likely to decline.
- *Increase in employment subsidies for entry jobs (ALM).* This reform does not affect the job-destruction rate for permanent contracts, but increases the job-finding rate and job-destruction rate for temporary contracts because the rate of conversion of temporary into regular contracts declines. This suggests increased ambiguity about the reform's impact under dualism compared with the homogeneous case—under dualism, employment subsidies could end up raising unemployment.

The implications of dualism for incorporating reform of the tax and benefit systems into a comprehensive reform strategy appear more straightforward. In the face of recent shocks, the rationale for introducing temporary contracts has been to support employment at the low-skill end of the labor market. This is the segment in which high marginal tax rates and welfare benefit replacement rates are likely to keep reservation wages high, making fiscal reform all the more urgent.



### *Transitional dynamics of labor market outcomes*

Transition to the long-term equilibrium can be a protracted process. When low-EPL temporary contracts are introduced alongside regular contracts with prohibitively strict EPL, the long-term equilibrium would require a “corner solution,” with all employment under temporary contracts (with permanent contracts disappearing via attrition), and no long-term employment gains. In the transition, however, employers can take advantage of the low-EPL regime at the start of the reform to boost employment in good times, even though the long-term equilibrium would look very different—a pattern that Boeri and Garibaldi (2007) term the “honeymoon effect.” There is a fundamental asymmetry here because there would be no scope to exploit the more flexible contract regime in bad times.

Beyond its impact via interaction with reforms, dualism can affect labor market outcomes (and other macro variables) more directly:

- Given the level of EPL for permanent contracts, a higher degree of dualism (that is, a higher share of temporary contracts) would mean a higher elasticity of employment to output, and hence higher volatility of employment over the cycle; this is the flip side of the honeymoon effect.
- Given more generous UI for workers under permanent contracts, a higher degree of dualism would mean reduced coverage of income support schemes for job losers, implying smaller automatic stabilizers and leading to additional output and employment volatility over the cycle.

### **Precrisis Reforms and Labor Market Outcomes**

Against this background, three cases of comprehensive reforms stand out among advanced European countries: the early efforts by the United Kingdom and the Netherlands, and the more recent German reforms:

- The U.K. reform effort spanned the early 1980s to the mid-1990s. The initial emphasis was on fostering decentralized wage bargaining in the direction of wage moderation, flexibility, and differentiation. Supporting policies included reductions in marginal tax rates, especially at the low end with the introduction of a negative income tax, and reductions in both the level and duration of UB. Later stages of the reform focused on further improving incentives, with emphasis on making social benefits conditional on employment—the “welfare-to-work” program.
- The Netherlands reforms covered approximately the same period. A wage moderation agreement in the early 1980s was supplemented by major labor market and fiscal reforms. Fiscal consolidation provided room for a steady reduction in labor taxes, and sharp reductions in benefit replacement rates, particularly disability benefits, eased supply-side constraints. Moreover, EPL was significantly loosened, and a separate youth minimum wage was set at one-fifth of the national minimum wage.
- The “Hartz reforms” in Germany are discussed in greater detail below.

In other EU countries, the reform record is more mixed. Although the total number of recorded instances of reforms during the period 1980–2007, at 868, was quite large, they can be generally described as fragmentary, incremental, and pursuing mixed objectives<sup>11</sup> (Aleksynska and Schindler, 2011):

- In most cases, reforms covered limited aspects of labor market institutions: 85 percent of the recorded reforms relate to a single area.
- The vast majority of recorded reforms (slightly fewer than 90 percent on EPL and more than 90 percent on UB) were incremental in magnitude, rather than discrete, and are unlikely to have made a discernible impact on labor market institutions.<sup>12</sup>
- Implemented reforms were often internally inconsistent, as illustrated by their impact on the wedge between the marginal product of labor and its opportunity cost. Although the implemented ALM reforms were predominantly in the direction of reducing the wedge, reforms in EPL, UB, and early retirement were split almost 50–50 between wedge-reducing and wedge-increasing. UB reforms in particular substantially raised replacement rates in France, Switzerland, and three of the four Mediterranean countries (Italy, Portugal, and Spain)—for the latter group, undermining the effectiveness of a moderate loosening of EPL.
- Reforms strengthened dualism in some cases. Among implemented reforms, “large” reforms tended to be predominantly “two-tier” (geared only to specific segments of the population); moreover, two-tier reforms tended to make up large shares of each reform category—ranging from 45 percent of UB reforms to 75 percent of early retirement reforms. Regarding the interaction of reforms with preexisting institutional asymmetries, four two-tier reforms out of five actually widened asymmetries in regulatory regimes, thereby strengthening dualism (Boeri, 2011).<sup>13</sup>

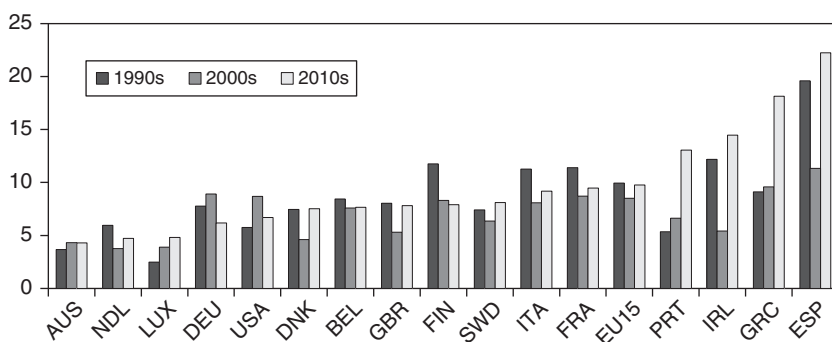
Cross-country comparisons suggest that comprehensive reform carries substantial benefits. Following their reforms, Germany, the Netherlands, and the United Kingdom performed better than most other EU countries in unemployment (Figure 5.5) and labor force participation (Figure 5.6)—and the impact of reforms seems to materialize fairly quickly.

Regarding reforms reinforcing dualism, employment typically surged after the introduction or extension of temporary contract regimes, consistent with a honeymoon effect. However, the expansion of dual regimes increased labor market turnover and employment volatility, even under a favorable macroeconomic

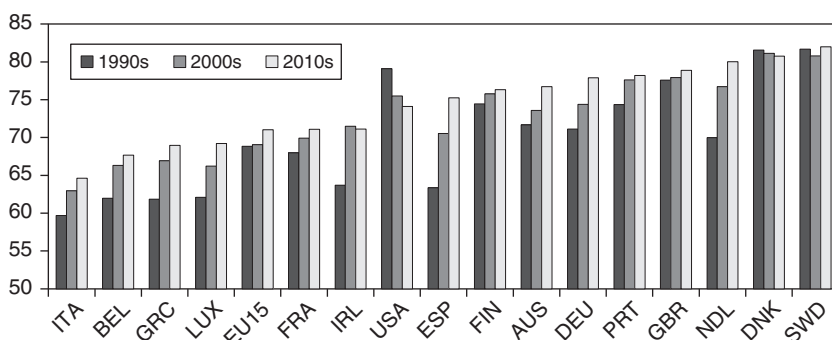
<sup>11</sup>There is, however, an inherent arbitrariness in how reforms are measured. For example, should a reform package consisting of lower tax rates and lower UBs be counted as one reform or two?

<sup>12</sup>EPL is an example: although 199 reforms were recorded, only three countries (Germany, the Netherlands, and the United Kingdom) registered a change in EPL score between 1980 and 2007.

<sup>13</sup>These concerns are particularly relevant for countries such as Italy and Spain, where the scope of temporary contracts has been expanded substantially.

**Figure 5.5** Unemployment Rate

Source: OECD database.

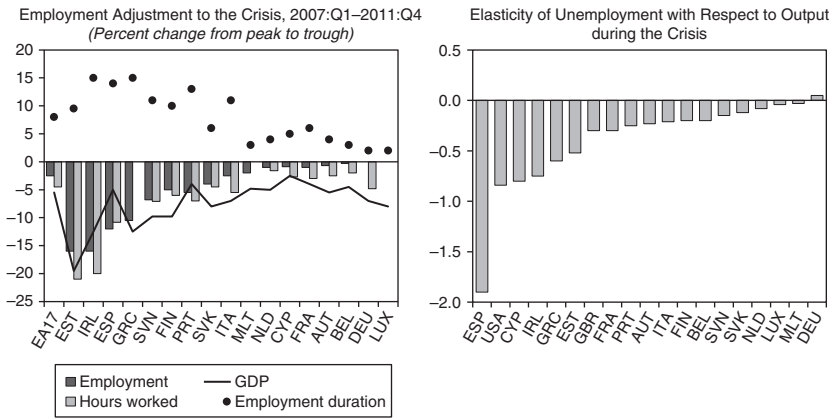
**Figure 5.6** Labor Force Participation Rate

Source: OECD database.

environment: during the period 2004–08, the transition probability from employment to unemployment was much higher for temporary than for regular contracts, ranging from 5 to 25 times across euro area countries (ECB, 2012).

### Postcrisis Experience in the Euro Area

The financial crisis caused marked divergence in labor market performance in the EA. Employment losses ranged from  $-0.4$  percent to  $-16$  percent (peak to trough) across EA countries (Figure 5.7)—a degree of divergence far exceeding cross-country differences in output losses. The sectoral composition of the economy (particularly the shares of industry, finance, and construction), as well as workforce age composition and human capital, carry explanatory power for employment dynamics (ECB, 2012). But differences in employment performance across countries also reflected differences in institutional structures and structural reform paths.

**Figure 5.7** Employment and Unemployment during the Crisis

In the periphery, where capital inflows helped compensate for losses in competitiveness before the crisis, the absence of past reforms now adds to the drag on activity and employment. The reverse also holds—the two EA “comprehensive reformers,” Germany and the Netherlands, have seen the elasticity of unemployment with respect to output decline, whereas it was much higher in almost all other EA countries (see Figure 5.7). This dichotomy suggests that comprehensive reform can be very effective in providing enough flexibility to insulate the labor market, at least temporarily, from even very large output shocks.

Labor market developments during the crisis also confirm that extensive dualism tends to increase the sensitivity of employment to fluctuations in output; during major economic downturns, this would amount to a reverse honeymoon effect as employers respond by shedding temporary workers. Indeed, countries with a high incidence of temporary contracts have experienced large employment losses during the crisis. The average probability of becoming unemployed has been almost 12 times higher for temporary workers than for workers under regular contracts (ECB, 2012). The estimated transition probability from employment to unemployment reached levels of more than 14 percent in Spain and Estonia, and about 10 percent in France, Finland, and the Slovak Republic.

Since the onset of the crisis, most EA countries have introduced additional measures to support employment. On the supply side, ALM policies have been the most common instrument: almost all countries have introduced additional training programs for the unemployed, and about half have stepped up job search assistance. Some countries have moved to extend UB (benefit levels, duration, or eligibility criteria).<sup>14</sup> On the demand side, employment subsidies were most widely resorted to—including subsidies for short-time work schemes for workers

<sup>14</sup>By tightening UB eligibility, Greece has been an exception in this regard.

facing layoffs and fiscal incentives to hire unemployed workers. About half of the EA countries pursued reductions in nonwage labor costs, mainly by cutting social security contributions.<sup>15</sup>

Although these measures broadly served their purposes and generally prevented further increases in labor market dualism, they were no substitute for genuine reforms. In fact, it could be argued that increasing UB generosity could be counterproductive if it changed incentives in the longer term. And some of the reforms undertaken—for example, measures inspired by the success of the German Hartz reforms—might be less effective under different conditions elsewhere. Finally, care must still be exercised in interpreting the role existing labor market institutions played in economic outcomes. For example, Schindler (2013) argues that the temporary nature of the shock to the German economy was an important reason for the effectiveness of its short-term work schemes in preventing layoffs. The Germany case study below will take up some of these issues.

## CASE STUDIES

To further help disentangle the role of institutions, policies and shocks, this section discusses the experiences in Germany, Italy, and Spain in greater detail (Table 5.1).

TABLE 5.1

Germany, Italy and Spain: Labor Market Institutions and Reforms at a Glance			
	Germany	Italy <sup>1</sup>	Spain <sup>1</sup>
<b>Nondiscriminatory unfair dismissal</b>			
Precourt resolution required	Some	Yes	Yes
Pretrial conciliation mandatory	Yes	Yes	Yes
Pretrial conciliation outcome enforceable	Yes	n.a.	Yes
Conditions defined	Broadly, “socially justified”	No	Yes
Reinstatement mandatory	Yes, but rarely applied; either party can dissolve	Yes, if “manifestly unfounded”	No, employer decides
Compensation (if not reinstated)	12–18 months wages	12–24 months wages	maximum 24 months wages <sup>2</sup>
Mandatory legal representation	No	Yes	No
Length of procedure	14.3 months	23–26 months	n.a.
<b>Fair dismissals</b>			
Severance pay	0.5m for each year of service	<sup>3</sup>	maximum 12 months
Application to public sector	No	No	Yes

(Continued)

<sup>15</sup>However, a few countries faced with tight fiscal constraints, including Estonia and Greece, actually raised social security contributions.

