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Europe's Fiscal Crisis Revealed: An In-Depth Analysis of Spending, Austerity, and Growth

Edited by Salim Furth, PhD

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About the Authors

Alberto Alesina, PhD, *is Nathaniel Ropes Professor of Political Economy at Harvard University. He is also a member of the National Bureau of Economic Research, the Center for Economic Policy Research, the American Academy of Arts and Sciences, and the Econometric Society.*

Romina Boccia *is Grover M. Hermann Fellow in Federal Budgetary Affairs in the Thomas A. Roe Institute for Economic Policy Studies, of the Institute for Economic Freedom and Opportunity, at The Heritage Foundation.*

Ryan Bourne *is Head of Public Policy at the Institute of Economic Affairs (London).*

Salim Furth, PhD, *is Senior Policy Analyst in Macroeconomics in the Center for Data Analysis, of the Institute for Economic Freedom and Opportunity, at The Heritage Foundation.*

David Howden, PhD, *is an Associate Professor of Economics at Saint Louis University—Madrid.*

Filip Jolevski *is a Research Assistant in the Center for Data Analysis, of the Institute for Economic Freedom and Opportunity, at The Heritage Foundation.*

Miguel Marin *is Director of the Economy and Public Policies Department at the Fundación para el Análisis y los Estudios Sociales.*

Matthew Melchiorre *was 2012–2013 Warren T. Brookes Journalism Fellow at the Competitive Enterprise Institute.*

Derrick Morgan *is Vice President for Economic Freedom and Opportunity at The Heritage Foundation.*

Dalibor Roháč *is a Policy Analyst in the Center for Global Liberty and Prosperity at the Cato Institute.*

Veronique de Rugy, PhD, *is a Senior Research Fellow at the Mercatus Center at George Mason University.*

Malin Sahlén *is Project Manager of Economic Policy at Timbro (Stockholm).*

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http://report.heritage.org/sr147
The Heritage Foundation
214 Massachusetts Avenue, NE
Washington, DC 20002
(202) 546-4400 | heritage.org

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Preface

Derrick Morgan

Why would your time be well spent reading this special report on detailed economic data from Europe over the past half-dozen years? The answer is very simple: Washington needs to learn from Europe's mistakes, or it is doomed to repeat them.

Those who favor ever-increasing spending and loathe smaller government prefer to call any measures to reduce deficits "austerity." The word