TABLE 5.1 (Continued)

Germany, Italy and Spain: Labor Market Institutions and Reforms at a Glance			
	Germany	Italy <sup>1</sup>	Spain <sup>1</sup>
<b>Fixed-term contracts (FTCs)</b>			
Objective and material reasons for FTC	Yes, with exceptions	Yes, excluding first FTC	Yes
Incentives in favor of open-ended contracts	No	Yes	Yes
Maximum number of successive FTCs	4	2	2
Maximum cumulative duration of successive FTCs	24 months	36 months	24 months
<b>Internal flexibility (vs. national contracts)</b>			
Opt-out clauses	Largely used	Allowed, but little used	Eased for firms in distress <sup>4</sup>
Short-time schemes	Yes	Yes	Yes
<b>Other</b>			
Focus on activation policies	Strong	Little	Some
Unemployment insurance	Linked to activation	Gradual move to universal	Not addressed in the reform
<i>Memo: Labor market outcomes</i>			
Unemployment (%; October 2013)	5.2	12.5	26.7
Temporary employment (% total employment, 2005–10)	12.9	9.7	24.7
Inactivity rate (% of 15–64 year old; 2010)	23.4	37.8	26.6
Public expenditure on ALMP (% GDP, 2005–09)	0.9	0.5	0.8

Sources: Eurostat; International Labor Organization; OECD database; and IMF staff.

<sup>1</sup> Reflects the latest reform proposals, where applicable.

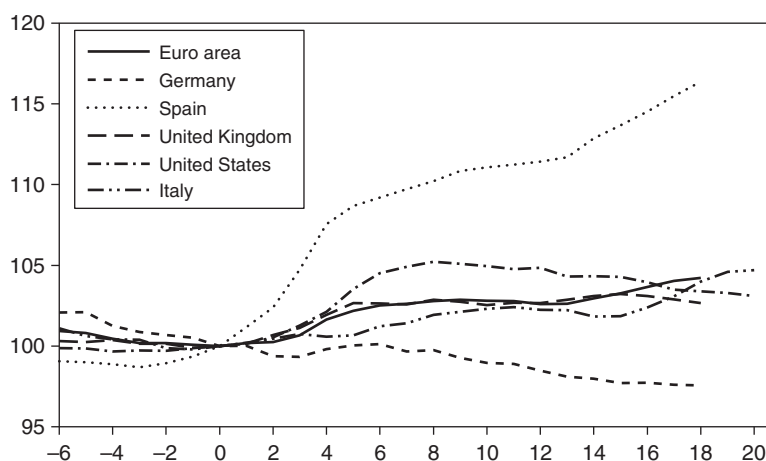
<sup>2</sup> For contracts signed after February 10, 2012; otherwise maximum of 42 months' wages.

<sup>3</sup> No severance pay as such; there is an end-of-employment contract indemnity (TFR), a wage share set aside by employer and paid upon employment termination.

<sup>4</sup> Priority given to the use of firm-level agreements over industry- or region-wide collective agreements.

## Case Study 1: Germany

The German labor market has weathered the Great Recession particularly well. Despite a severe recession, labor market conditions remained remarkably stable. From peak to trough, Germany's real GDP fell 6.8 percent—its biggest decline in the post-war period and also larger than the recessions in the United Kingdom, the United States, or even Spain. In contrast to most other EU countries, however, the German unemployment rate remained flat (Figure 5.8), and then fell by end-2012 to its lowest level in 30 years. The low unemployment rate was not the result of lower activity rates either, with the employment share in the population remaining on an upward trend.

**Figure 5.8** Unemployment after the Cycle Turned (*Peak quarter real GDP = 100*)

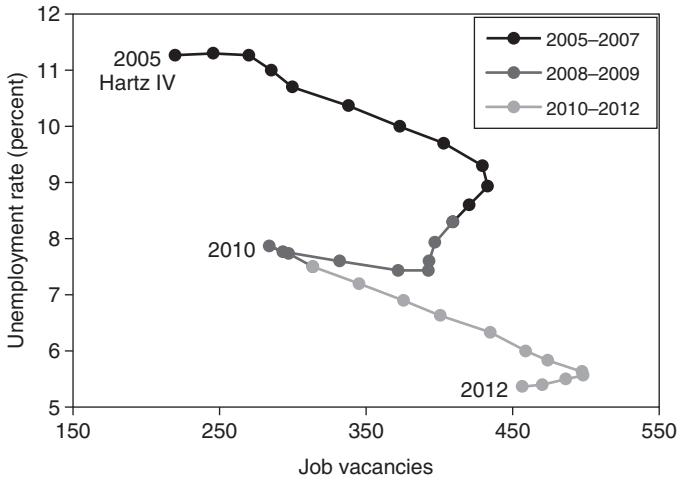
Sources: OECD database; and IMF staff calculations.

Note: For euro area, Germany, Spain and the United Kingdom, 2008:Q1=100; for the United States 2007:Q4=100; for Italy 2007:Q3=100.

Most observers agree that the labor market reforms enacted early in the first decade of the 2000s played a major role in limiting job losses during the crisis. The “Agenda 2010” and a series of reforms implemented between 2003 and 2005 (Hartz I–IV) had three main goals: (1) improve the quality of employment services and reorient them from passive income support to activation of the unemployed, (2) increase incentives to take up employment by reducing welfare benefits, and (3) deregulate the labor market (Jacobi and Kluve, 2006). Unemployment benefit duration was reduced further in 2006, and early retirement options were phased out between 2006 and 2010 (OECD, 2012). These actions had three major effects (OECD, 2012):

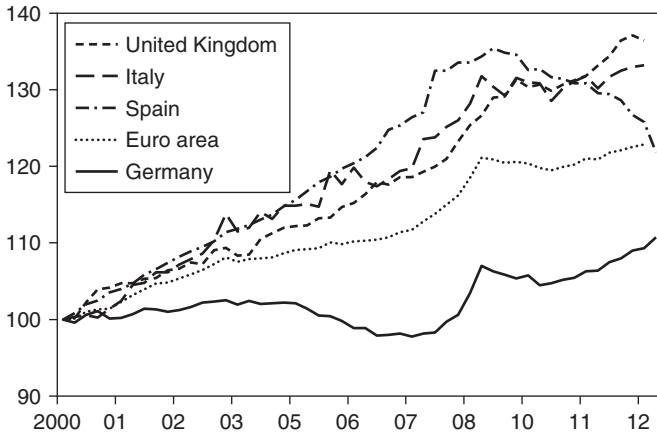
- *Increased labor market efficiency.* Job matching improved as employment offices were reorganized and temporary employment agencies were established. This improvement can be seen by the inward movement of the Beveridge curve after the reforms (Figure 5.9) (Gartner and Klinger, 2010). Moreover, labor inflows from unemployment increasingly became directed to employment instead of inactivity (Fahr and Sunde, 2009).
- *Enhanced firms’ flexibility to manage employment through the cycle.* Introduction of working time accounts allowed for greater use of flexible working hours. Rules governing hiring of temporary workers were also loosened.
- *Reduced work disincentives for older workers.* Early retirement options were curtailed, making voluntary dismissal of older employees more difficult. As a result, workers with longer tenure became less likely to enter unemployment, and their employment rates also increased (Dlugosz and others, 2009).

**Figure 5.9** Germany: Beveridge Curve



Sources: Deutsche Bundesbank; and Statistisches Bundesamt.

**Figure 5.10** Nominal Unit Labor Cost (*Index, 2000:Q1=100*)

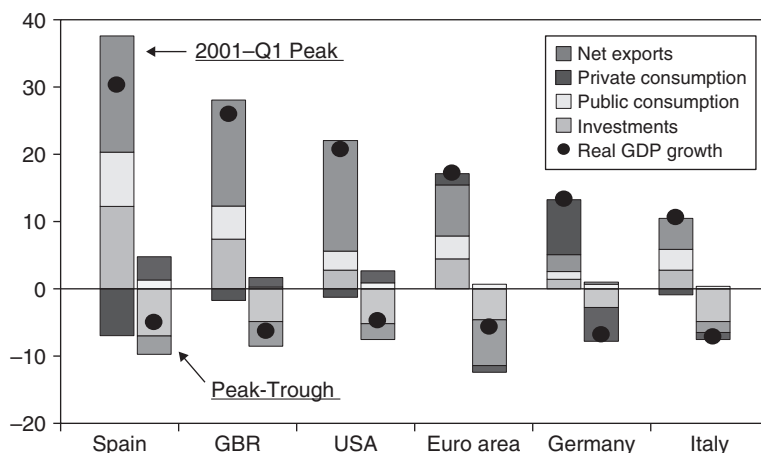


Source: Eurostat.

Wage moderation also played an important role in the good performance of the German labor market (OECD, 2012). Between 2000 and 2008, the nominal ULC in Germany remained essentially flat (and fell 7½ percent in real terms) whereas it swelled by almost 15 percent in the euro area (Figure 5.10). In fact, wage moderation may account for as much as 20 percent of the “missing” decline in employment in Germany during the crisis (Burda and Hunt, 2011). Three factors likely contributed:

- *The Hartz reforms*, via their impact on work incentives and the reservation wage, especially for the low-skilled (Gartner and Klinger, 2010);



**Figure 5.11** Germany: Contributions to Real GDP Growth (Percent)

Sources: Eurostat; and IMF staff calculations.

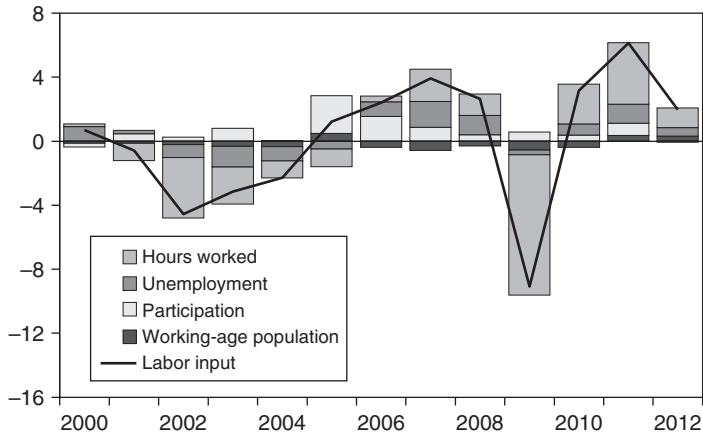
- *Declining bargaining power of trade unions*, with union density declining by almost 5½ percentage points between 2000 and 2008, ending up 13 percentage points below the EU average (OECD, 2012); and
- *Competition from Eastern Europe*, with outsourcing of part of the production chain to Eastern Europe supporting productivity—an effect estimated by Hansen (2010) and Marin (2010) to have been as high as 20 percent.<sup>16</sup>

The nature of the recent recession also influenced labor market outcomes. Before the crisis, more than 60 percent of GDP growth in Germany came from net exports (Figure 5.11). Uncertainty about whether the boom would last probably contributed to a low elasticity of employment growth to GDP growth in the manufacturing sector (OECD, 2012). Once the Great Recession started, Germany was hit by collapsing world trade. With the trade shock perceived as temporary, firms had room to retain labor in expectation of the upcoming recovery. Burda and Hunt (2011) estimate that about 40 percent of the missing employment decline during the recession can be explained by lower-than-expected job creation before the crisis.

Working time flexibility is another relevant factor (Figure 5.12). In response to the crisis, German firms significantly cut working hours while keeping employment unchanged. Two factors encouraged working time flexibility:

- *Short-time work programs (Kurzarbeit)*. Firms could participate in the scheme if they otherwise would have had to cut employment by at least 10 percent

<sup>16</sup>See IMF (2013) for a detailed discussion of the German–Central European supply chain.

**Figure 5.12** Germany: Evolution of Labor Input and Its Components (Percent)

Sources: Eurostat; and IMF staff calculations.

for economic reasons, and if they had exhausted other measures to cut hours. Workers whose hours were cut at least 10 percent were then eligible for short-time work benefits for the reduced hours equal to the unemployment benefits replacement rate. Participating firms paid the social security contributions on the hours not worked, reducing incentives to abuse the scheme. Boeri and Bruecker (2011) estimate that as many as 435,000 jobs may have been saved by the *Kurzarbeit*.

- *Working time accounts.* To smooth hours worked over the cycle, employees' hours were recorded on individual accounts, allowing for a buildup of credit during booms that could be drawn down during recessions, reducing the need for paid overtime. By 2005, the share of workers with working time accounts increased to 48 percent, from 33 percent in 1998 (Gross and Schwarz, 2007). Burda and Hunt (2011) estimate that this scheme contributed significantly to employment stability during the crisis.

What lessons does the German labor market experience hold for other countries? The answer is, unfortunately, not a simple one. For example, although short-term work schemes operate in many countries, their replacement rates, duration, and eligibility differ, resulting in significant deadweight costs (Boeri and Bruecker, 2011). Working time accounts resulted in significant employment savings in Germany but may not be as effective in countries with larger shares of small and medium-sized enterprises. Labor market reforms likely reduced long-term unemployment and increased welfare for employed households. Benefit reduction may have, however, contributed to higher income inequality and lower lifetime consumption of the remaining unemployed (Krebs and Scheffel, 2013), though this effect may be difficult to disentangle from the worldwide rise in inequality experienced in recent decades.

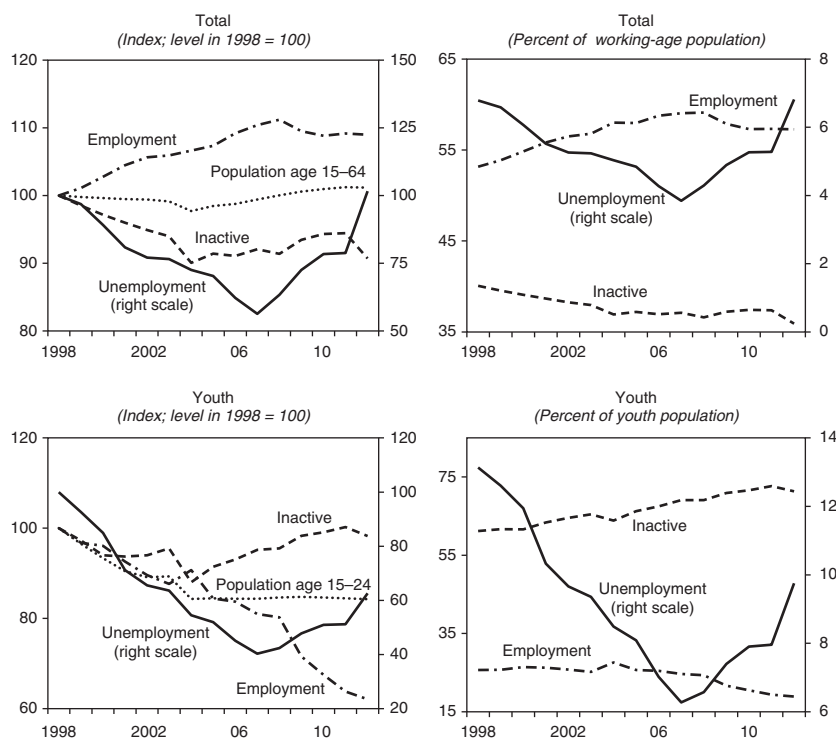
## Case Study 2: Italy

The Great Recession hit Italy hard as well. By 2010, real per capita GDP had dropped 10 percent below its 2007 level, no higher than its 1998 level. Employment declined sharply early in the crisis before eventually stabilizing, with the south of the country, and young and temporary workers, particularly affected (Figure 5.13).

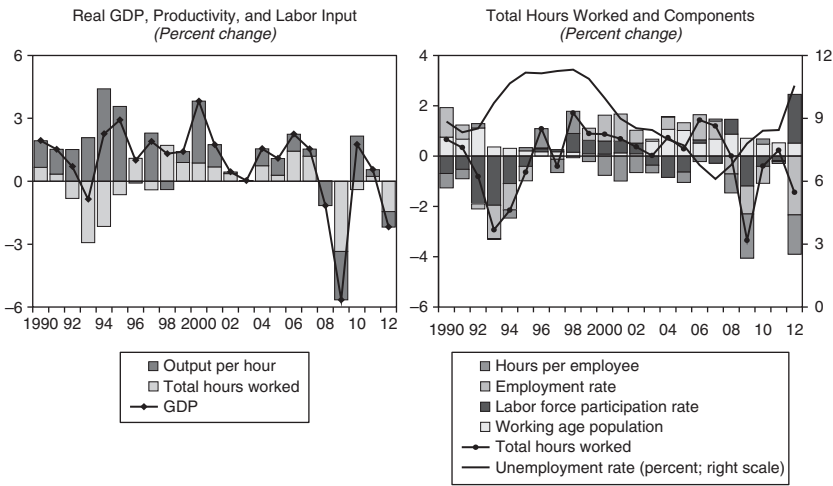
The crisis has exposed and exacerbated the structural weaknesses of Italy's labor market—its dualism along various dimensions (age, skill, sector, region, wages, social safety net), high inactivity, and a mismatch between wages and productivity (Figure 5.14).

- The labor market is segmented between protected permanent workers and many, especially younger, workers moving from one short-term contract to another, with limited possibilities—and little incentive—to accumulate human capital (productivity loss), to find a better match in the absence of the social safety net (efficiency loss), and to contribute toward future pensions (longer-term sustainability risk).
- Wage setting reflects neither regional productivity differences nor firm-specific factors, and although wage flexibility is allowed, in reality it has meant flexibility only in the upward direction. Derogation clauses from

**Figure 5.13** Italy: Labor Market Evolution, 1998–2012



Sources: Istituto nazionale di statistica (Istat); and IMF staff calculations.

**Figure 5.14** Italy: Growth, Productivity, and Labor Input, 1990–2012

Sources: Organization for Economic Cooperation and Development; and IMF staff calculations.

national agreements have hardly been applied in practice. Rigidities at the core and high firing costs for permanent workers (especially because of an inefficient judicial system) have further encouraged atypical contracts.<sup>17</sup> Thus, despite overall wage moderation, wage-productivity gaps have persisted, eroding competitiveness.

- The social safety net against unemployment risk is fragmented and uneven. It has inhibited efficient worker mobility and reallocation and, combined with decentralized and limited ALM policies, has failed to promote job matching and training. Italy's large wage supplementation fund (Cassa Integrazione Guadagni) is not designed explicitly for temporary shocks, but it can be used in cases of structural adjustment, potentially delaying needed restructuring or liquidation.
- Female and youth participation rates, especially in the south, are among the lowest in the Organization for Economic Cooperation and Development (OECD), reflecting poor job prospects, tax disincentives, and a large informal economy and home production. The transition probability from unemployed to inactive is higher than in other countries, especially for women and in the south, while inactivity tends to be almost permanent (Boschetto and others, 2011).
- In some regions, heavy reliance on attractive public sector jobs has led to significant distortions in the private sector and in educational choices, contributing to employment rigidities (Alesina, Danninger, and Rostagno, 2001).

<sup>17</sup>The labor cost reduction associated with the expansion of fixed-term contracts amounted to 10.4–22.4 percent in 1995–2003 (Cipollone and Guelfi, 2006).

What led to such profound weaknesses in Italy's labor market, and what role have past reforms, shocks, and other factors played in this process?

The 1997 Treu reform and the 2003 Biagi reform aimed to promote and regulate temporary and atypical contracts, encourage fixed-term employment, and provide incentives for part-time work. Other important measures included the effective opening toward fixed-term contracts in 2001 and the introduction of generous tax incentives for hiring workers at least 25 years old with open-ended contracts. Despite earlier reform attempts, rigidities persisted, and employment protection for permanent workers remained high. The reforms focused “on the margin,” primarily affecting youth. The proliferation of temporary contracts with no social protection also made the social safety net increasingly unequal.<sup>18</sup>

The Treu reform had a positive impact on participation and employment rates, but increased gender, regional, and skill dualism. Total labor input increased sharply in 1998, and was followed by an increase in employment that was partly offset by a drop in hours worked per employee. The unemployment rate declined by 2¾ percentage points between 1997 and 2002 in both the north and the south, but still stood at 16½ percent in the south in 2002 (as compared with 4.2 percent in the north). Empirical evidence shows that the Treu reform improved matching efficiency in the north, particularly for skilled workers, but had the opposite effect for unskilled workers in the south. Competition between skilled and unskilled workers increased, especially in the south (Destefanis and Fonseca, 2006).

Responding to global shocks (see the section titled “Policy Responses and Labor Market Outcomes”), the Biagi reform was more comprehensive, but the only measures adopted related to flexibility in labor market entry. Proposed reforms of unemployment benefits, decentralized bargaining, and labor tax reduction failed largely as a result of union opposition, and industrial relations deteriorated. The Biagi reform further entrenched dualism, youth employment stagnated or fell, and the share of temporary workers among youth increased from less than 20 percent in 1997 to almost 50 percent in 2011.

The global financial crisis struck Italy just when industrial restructuring was beginning to bear fruit, involving nearly half the firms in industry and nonfinancial services. The economy had returned to growth in 2004–07, with negative total factor productivity growth reversed, and in 2007 the unemployment rate declined to 6.1 percent—its lowest level since 1981. In response to the crisis, firms cut back on labor input, turned to more flexible work arrangements, and resorted to the wage supplementation fund, which was extended to cover previously ineligible fixed-term and atypical contracts; tax incentives for hiring youth and women were also introduced.

The crisis induced wide-ranging labor market reforms. The Fornero reform aimed to create a more inclusive labor market, by undoing some of the previous reform measures, which had led to increased flexibility at the margin (“bad flexibility”) and dualism. The reform covered unemployment insurance and protection of permanent workers, but did not address flexibility at the core, female

---

<sup>18</sup>See, for example, Schindler (2009) for a review of pre-2008 labor market reforms in Italy.

participation, or public sector employment. Some reversal in inactivity from its past trend has occurred, but is still too early to assess the overall impact of the reform, the near-term benefits of which for growth and employment are likely to be modest if not negative (Lusinyan and Muir, 2013).

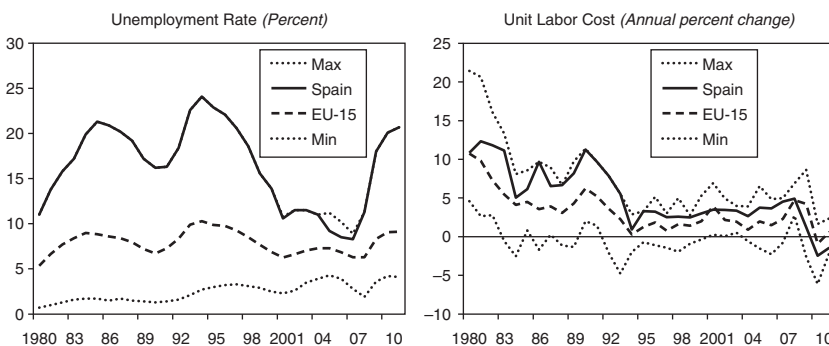
There is clearly room for additional structural efforts, in particular to further reduce dualism; increase labor market participation, especially for youth and women; and better match wages and productivity through a more flexible, open-ended contract for new hires that gradually increases employment protection with tenure. This type of contract would also facilitate the employment of young workers. To help increase female participation, the effective marginal tax rates for married second earners would need to be reduced. The agreements among social partners to allow derogation from national contracts should be made more operational. And greater differentiation of public wages across regions would support private wage flexibility and employment, especially in the south.

### Case Study 3: Spain

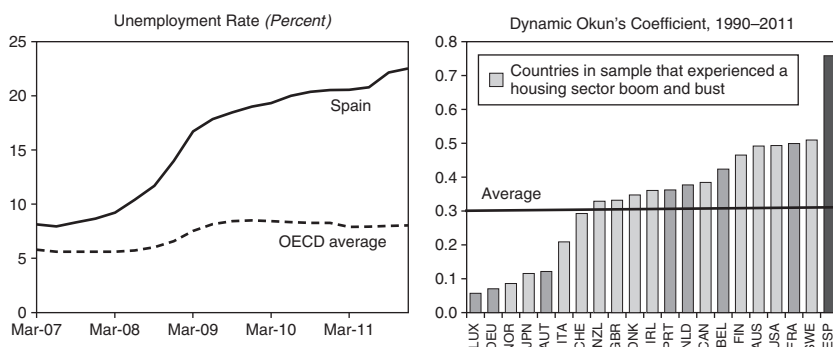
Spain has had the highest unemployment rate among the EU-15 countries for most of the past 30 years. Following a sharp decline between 1994 and 2007, unemployment rose to more than 20 percent after the crisis hit, more than double the EU-15 average. Wages in Spain also rose faster than the EU-15 average and exceeded productivity growth during most of the past 30 years, leading to widening ULC differentials with the EU-15. Since the crisis, this differential has moderated (Figure 5.15) as the result of strong productivity growth as labor was shed, not because of lower wages.

Institutions play a large role in Spain's labor market performance. Spain's unemployment has not only been among the highest, it has also been the most countercyclical and volatile in the OECD. Its dynamic Okun's coefficient is the largest in the OECD, standing at more than twice the OECD average during 1990–2011 (Figure 5.16). These differences are only partly explained by the

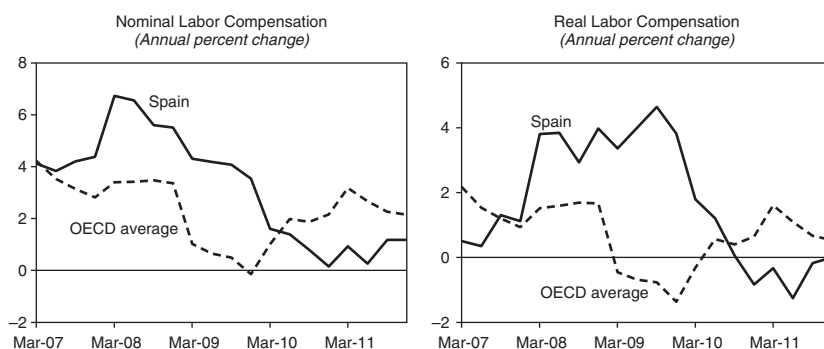
**Figure 5.15** Spain: Unemployment Rate and Unit Labor Cost



Source: Organization for Economic Cooperation and Development.

**Figure 5.16** Spain: Unemployment Rate and Okun's Coefficient

Sources: Organization for Economic Cooperation and Development; Eurostat; and IMF staff calculations.

**Figure 5.17** Spain: Labor Compensation

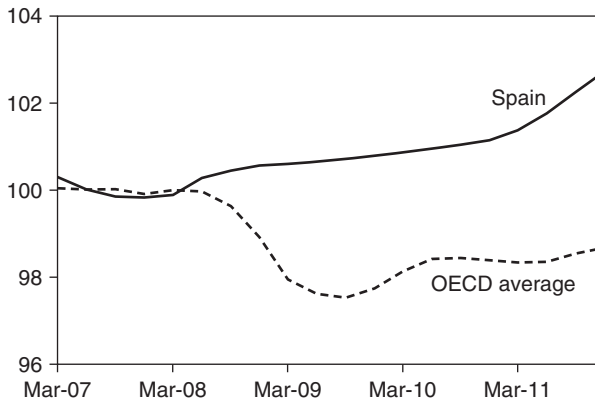
Source: Organization for Economic Cooperation and Development.

boom and bust of the Spanish housing sector during first decade of the 2000s—most economies in the sample experienced at least one similar event. Rather, the volatility of unemployment in Spain seems to be in large part due to wage rigidity, insufficient flexibility of working conditions, and high labor market dualism.

- *Wage rigidity* contributed to the increase in unemployment in Spain during 2008–09. Wages reacted little to unemployment and were more correlated to past inflation than in other OECD economies, reflecting widespread wage indexation. Spain's nominal labor compensation rose by 6 and 4 percentage points in 2008 and 2009, respectively (4 percentage points in real terms in both years), contrasting with the wage moderation seen in the rest of the OECD (Figure 5.17). Wages have moderated since 2010 because of agreements among the social partners, but the decline in real labor compensation since 2010 has not been enough to offset the cumulative differential created during 2008–09.

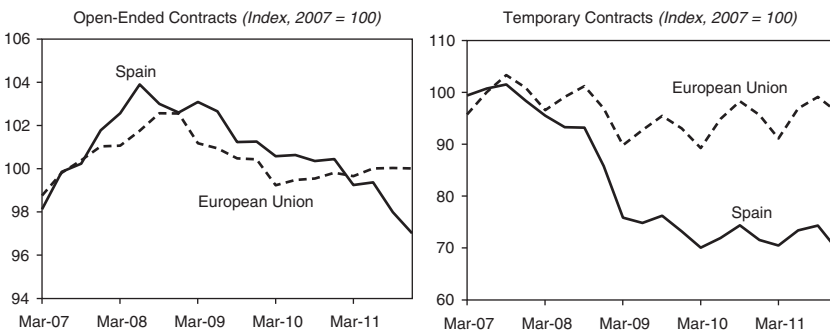
- Spain's *inflexible working time* also contributed to the rise in unemployment. Industry- or region-wide collective agreements restrict the ability of firms to modify working conditions (e.g., hours worked) to adjust to shocks. Hours worked per employee increased since mid-2008, contrasting with the fall in the OECD (Figure 5.18). This difference during 2008–09 seems to be the result of inflexible working time in Spain's collective agreements, but the difference in 2010–11 may also reflect higher uncertainty and larger dismissal costs.
- Spain's labor market is marked by a *high degree of dualism*; the country has the largest share of workers on temporary contracts in the OECD. Spanish firms adjusted to the crisis by dismissing temporary workers (Figure 5.19) instead of reducing wages or working time, largely accounting for Spain's much larger employment decline than the EU average (under similar declines in GDP).

**Figure 5.18** Spain: Hours Worked per Employee (*Index, 2007 = 100*)



Source: Organization for Economic Cooperation and Development.

**Figure 5.19** Spain: Employees on Open-Ended and Temporary Contracts



Source: Eurostat.



- At the same time, Spain's *dismissal costs in open-ended contracts* range between 33 and 45 days per year worked (with a maximum of 42 months) for unfair dismissals,<sup>19</sup> compared with an EU-15 average of 21 days per year worked (with a maximum of 24 months). Dismissal costs under temporary contracts, however, are much lower in Spain, at nine days per year worked. This large gap is responsible for the use of a large share of temporary workers as an insurance mechanism against adverse shocks.

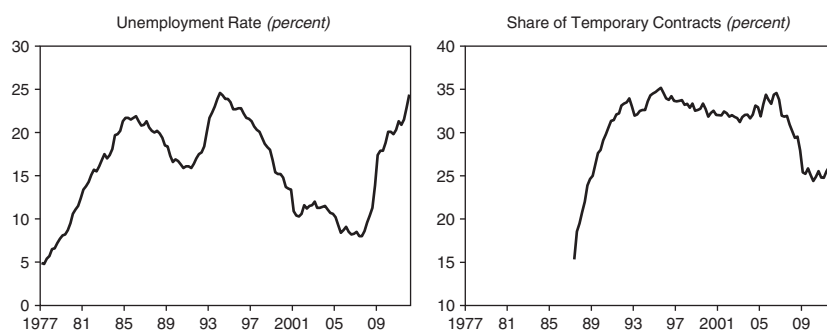
Several reforms were introduced in the 1990s and 2000s to reduce labor market dualism. Enacted when unemployment was low or declining, these reforms promoted hiring with open-ended contracts and more stringent regulation on temporary contracts (Figure 5.20). Dualism, however, was not reduced because severance payments for open-ended contracts were lowered only marginally.

Two additional reforms in 2010 and 2011 attempted to foster job creation (reduce job destruction) by cutting dismissal costs for permanent contracts, by easing opt-out from collective agreements, and by giving firms more flexibility to set working time. Once again, however, these reforms made only marginal changes to the existing legislation, and left open the possibility of allowing sectoral agreements to supersede firm-level agreements if social partners agreed to do so.

The reform introduced in 2012 promises a significant improvement in the functioning of the labor market by reducing dualism, wage rigidity, and firms' internal inflexibility:

- Dualism is reduced by lowering the costs of unfair dismissals for permanent workers, easing and clarifying the use of fair dismissals for firms in distress, reducing procedural costs, and eliminating the need for prior administrative approval. The goal is to make fair dismissals the regular channel for dismissing workers with permanent contracts in distressed firms.

**Figure 5.20** Spain: Unemployment Rate and Share of Temporary Contracts



Source: Instituto Nacional de Estadísticas.

<sup>19</sup>Dismissals are deemed unfair when the labor authorities consider that the employers' decision of terminating the employment contracts is not due to objective economic, technical, organizational or production reasons (collective dismissals), or to a serious contractual breach (individual dismissals). Dismissals are deemed fair in the opposite case.

- Wage rigidity and firms' internal inflexibility are reduced by giving priority to firm-level agreements over wider collective agreements. The reform also allows distressed firms to change working conditions, temporarily suspend contracts, and reduce working time. In addition, it limits the automatic extension of expired collective agreements to one year.

The reform's success hinges on implementation; the effectiveness of past reforms was compromised, in part, by restrictive interpretation by the courts. The reform could also be strengthened by harmonizing protection for open-ended and temporary contracts and by eliminating indexation and automatic extension of expired collective agreements (*ultra activity*). In the absence of sufficiently rapid progress, policymakers should prepare contingency plans, for example, by moving to an opt-in system for collective bargaining.

## CONCLUSION

Employment and growth are high on the policy agenda in Europe, and rightly so. High unemployment rates hinder growth and undermine political consensus for reforms. Unemployment among youth is especially difficult to accept and constrains potential growth. The dismal state of European labor markets is not just the product of an unprecedented crisis. This chapter argues that the current crisis response stems from an inadequate policy response in several countries in Western Europe (especially in the periphery) to shocks before the global financial crisis.

These shocks changed the relative demand for skilled and unskilled labor and required new flexibility. Some countries responded to the challenges: for example, the United Kingdom, the Netherlands, and Germany implemented important and comprehensive reforms that improved labor market performance and mitigated the economic and social costs of the crisis. Other countries, especially in the periphery, implemented partial and incomplete reforms, likely constrained by political realities and by the power of insiders. Partly masked by high precrisis growth, the internal policy contradictions exploded with a dramatic increase in unemployment, especially in youth unemployment, when the crisis hit.

Key lessons from these experiences are that partial or incomplete reforms may be counterproductive and lead to negative outcomes, and that the benefits of comprehensive labor market reform extend to periods of crisis—in fact, a well-functioning labor market that facilitates adjustment is particularly helpful during crisis periods. But an effective structural reform strategy must go beyond labor markets: efficiently operating product markets and strong legal frameworks and fiscal institutions are key ingredients to improving a country's economic performance, including during crises. Chapters 7 and 8 address such broader structural reform packages from various angles.

## REFERENCES

- Boschetto, B., A.R. Disenza, F. Fiori, C. Lucarelli, and S. Rosati, 2011, "Longitudinal Data for the Analysis of Labour Market Flows," presented at Enhancement and Social Responsibility of Official Statistics Workshop, Rome (April 28–29, 2011).

- Aleksynska, M., and M. Schindler, 2009, "Labor Market Regulations in Low-, Middle- and High-Income Countries: A New Panel Database," IMF Working Paper 11/154 (Washington: International Monetary Fund).
- Alesina, A., S. Danninger, and M. Rostagno, 2001, "Redistribution through Public Employment: The Case of Italy," *IMF Staff Papers*, Vol. 48, No. 3, pp. 447–73.
- Bentolila, S., and J.J. Dolado, 1994, "Labour Flexibility and Wages: Lessons from Spain," *Economic Policy*, Vol. 9, No. 18, pp. 55–99.
- Bertola, G., 1999, "Microeconomic Perspectives on Aggregate Labor Markets," in *Handbook of Labor Economics*, ed. by O. Ashenfelter and D. Card (Amsterdam: Elsevier).
- Betcherman, G., 2012, "Labor Market Institutions: A Review of the Literature," World Bank Policy Research Working Paper No. 6276 (Washington: World Bank).
- Blanchard, O., 2005, "European Unemployment: The Evolution of Facts and Ideas," NBER Working Paper No. 11750 (Cambridge, Massachusetts: National Bureau of Economic Research).
- , and P. Diamond, 1989, "The Beveridge Curve," *Brookings Papers on Economic Activity*, Vol. 20, No. 1.
- Blanchard, O., F. Jaumotte, and P. Loungani, 2013, "Labor Market Policies and IMF Advice in Advanced Economies during the Great Recession," IMF Staff Discussion Note 02/13 (Washington: International Monetary Fund).
- Blanchard, O., and A. Landier, 2002, "The Perverse Effects of Partial Labour Market Reform: Fixed-Term Contracts in France," *The Economic Journal*, Vol. 112, No. 480, pp. F214–F244.
- Blanchard, O., and J. Wolfers, 2000, "The Role of Shocks and Institutions in the Rise of European Unemployment: The Aggregate Evidence," *The Economic Journal*, Vol. 110, No. 462 (March).
- Boeri, T., 2011, "Institutional Reforms and Dualism in European Labor Markets," in *Handbook of Labor Economics*, Vol. 4, ed. by O. Ashenfelter and D. Card (Amsterdam: Elsevier).
- , and H. Bruecker, 2011, "Short-Time Work Benefits Revisited: Some Lessons from the Great Recession," *Economic Policy*, Vol. 26, No. 68, pp. 697–766.
- Boeri, T., and P. Garibaldi, 2007, "Two-Tier Reforms of Employment Protection: A Honey-moon Effect?" *The Economic Journal*, Vol. 117, No. 521, pp. 357–85.
- Braguinsky, S., L.G. Branstetter, and A. Regateiro, "The Incredible Shrinking Portuguese Firm," NBER Working Paper No. 17265 (Cambridge, Massachusetts: National Bureau of Economic Research).
- Burda, M., and J. Hunt, 2011, "What Explains the German Labor Market Miracle in the Great Recession?" NBER Working Paper No. 17187 (Cambridge, Massachusetts: National Bureau of Economic Research).
- Cahuc, P., and F. Postel-Vinay, 2002, "Temporary Jobs, Employment Protection and Labor Market Performance," *Labour Economics*, Vol. 9, No. 1, pp. 63–91.
- Calmfors, L., and J. Drifill, 1988, "Bargaining Structure, Corporatism and Macroeconomic Performance," *Economic Policy*, Vol. 3, No. 6, pp. 13–61.
- Cipollone, P., and A. Guelfi, 2006, "The Value of Flexible Contracts: Evidence from an Italian Panel of Industrial Firms," Temi di discussione del Servizio Studi No. 583 (Rome: Bank of Italy).
- Colecchia, A., and P. Schreyer, 2002, "ICT Investment and Economic Growth in the 1990s: Is the United States a Unique Case? A Comparative Study of Nine OECD Countries," *Review of Economic Dynamics*, Vol. 5, No. 2, pp. 408–42.
- Destefanis, S., and R. Fonseca, 2006, "Labour-Market Reforms and the Beveridge Curve: Some Macro Evidence for Italy," RAND Working Paper WR-436 (web only).
- Dlugosz, S., Stephan, G., and R. Wilke, 2009, "Fixing the leak: Unemployment incidence before and after the 2006 reform of unemployment benefits in Germany," ZEW Discussion Paper No. 11–013, Mannheim.
- Dolado, J.J., C. García-Serrano, and J.F. Jimeno, 2002, "Drawing Lessons from the Boom of Temporary Jobs in Spain," *The Economic Journal*, Vol. 112, No. 480, pp. F270–F295.
- Esping-Andersen, G., 1990, *The Three Worlds of Welfare Capitalism* (Cambridge, U.K.: Polity Press; and Princeton: Princeton University Press).
- European Central Bank (ECB), 2012, "Euro Area Labour Markets and the Crisis," Occasional Paper No. 138 (Frankfurt: European Central Bank).

- Fahr, R., and U. Sunde, 2009, "Did the Hartz Reforms Speed Up the Matching Process? A Macro-Evaluation Using Empirical Matching Functions," *German Economic Review*, Vol. 10, No. 3, pp. 284–316.
- Gartner, H., and S. Klinger, 2010, "Verbesserte Institutionen für den Arbeitsmarkt in der Wirtschaftskrise," *Wirtschaftsdienst*, Vol. 90, No. 11, pp. 728–34.
- Gross, H., and Schwarz M., 2007, "Betriebs- und Arbeitszeiten 2005: Ergebnisse einer repräsentativen Betriebsbefragung," Working Paper No. 153, Social Research Centre, Central Scientific Institute of the Technical University of Dortmund.
- Hansen, T., 2010, "Tariff Rates, Offshoring, and Productivity: Evidence from German and Austrian Firm-Level Data," Munich Discussion Paper 2010–21 (Munich: University of Munich).
- International Monetary Fund (IMF), 2013, *German–Central European Supply Chain–Cluster Report*, IMF Country Report No. 13/263 (Washington: International Monetary Fund).
- Jacobi, L., and J. Kluve, 2006, "Before and After the Hartz Reforms: The Performance of Active Labour Market Policy in Germany," IZA Working Paper No. 2100 (Bonn: Institute for the Study of Labor).
- Jaumotte, F., 2011, "The Spanish Labor Market in a Cross-Country Perspective," IMF Working Paper 11/11 (Washington: International Monetary Fund).
- Jorgenson, D.W., M.S. Ho, and K.J. Stiroh, 2005, *Information Technology and the American Growth Resurgence* (Cambridge, Massachusetts: MIT Press).
- Krebs, T., and M. Scheffel, 2013, "Macroeconomic Evaluation of Labor Market Reform in Germany," IMF Working Paper 13/42 (Washington: International Monetary Fund).
- Laward, R., and S. Nickell, 1999, "Labor Market Institutions and Economic Performance," in *Handbook of Labor Economics*, ed. by O. Ashenfelter and D. Card (Amsterdam: North-Holland).
- Lusinyan, L., and D. Muir, 2013, "Assessing the Macroeconomic Impact of Structural Reforms: The Case of Italy," IMF Working Paper 13/22 (Washington: International Monetary Fund).
- Marin, D., 2010, "The Opening Up of Eastern Europe at 20: Jobs, Skills, and 'Reverse Maquiladoras' in Austria and Germany," Munich Discussion Paper 2010–14 (Munich: University of Munich).
- Martin, J., and S. Scarpetta, 2012, "Setting it Right: Employment Protection, Labour Reallocation and Productivity," *De Economist* 2012, 160, pp 89–116.
- Mortensen, D., and C. Pissarides, 1999, "New Developments in Models of Search in the Labor Market," in *Handbook of Labor Economics*, ed. by O. Ashenfelter and D. Card (Amsterdam: North-Holland).
- Nunziata, L., and S. Staffolani, 2007, "Short-Term Contracts Regulations and Dynamic Labour Demand: Theory and Evidence," *Scottish Journal of Political Economy* 2007; 54(1); 72–104.
- Organization for Economic Cooperation and Development (OECD), 2006, *OECD Employment Outlook 2006: Boosting Jobs and Incomes* (Paris: Organization for Economic Cooperation and Development).
- , 2007, "More Jobs but Less Productive? The Impact of Labor Market Policies on Productivity," in *OECD Employment Outlook 2007* (Paris: Organization for Economic Cooperation and Development) pp. 55–103.
- , 2010, "Institutional and Policy Determinants of Labor Market Flows," in *OECD Employment Outlook 2010: Moving Beyond the Jobs Crisis*, (Paris: Organization for Economic Cooperation and Development) pp. 167–210.
- , 2012, "OECD Economic Surveys: Germany" (Paris: Organization for Economic Cooperation and Development).
- Schindler, M., 2009, "The Italian Labor Market: Recent Trends, Institutions and Reform Options," IMF Working Paper 09/47 (Washington: International Monetary Fund).
- Schindler, M., 2013, "What Does the Crisis Tell Us about the German Labor Market?" in *Germany in an Interconnected World Economy*, ed. by Ashoka Mody (Washington: International Monetary Fund).
- van Ark, B., M. O'Mahony, and M.P. Timmer, 2008, "The Productivity Gap between Europe and the United States: Trends and Causes," *Journal of Economic Perspectives*, Vol. 22, No. 1 (Winter 2008), pp. 25–44.

# The Role of Vertical Supply Links in Boosting Growth

JESMIN RAHMAN AND TIANLI ZHAO

## EXPORT NETWORKS MATTER

The external environment is critical in the quest for growth. Strong global demand can provide the lift that amplifies the fruits of structural reforms, while global headwinds can mean a delay. As Chapter 9 highlighted, however, the reforms that will provide growth in the longer term can also be important to facilitating the medium-term external rebalancing required in many European countries.

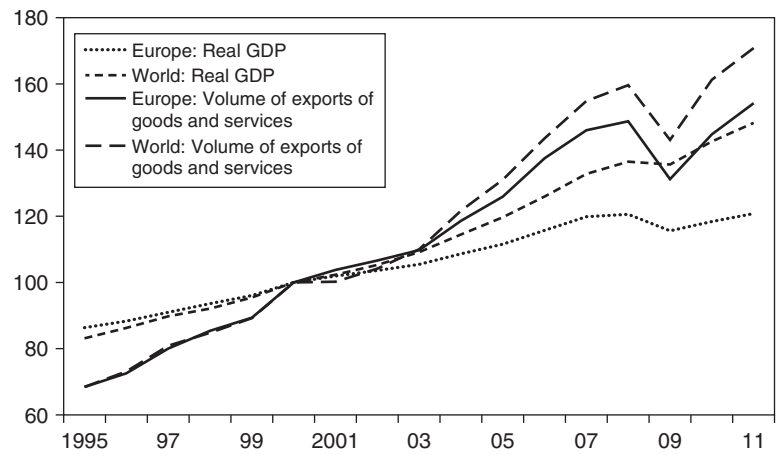
The nature of international trade has changed dramatically in the past few decades. Production processes have increasingly involved production chains stretching across many countries, with each nation specializing in one or more stages of production. As a result, intra-industry trade now dominates world merchandise trade, and because products cross borders multiple times, world trade has grown faster than both global GDP and global value added in manufacturing (Figure 10.1). In this globalized environment, reforming the domestic economy, while necessary, may not be sufficient if done in isolation. Countries need to find their place in these cross-border production chains to benefit the most from global trade and output growth.

The analysis of vertical supply links poses a data challenge. Official trade statistics are measured in gross terms that include both intermediate inputs and final products, thus double counting the value of those goods that cross international borders more than once. As cross-border production links become more important, official trade statistics are becoming less meaningful as a gauge of the value contributed by a country in a particular sector, also reducing their usefulness as a tool for measuring export competitiveness and informing policy advice. Figure 10.2 illustrates this point: suppose a German car maker ships \$50,000 worth of car components to Hungary. A factory in Hungary then assembles the car and sells it to a dealership in France for \$55,000. The gross or official trade statistics would record \$50,000 worth of exports from Germany to Hungary as well as \$55,000 worth of export from Hungary to France. But in value-added terms, Hungary's exports to France would be only \$5,000.<sup>1</sup>

For additional technical detail, we direct the reader to Rahman and Zhao (2013).

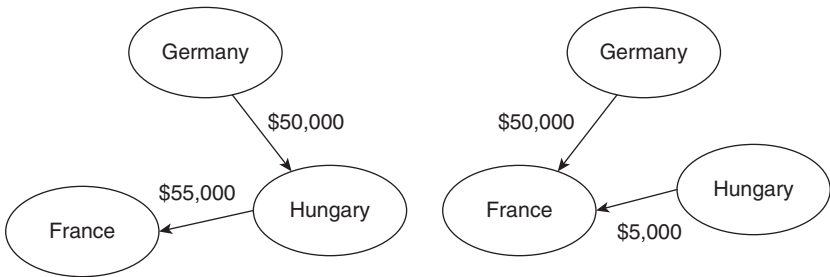
<sup>1</sup>In the example, Hungary's value added is identical to the value of net exports, but this is not generally the case. For example, gross and value-added exports of a country are identical only when no imported

**Figure 10.1** Real GDP and Exports Growth, World and Europe (Index, 2000 = 100)



Source: IMF, World Economic Outlook database.

**Figure 10.2** Trade Flow in Gross Terms and Value-Added Terms



Source: Authors' illustration.

A larger role for supply links in export growth implies a large and possibly increasing role of foreign value added. However, if a country's export growth is driven mostly by value crossing borders rather than domestic production, its impact on growth and employment may be smaller. These issues have particular relevance for many European countries. Since the mid-1990s, a number of Central European economies, such as the Czech Republic, Hungary, Poland, and the Slovak Republic, experienced export-led growth. As discussed in IMF (2013), these countries have strengthened their trade links to Germany considerably since the mid-1990s, with large export increases in knowledge-intensive sectors. At the

---

inputs were used in the export production. Thus, when no imported inputs are used in the production of exports, gross and value-added exports are (weakly) greater than a country's net exports. Although the concept of value-added exports is different from that of net exports, both are relevant for assessing an economy's competitiveness.

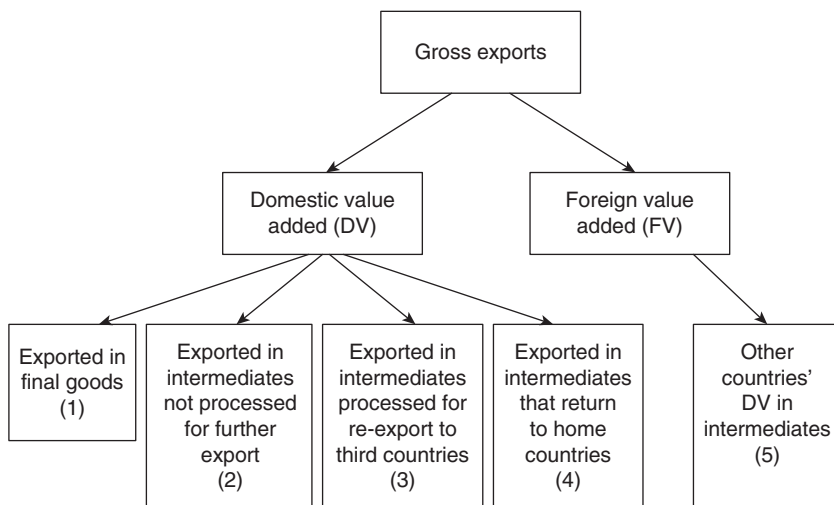
same time, a number of other European countries, including some in the euro area (EA) periphery, travelled a different growth path, relying instead on domestic demand and fast credit growth. To what extent can the first group's export success be attributed to plugging into the pan-European supply chain, and what factors helped them achieve this success? For countries in the EA periphery that are desperately looking to increase exports to rebalance their external positions and bring back growth, answers to these questions can provide valuable lessons.

To get a true picture of a country's export growth, the foreign-value-added component needs to be stripped from total exports. By analyzing trends and developments in the decomposed flow data, this chapter aims to improve the understanding of international trade in Europe: where value is created, the role of vertical supply links in export growth, what factors contribute to the growth of supply links, and how countries' comparative advantages are affected by supply links over time. The analysis begins by dissecting gross export statistics in the next section. The subsequent section uses the decomposed trade statistics to look at the role of vertical supply chains in overall export growth and competitiveness developments. Then regression analysis is used to explore the factors that contribute to a firm's decision to locate part of its production abroad. The regression analysis is followed by a section that looks closely at a set of European countries to see which have successfully benefited from being part of the supply network. Conclusions and related policy implications are discussed in the final section.

## **DISSECTING GROSS EXPORTS IN EUROPE**

The shortcomings of gross trade statistics have been well recognized (Hummels, Ishiib, and Yi, 2001; Ando and Kimura, 2003; Koopman, Wang, and Wei, 2008; Koopman and others, 2011; and Breda, Cappariello, and Zizza, 2008). The conceptual framework developed in Koopman and others (2011) is adopted in this chapter to decompose sources of value added in exports into five main categories depending on the location of value added and stage of production (Figure 10.3): (1) domestic value added in final goods, (2) domestic value added in intermediate goods not processed for further export, (3) domestic value added in intermediate goods processed for export to third countries, (4) domestic value added that is exported to another country but returns to the original country for export to a third country, and (5) value added imported from abroad as inputs into exports, that is, foreign value added. This enables first, a connection to be made between gross or official statistics and value added statistics in merchandise and services trade, and then allows all value added embedded in a country's exports to be distributed to its original sources at the country and product levels.

The five-category value-added decomposition for manufacturing and services exports, respectively, are made using a world input-output table. The World Input-Output Table used in this study is based on a World Input-Output Database (WIOD) by Timmer (2012), covering 27 European Union countries and 13 other major countries in the world during 1995 to 2009. The 40 countries

**Figure 10.3** Decomposition of Gross Exports into Value-Added Exports

Source: Koopman and others (2011).

included in the world input-output table for this analysis cover more than 85 percent of world GDP.<sup>2</sup> The data are disaggregated at the industrial level, covering intermediate and final goods usage for 35 industries.

Components 1 through 4 provide the value of exports that is created domestically, and component 5 provides the value of exports created abroad. In the terminology of Figure 10.3, components 1 and 2 tell how much of a country's exports are created as stand-alone exports, that is, outside any supply chain, and components 3 through 5 capture exports generated by supply links. Supply link-related exports have two components: upstream, which include domestic value added intermediate exports that are processed for further export (components 3–4), and downstream, which include foreign value added exports (component 5). A large share of foreign value added in a country's exports signifies its position as a downstream processor or assembler.

Based on the above decomposition, some of the key developments in manufacturing and services exports observed during 1995–2008 include the following:

- *The share of domestic value added has declined.* During 1995–2008, the average share of domestic value added (components 1–4) in manufacturing exports in the sample countries declined to 62 percent from 72 percent (Figure 10.4). Similar declines were visible in Europe and subgroups of

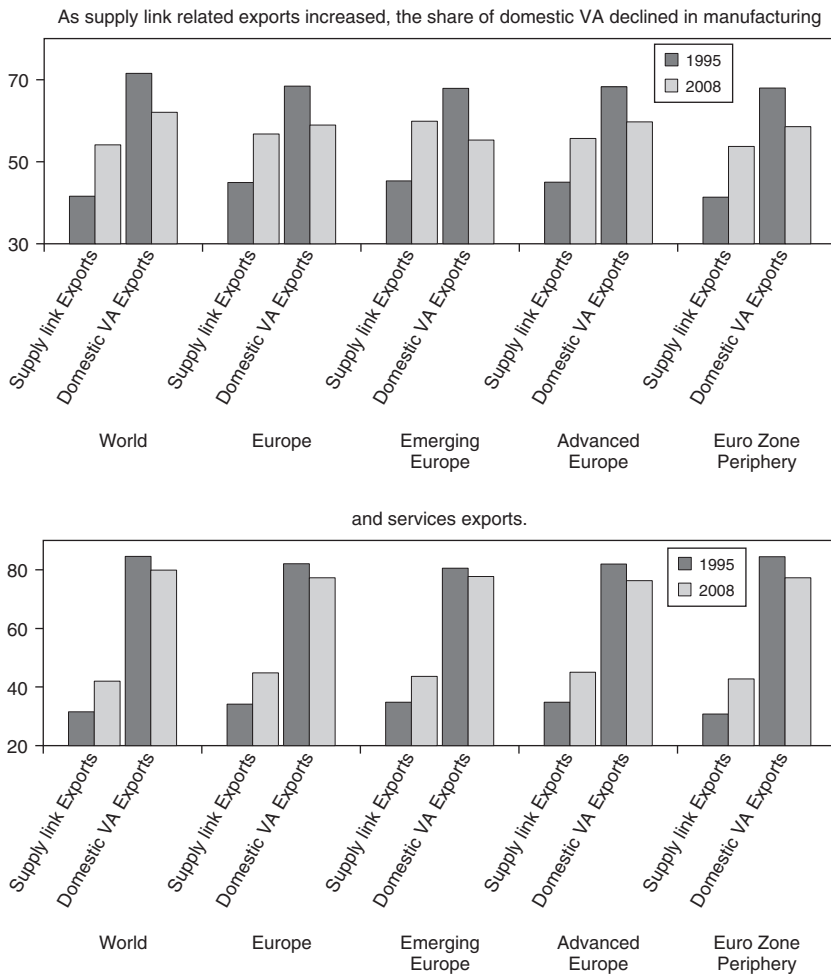
<sup>2</sup>The WIOD contains an additional region (Rest of the World) as a proxy for the aggregate of all other countries in the world. Annex 2 in Rahman and Zhao (2013) provides a detailed description of the WIOD.



countries in Europe, in which the share of domestic value added in total exports declined by 9 to 13 percentage points. The decline in the share of domestic value added in services trade was less pronounced, reflecting a lower degree of fragmentation in international trade in services.

- *The role of supply links has increased.* During 1995–2008, the average share of world manufacturing exports produced via supply links (components

**Figure 10.4** The Role of Domestic Value Added and Supply Links in Exports Growth, 1995–2008 (percent of total exports)



Source: Authors' calculation using world input-output table based on Timmer (2012).

Note: Advanced Europe: Austria, Belgium, Denmark, Finland, France, Germany, Italy, Netherlands, Sweden, and the UK. Emerging Europe: Estonia, Hungary, Czech Republic, Latvia, Lithuania, Poland, Romania, Slovak Republic, Slovenia, and Turkey. Euro area periphery: Greece, Ireland, Spain and Portugal.

3–5) rose to 54 percent from 42 percent (Figure 10.4). Increases of similar magnitude were experienced by Europe and country subgroups in Europe. For services, the average share of supply link–related exports increased to 42 percent from 32 percent, indicating a pace of increase similar to that in manufacturing.

These observations suggest that cross-border supply chains have become increasingly important in Europe, especially in emerging Europe, with nearly half of manufacturing value added produced abroad. But what does this mean for the external environment of countries seeking growth? For example, does foreign value added boost overall export growth in the countries participating in supply chains, and to what extent are supply links beneficial for employment, growth, and competitiveness?

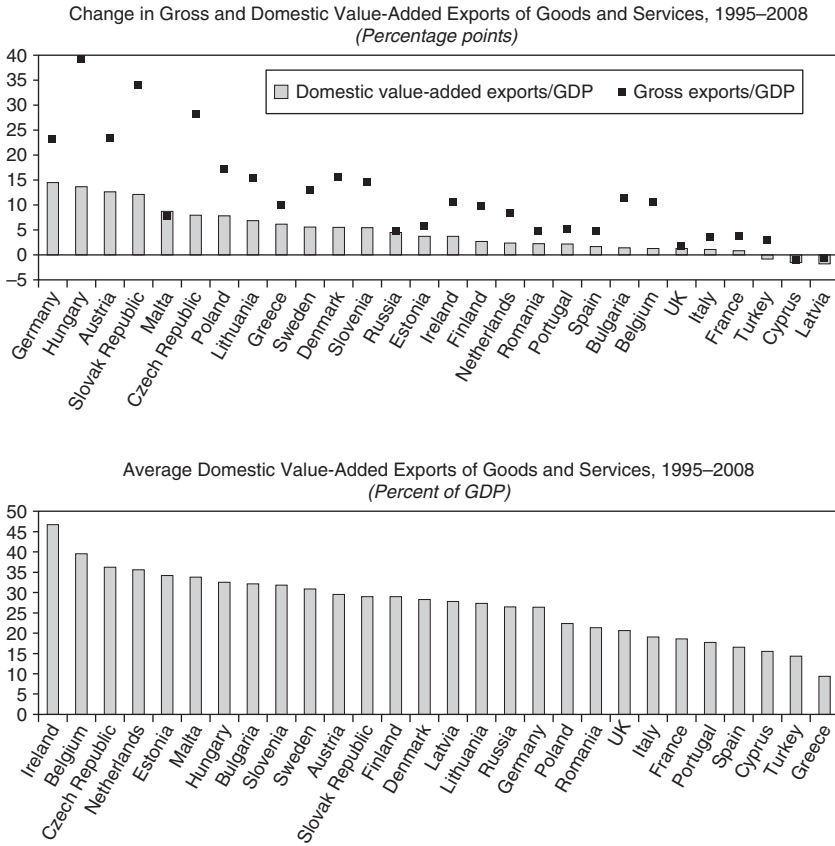
To shed light on these issues, the analysis starts by normalizing gross exports and its two main subcomponents, domestic and foreign value added, by GDP. An increasing exports-to-GDP ratio indicates that a country's growth is becoming more oriented toward international trade and, possibly, cross-border joint production. The percentage increase in gross exports to GDP is simply the sum of the percentage increases in the ratios of domestic and foreign value added of exports to GDP.

Figure 10.5 compares growth in domestic-value-added exports and gross exports during 1995–2008. Although increases in domestic-value-added exports account for much of gross export growth in many countries, for a large number of them (most notably, Belgium and Bulgaria), increases in gross exports as a share of GDP during 1995–2008 mostly reflect increasing foreign value added. The lower panel of Figure 10.5 shows the average ratio of domestic-value-added exports to GDP in European countries during 1995–2008.

Further to this point, the European countries are divided into four groups based on the increase in the ratio of domestic-value-added exports of goods and services to GDP during 1995–2008 (Table 10.1), with a view also to investigating the implications of increasing supply links on competitiveness. An increase in this share indicates that a country increased its export orientation in growth during this period, which can be interpreted as an improvement in competitiveness.

The results show that most European countries in the sample increased their domestic value-added-exports-to-GDP ratio, that is, they increased the export orientation of their economies. However, this outcome needs to be viewed in the context of a country's level of export orientation. Table 10.1 shows the average domestic-value-added-exports-to-GDP ratio in European countries during 1995–2008 along with the respective increases during the same period. A position in the upper-left corner in Table 10.1 indicates high and increasing export orientation of domestic production, whereas a position in the lower-right corner shows low and declining export orientation during 1995–2008.

Table 10.1 suggests a positive correlation between initial levels of export orientation and future increases. That is, on average, countries with higher levels of export orientation strongly increased their export orientation, whereas those with lower levels of domestic value added in GDP had much lower increases or actually declines. This absence of convergence could be driven simply by standard economies

**Figure 10.5** Domestic VA Exports in Europe, 1995–2008

Source: Authors' calculation using world input-output tables.

of scale or network externalities, but in the present context, the question that arises is whether and to what extent increasing cross-border supply linkages may have played a role. Figure 10.6 (left panel) exhibits a strong positive relationship between the change in a country's foreign value added—which has been a strong engine of export growth in much of Europe—and domestic-value-added exports expressed as a percentage of GDP.

More formally, the correlation between foreign-value-added growth and domestic value added up to five years later is tested by regressing the growth in domestic value added on growth in foreign value added (and year dummies) for various lags using the following equation:

$$\log \frac{DV_t}{DV_{t-1}} = \beta_0 + \beta_1 \log \frac{FV_{t-m}}{FV_{t-m-1}} + \sum \delta_i Year_i \quad \text{for } m = \{1, \dots, 5\}, \quad (10.1)$$

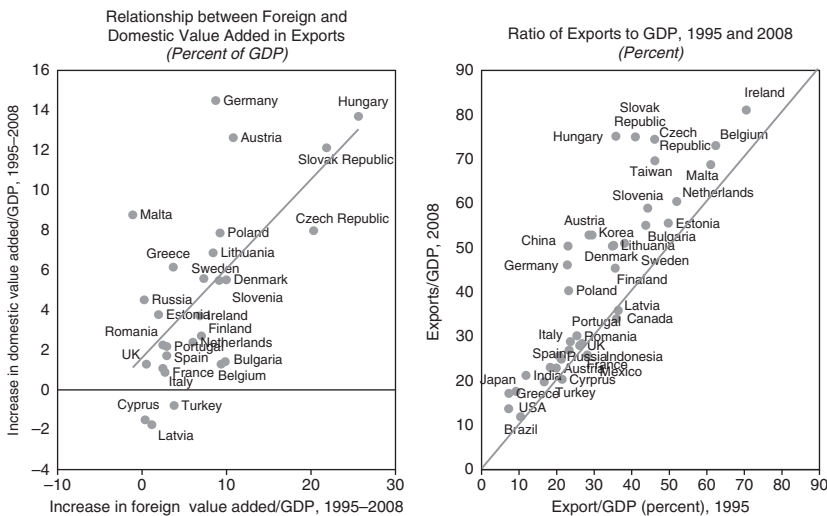
in which  $m$  denotes the lag length.

**TABLE 10.1**  
Domestic-Value-Added Export Performance in Europe, 1995–2008

Growth of Domestic-Value-Added Exports/GDP during Period					
Annual Average Domestic-Value-Added Exports/GDP during Period	Domestic-Value-Added Exports/GDP Increased More Than 10 Percentage Points		Domestic-Value-Added Exports/GDP Increased 5–10 Percentage Points	Domestic-Value-Added Exports/GDP Increased Less Than 5 Percentage Points	Domestic-Value-Added Exports/GDP Declined
	<b>Average domestic-value-added exports/GDP greater than 30 percent</b>		Czech Republic, Malta, Slovenia, Sweden	Belgium, Bulgaria, Estonia, Ireland, the Netherlands	
	<b>Average domestic-value-added exports/GDP of 20–30 percent</b>		Denmark, Lithuania, Malta, Poland	Finland, Romania, Russia, the United Kingdom	Latvia
	<b>Average domestic-value-added exports/GDP less than 20 percent</b>		Greece	France, Portugal, Spain, Italy	Cyprus, Turkey

Source: Authors’ calculation using world input-output table based on Timmer (2012).

**Figure 10.6** Exports during 1995–2008



Source: Authors’ calculations using world input-output table based on Timmer (2012).

Foreign value added and future growth in domestic-value-added exports are positively and statistically significantly related for all lag specifications (Table 10.2). These results do not establish causality, but a plausible interpretation is that increasing foreign-value-added exports during 1995–2008 helped

TABLE 10.2

Impact of Foreign-Value-Added Growth on Domestic-Value-Added Growth					
	1-year lag	2-year lag	3-year lag	4-year lag	5-year lag
Foreign value added growth in period $t-1$	0.0151 (0.47)				
Foreign value added growth in period $t-2$		0.1014* (3.26)			
Foreign value added growth in period $t-3$			0.0947* (3.09)		
Foreign value added growth in period $t-4$				0.0934* (3.05)	
Foreign value added growth in period $t-5$					0.0789* (2.57)
$R^2$	0.5901	0.6522	0.6167	0.6179	0.616

Note: Standard errors are reported in the parentheses.

\* denotes significance at the 1 percent level.

downstream assembly producers to expand and create jobs and growth, subsequently resulting in increasing domestic-value-added exports. Because world GDP growth was driven by growth in world trade, and world trade growth was driven by supply links, foreign and domestic value added were complementary to each other, creating a virtuous circle for countries able to plug into regional or global vertical supply chains. Convergence did not appear to play a role: countries that had higher export-to-GDP ratios in 1995, such as China, the Czech Republic, Hungary, the Slovak Republic, and Taiwan Province of China, maintained or further strengthened their positions over time (Figure 10.6, right panel).

These two findings, that foreign-value-added exports contribute positively to domestic-value-added exports and that countries have retained or strengthened their competitive positions in exports, are related. To the extent that world trade is increasingly characterized by supply links and that these links take time to establish, it is not surprising that countries that were already well linked in 1995 are the ones that benefited disproportionately from growth in exports. This finding suggests that a successful strategy of export-led growth depends on, among other factors, finding an appropriate position in the value-added chain and nurturing this vertical relationship.

Countries that are not already well linked in the European supply chains thus have an additional difficulty in increasing the role of exports in growth. The extent of integration with supply links, measured both by the number of links and the volume of trade flowing through these links, is low in some EA periphery countries, such as Greece and Portugal. The following section investigates what factors help establish these supply links, including the role that policy can play.

## WHAT FACTORS HELP COUNTRIES ESTABLISH SUPPLY LINKS?

The analysis so far shows that several European countries have increased their export-to-GDP ratios during 1995–2008 through integration with supply links. These countries linked with hubs, such as Austria, Germany, or Sweden, and managed to attract a part of the downstream production. Over time, that created a virtuous circle whereby foreign and domestic value added increased hand in hand, enhancing the role of exports in growth. Because success in export-led growth depends on plugging into this virtuous circle, it is important to investigate what factors contribute to a country's decision to send a part of its production abroad.

This analysis uses an augmented gravity model to explore this question empirically. Following McCallum (1995), the following specification is considered:

$$\ln(FV_{ijt}) = \beta_0 + \beta_1 \ln(Y_{it} \times Y_{jt}) + \beta_2 \ln(G_{it} \times G_{jt}) + \beta_3 \ln Dist_{ij} + \sum \lambda_k CX_k + \sum \alpha_n S_n + \sum \mu_t T_t + \varepsilon_{ijt} \quad (10.2)$$

in which  $i$  and  $j$  denote countries, and the variables are defined as follows (described in more detail below; see also Rahman and Zhao, 2013):

- $FV_{ijt}$  is the foreign value added from country  $i$  embodied in country  $j$ 's exports;
- $Y$  is nominal GDP;
- $G$  is GDP per capita;
- $Dist_{ij}$  is the distance between countries  $i$  and  $j$ ;
- $CX_k$  is the set of gravity control variables (see below);
- $S_n$  is the set of structural variables;
- $T$  is the set of time controls;
- $\varepsilon_{ijt}$  is the error term.

In the baseline, the equation is estimated using ordinary least squares (OLS) with time dummies. To check for the robustness of the estimated results, OLS with no control and two-way fixed effects with both time and country-pair dummies is used. In the robustness tests, fixed effects are chosen over random effects as indicated by the Hausman test. The fixed-effects model is not used in the baseline because it does not allow distinguishing between the free trade agreement (FTA) dummy and the country-pair effects, given that the former incorporates the latter. All time and country-pair dummy variables are statistically significant.

### Augmented Gravity Variables

A broad set of explanatory variables is included. In addition to the standard variables in the original gravity equation (including GDP, per capita GDP, and the distance between each country pair), dummy variables are also included for

common language, common border, FTA, and whether the country is a resource exporter, as well as the tariff rate of the downstream outsourced country  $j$ .<sup>3</sup> The purpose is to control for as many variables as possible that may explain the value-added flows between two countries. The term  $\sum \lambda_k CX_k$  in equation (10.2) can therefore be expressed as

$$\sum \lambda_k CX_k = \lambda_1 ComLang_{ij} + \lambda_2 ComBorder_{ij} + \lambda_3 FTA_{ij} + \lambda_4 ResourceExporter_i + \lambda_5 Tariff_j. \quad (10.3)$$

The estimation results show all gravity variables to be statistically significant with the expected signs (Table 10.3). For example, reducing the distance between countries by 1 percent increases the value of foreign-value-added exports by 0.5 percent. Similarly, increasing the host country's market size (i.e., GDP) by 1 percent increases foreign-value-added exports by 0.6 percent. A higher level of GDP, a shorter distance between two countries, the presence of a common border and common language, and the existence of an FTA all positively affect a country's decision to locate a part of its export production in another country.

### Structural Variables

In addition, a list of structural variables are included that are commonly thought to drive fragmentation of export production. These include the labor cost differential, the initial level of similarities in industrial structure, and exchange rate volatility:<sup>4</sup>

$$\sum \alpha_n S_n = \alpha_1 (ULC_{it} - ULC_{jt}) + \alpha_2 Sim_{ijt} + \alpha_3 VolatilityEX_{ijt}. \quad (10.4)$$

The estimation results show a statistically significant positive coefficient for the unit labor cost differential, which is equal to the unit labor cost in country  $i$  minus the unit labor cost in country  $j$ . One interpretation is that countries with higher unit labor costs would have larger incentives to start outsourcing some of their downstream production processes to countries with lower unit labor costs (Table 10.3), resulting in increased foreign value added in the

<sup>3</sup>The common language dummy variable is set to 1 if two countries with bilateral trade activities speak the same language; the common border dummy variable is set to 1 if two countries with a bilateral trade relationship share the same border. Both the common language and the common border variables serve as proxies for travel costs. The FTA dummy variable is set to 1 if two countries have an FTA. The resource exporter dummy variable is set to 1 if the source country is a major natural resources exporter (e.g., Australia, Brazil, Canada, Russia). The downstream tariff variable is the weighted mean of the tariff applied to manufactured products by the downstream country.

<sup>4</sup>We also experimented with including a variable capturing the statutory corporate tax differential between source and recipient country in the regression. The variable showed a positive relationship with foreign-value-added exports, meaning higher taxes in the source country cause exporters to locate abroad. However, because the coefficient was very small and statistically significant at 10 percent in two of the estimation methods, we excluded the variable from the final version of the regression.

TABLE 10.3

## Regression Results of Determinants of Foreign Value Added

Variable	OLS with Time Control		
	OLS with no Control	(Baseline)	Two-Way Fixed Effects
	(1)	(2)	(3)
Log of GDP_1	0.8255** (0.0057)	0.8272** (0.0057)	0.6695** (0.0957)
Log of GDP_2	0.6127** (0.0057)	0.6100** (0.0058)	-0.8357** (0.0986)
Log of GDP per capita_1	-0.1052** (0.0102)	-0.1018** (0.0104)	-0.0127 (0.0910)
Log of GDP per capita_2	0.1656** (0.0120)	0.1807** (0.0121)	1.2998** (0.0934)
Log of distance	-0.5378** (0.0111)	-0.5370** (0.0112)	
Common language dummy	0.6847** (0.0399)	0.6731** (0.0398)	
Common border dummy	0.7629** (0.0370)	0.7618** (0.0368)	
Resource-rich dummy	0.3089** (0.0262)	0.3088** (0.0261)	
FTA dummy	0.3350** (0.0245)	0.3507** (0.0261)	0.0731** (0.0115)
Downstream tariff	-0.0179** (0.0035)	-0.0112** (0.0037)	-0.0359** (0.0020)
Exchange rate volatility	-1.5051** (0.3819)	-1.6656** (0.3851)	0.9182** (0.1423)
Difference in unit labor costs	0.8801** (0.0908)	0.8872** (0.0903)	0.5983** (0.0801)
Industry similarity	-1.7370** (0.2458)	-1.8217** (0.2450)	

Note: In the first four variables, 1 denotes source country and 2 denotes recipient country. Standard errors in parentheses. Number of observations is 17,640.

\*\* denotes significance at the 1 percent level.

\* denotes significance at the 10 percent level.

downstream country.<sup>5</sup> This result is consistent with Sinn (2004, 2006) who argues that Germany's high wages and rigid labor market stimulated a wave of international relocation of production to seek lower costs, especially in the automotive sector, in neighboring Eastern European countries in the early 1990s.

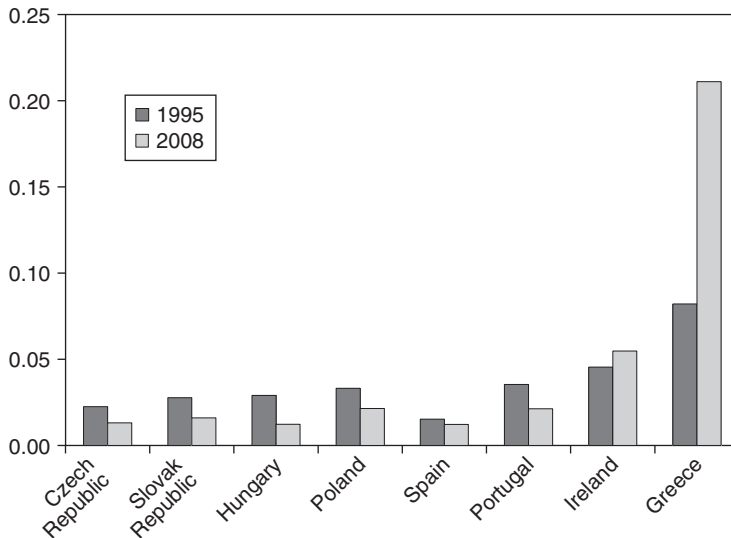
The impact of industrial similarity on foreign-value-added exports from country  $i$  and  $j$  is also estimated.<sup>6</sup> Because fragmentation within product or intra-industry trade is an important driver of supply links, two countries with similar

<sup>5</sup>We note that for *existing* cross-border production chains, one would expect the sign to be negative: an increased cost differential would provide incentive to reduce the value created in the higher-cost (upstream) country and reduce its share in the production process (i.e., reducing the relative importance of foreign value added). Thus, the positive sign we find suggests that the *initial* outsourcing decision (which leads to a positive sign) dominates the adjustment of *ongoing* outsourcing arrangements in the sample; however, we leave a closer examination of this issue for future research.

<sup>6</sup>For a given country pair ( $i, j$ ), this index is constructed using the sum of the squares of the differences between the sectoral composition of country  $i$ 's exports and the sectoral composition of country  $j$ 's exports. See Rahman and Zhao (2013) for details. A low value indicates high similarity.



**Figure 10.7** Emerging Europe and Euro Area Periphery: Similarity Index of Exports with Germany



Source: Authors' calculation using world input-output table based on Timmer (2012).

Note: A higher value indicates lower export similarity.

initial export structures are more likely to link. In manufacturing trade, this likelihood to link may also be driven by the probable availability of skilled labor if two countries have similar export or industrial structures.

To give an example, Figure 10.7 shows the similarity index between Germany and a set of countries; a lower value implies higher export similarity with Germany. This index shows a strong similarity between the export structure of Germany and four highly export-oriented Central European countries in 1995, which grew stronger by 2008. For EA periphery countries, whereas Spain and Portugal increased their similarities with Germany's export structure during 1995–2008, Ireland and Greece decreased theirs (Figure 10.7).<sup>7</sup> The estimation shows a strong negative coefficient for the initial industrial similarity index: although causality cannot be inferred, vertical integration is likely to occur between countries with similar industrial structures (Table 10.3). This result is statistically robust across estimation methods.

Last, the exchange rate could be a potentially important determinant of bilateral trade and vertical integration outcomes—producers presumably would prefer building production links with countries whose exchange rates are more stable. The

<sup>7</sup>Note that the disaggregation divides total exports of goods and services into only 35 sectors and therefore cannot capture quality differences or levels of refinement within a particular product. An index with more disaggregated product-level data may better capture the degree of industrial similarity between a hub and a host.

large literature on exchange rate volatility and trade does not offer a consensus on the appropriate method for measuring such volatility. The most widely used measure is the standard deviation of the first difference of the log of the exchange rate. This measure has the property that it will equal zero if the exchange rate follows a constant trend, which presumably could be anticipated and therefore would not be a source of uncertainty. Clark and others (2004) argue that real rates are preferable on theoretical grounds. Here, exchange rate volatility is measured by the standard deviation of the first difference of the log of the real bilateral exchange rate.

The role played by the bilateral exchange rate is unclear. The results show a negative and statistically significant relationship between foreign-value-added exports and volatility of the bilateral exchange rate in the two OLS specifications, but an equally significant positive coefficient in the two-way fixed effects specification. Even though it would seem intuitive for a higher degree of exchange rate uncertainty to adversely affect cross-border joint production decisions, the switch in signs suggests that more work is needed to assess this relationship more conclusively.

To evaluate and compare the contribution of each variable in the above regression (which are measured in different units) on foreign-value-added trade, the standardized coefficient is computed for the baseline model (OLS with time control) by transforming all independent variables to ones with zero mean and unitary standard deviations. These standardized coefficients indicate by how many standard deviations a dependent variable will change per standard deviation increase in the independent variable (Table 10.4).

The traditional gravity variables are dominant in explaining supply links as captured by foreign value added: large economic size and close distance to supply hubs have much larger impacts than the structural variables that are, to some extent, under the control of policymakers, such as FTAs, tariffs, exchange rate volatility, and ULCs. But it is important that the impact of such variables is not zero, and significant reforms will also have substantial impacts, either directly, as measured here, or indirectly. For example, structural reforms could raise economic growth and, by implication, future economic size. Thus, economic reform measures have an important role to play in countries' efforts to increase their supply-chain linkages.

## **SUPPLY LINKS AND REVEALED COMPARATIVE ADVANTAGE**

The value-added decomposition sheds some light on the supply-chain linkages across countries, but it can also help provide a better understanding of where countries stand with regard to their comparative advantage. Balassa (1965) proposed the concept of revealed comparative advantage (RCA), which compares the sectoral composition of exports in one country with that of world exports, but Koopman and others (2011) have shown that the problem of multiple counting in official trade statistics makes the computation of RCA misleading. An RCA based on the value-added decomposition of exports eliminates the distortion of

TABLE 10.4

## The Standardized (Beta) Coefficients

Variable	Standardized Coefficient
Log of GDP_1	0.672
Log of GDP_2	0.496 <sup>1</sup>
Log of GDP per capita_1	−0.048
Log of GDP per capita_2	0.085
Log of distance	−0.266
Common language dummy	0.066
Common border dummy	0.089
Resource-rich dummy	0.052
FTA dummy	0.071
Downstream tariff	−0.015
Exchange rate volatility	−0.018 <sup>1</sup>
Unit labor costs differentials	0.044
Industry similarity index	−0.029

<sup>1</sup>Results not robust across all three specifications.

multiple counting by focusing on domestic value added and can thus provide a more accurate assessment of a country's RCA.

This analysis looks at four successful central European countries that achieved export-led growth through greater integration with supply links to see how their tradables sectors evolved during 1995–2008 with regard to comparative advantage. The RCA is calculated as the share of a sector in a country's total exports divided by the world average share of the same sector in world exports. An RCA value of greater than 1 indicates a sector in which the country has an RCA. Domestic-value-added exports are disaggregated into manufacturing and services, and further divided into labor-, capital-, and knowledge-intensive sectors.<sup>8</sup> Based on this calculation, some key observations follow (Table 10.5):

- *Central European countries enhanced their comparative advantage in manufacturing over time.* In 1995, none of the four countries had a comparative advantage in knowledge-based manufacturing. By 2008, they had all acquired such advantage in addition to retaining and improving their RCA in labor- and capital-intensive manufacturing. Strong and growing supply links with European hubs enabled these countries to move up the value ladder.
- *The evolution of RCA is in line with the supply links.* For example, the Czech Republic and the Slovak Republic started with RCAs in all three services category in 1995 but moved to recreate RCA in manufacturing. Over time, the Czech Republic's and the Slovak Republic's RCAs became closer to that of Germany. The harmonization of RCA reflects the dominance of supply links between each of these two countries and Germany. In contrast, the role of manufacturing decreased in some EA periphery countries.

<sup>8</sup>The RCA index is based on a total of six sectors: labor-, capital-, and knowledge-intensive manufacturing and labor-, capital-, and knowledge-intensive services, respectively. Thus, a country could have an RCA in a maximum of five sectors.

TABLE 10.5

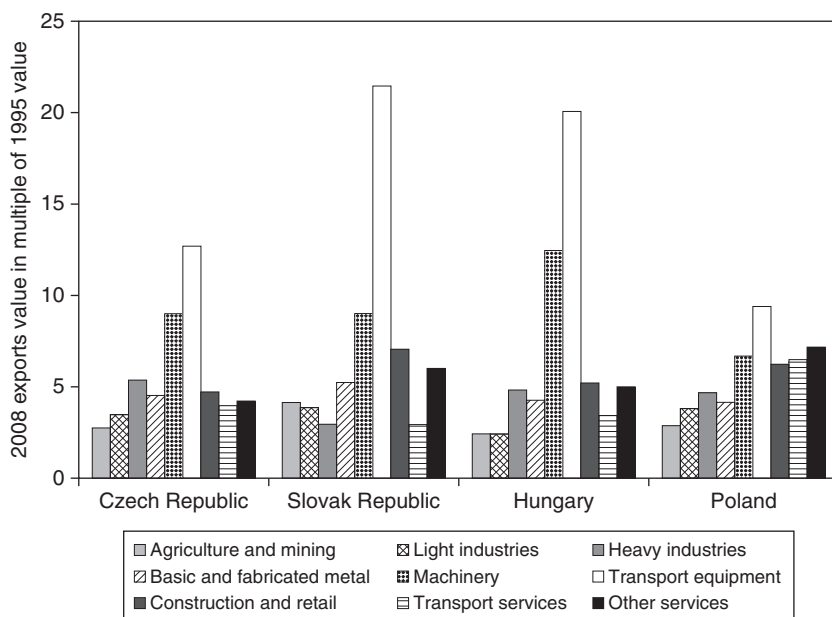
Evolution of Revealed Comparative Advantage in Manufacturing and Services:  
Emerging Europe and Euro Area Periphery, 1995–2008

	Manufacturing, 1995			Manufacturing, 2008		
	Labor-intensive	Capital-intensive	Knowledge-Intensive	Labor-intensive	Capital-intensive	Knowledge-Intensive
Portugal	3.42	0.94	0.57	2.40	1.25	0.72
Spain	0.93	1.21	1.04	1.04	1.40	1.07
Ireland	0.34	1.79	1.01	0.13	0.83	0.87
Greece	1.6	1.3	0.0	0.4	0.7	0.2
Czech Republic	1.29	1.30	0.56	1.10	1.28	1.28
Hungary	0.68	1.06	0.50	0.42	0.85	1.26
Poland	1.95	1.39	0.59	1.72	1.41	1.01
Slovakia	1.05	1.61	0.60	1.09	1.41	1.14
China	3.55	1.03	0.64	2.61	0.70	1.28
Germany	0.64	1.07	1.48	0.69	1.16	1.61
	Services, 1995			Services, 2008		
	Labor-intensive	Capital-intensive	Knowledge-Intensive	Labor-intensive	Capital-intensive	Knowledge-Intensive
Portugal	0.67	2.09	0.86	1.26	2.45	0.89
Spain	0.54	1.09	0.81	0.55	1.26	1.59
Ireland	0.39	0.23	1.82	1.69	0.54	3.90
Greece	2.9	3.0	0.5	2.0	9.0	0.6
Czech Republic	1.89	1.53	1.09	0.79	1.11	0.55
Hungary	2.50	2.39	1.62	2.27	1.07	0.82
Poland	1.32	0.90	0.58	1.08	1.16	0.48
Slovakia	1.88	1.32	1.05	1.14	0.88	0.62
China	0.86	0.74	0.12	1.34	1.10	0.54
Germany	0.55	0.63	0.51	0.55	0.84	0.71
	RCA < 0.5			2 < RCA < 3		
	0.5 < RCA < 1			RCA > 3		
	1 < RCA < 2					

Source: Authors' calculation using world input-output table.

The analysis zooms in further on product-level export data to see whether performance was driven by particular products (Figure 10.8). The importance of the transport equipment and machinery industries is seen in the export success stories of these countries. During 1995–2008, exports of all major categories more than doubled in these four countries, but exports of machinery and transport equipment increased by 7–22 times. The dominance of machinery and transport equipment exports is overwhelming. The share of these products in total exports of goods and services increased from about 10 percent to more than

**Figure 10.8** Sectoral Export Performance in Selected Central European Countries, 1995–2008



Source: Authors' calculation using world input-output table based on Timmer (2012).

20 percent during this period in Hungary, the Czech Republic, and the Slovak Republic. This attests to the role of finding a few niche sectors to secure success in a supply link–driven trade environment.

What lessons can be learned from the analysis of countries' RCAs? Supply links are more dominant in manufacturing, and successful linking often involves finding niche manufacturing sectors, although Ireland's experience shows that successful linking can also occur through services. Most EA periphery countries have an RCA in services. Improving their export performance would require leveraging this RCA in the services sector.

## CONCLUSION

In Europe and elsewhere, finding ways to raise living standards through strong and sustainable growth is the key policy imperative. This chapter suggests an increasingly important strategy for raising growth: plugging into and taking advantage of production patterns that increasingly involve several countries along the supply chain. Taking advantage of new data and an innovative methodology, this chapter highlights that reforms can improve countries' external environment in a sustainable fashion by helping them plug into cross-border production chains. Thus, structural reforms will not only help growth (Chapters 7 and 8)

and external adjustment (Chapter 9) in the medium term, but will also provide a crucial link to global demand in the longer term.

The analysis in this chapter shows that the strongest export performances globally and in Europe during 1995–2008 were the result of successful integration with supply links. This integration often relied on a few niche sectors rather than the entire spectrum of tradable products. These findings reflect firms' increasing incentives in a globalized world to unbundle the production process across borders to take advantage of low-cost foreign factors of production. The success of emerging Europe relative to the EA periphery also serves as a cautionary tale for what can happen when higher-cost and distant producers get superseded by closer and lower-cost ones in a supply chain. For countries in the EA, especially those in the periphery with a particular need for improving their external trade positions, key lessons are that future success in export growth will, to a significant degree, depend on successfully linking to supply chains. For example, based on the analysis, Spain would be well served by integrating more strongly into supply links given its larger size, sizable existing links, geographical proximity to Germany, as well as an export structure that is similar to Germany's. For large countries such as Spain, future research should look into how they could benefit most, that is, whether to increase their links with a larger export hub like Germany or strengthen their own positions as export hubs. Greece, by contrast, would face more of a challenge given its small size, services-heavy export structure, and geographic location; however, further liberalization of services trade in Europe, in addition to finding niche sectors and developing a competitive wage structure, could deliver stronger export-led growth. Greater links with upstream export hubs in Europe would greatly help many of these countries improve their export prospects, and further structural reforms could help them move up the value chain.

## REFERENCES

- Ando, M., and F. Kimura, 2003, "The Formation of International Production and Distribution Networks in East Asia," NBER Working Paper No. 10167 (Cambridge, Massachusetts: National Bureau of Economic Research).
- Balassa, B., 1965, "Trade Liberalization and Revealed Comparative Advantage," *Manchester School of Economic and Social Studies*, 33, 99–123.
- Breda, E., R. Cappariello, and R. Zizza, 2008, "Vertical Specialization in Europe: Evidence from the Import Content of Exports," Working Paper No. 682 (Rome: Bank of Italy).
- Clark, P., N. Tamirisa, A. Sadikov, S.J. Wei, and L. Zeng, 2004, "Exchange Rate Volatility and Trade Flows—Some New Evidence" (Washington: International Monetary Fund). <http://www.imf.org/external/np/res/exrate/2004/eng/051904.htm>.
- Hummels, D., J. Ishiib, and K. Yi, 2001, "The Nature and Growth of Vertical Specialization in World Trade," *Journal of International Economics*, Vol. 54, pp. 75–96.
- International Monetary Fund (IMF), 2013, *German–Central European Supply Chain–Cluster*, IMF Country Report No. 13/263 (Washington: International Monetary Fund).
- Koopman, R., W. Powers, Z. Wang, and S. Wei, 2011, "Give Credit where Credit Is Due: Tracing Value-Added in Global Production Chains," NBER Working Paper No. 16426 (Cambridge: National Bureau of Economic Research).

- Koopman, R., Z. Wang, and S. Wei, 2008, "How Much of Chinese Export Is Really Made in China? Assessing Domestic Value-Added when Processing Trade Is Pervasive," NBER Working Paper No. 14109 (Cambridge, Massachusetts: National Bureau of Economic Research).
- McCallum, J., 1995, "National Borders Matter: Canada-US Regional Trade Pattern," *American Economic Review*, Vol. 85, No. 3, pp. 615–23.
- Rahman, J., and T. Zhao, 2013, "Export Performance in Europe: What Do We Know from Supply Links?" IMF Working Paper 13/62 (Washington: International Monetary Fund).
- Sinn, H.W., 2004, "Bazaar Economy," IFO-Viewpoint No. 50 (Munich: CESifo).
- , 2006, "The Pathological Export Boom and the Bazaar Effect—How to Solve the German Puzzle," CESifo Working Paper No. 1708 (Munich: CESifo).
- Timmer, M., 2012, "The World Input-Output Database (WIOD), Contents, Sources and Methods," WIOD Working Paper No. 10 (Brussels: European Commission).





**E X C E R P T :**

**Jobs and Growth: Supporting the  
European Recovery**

**PGEEEAEX**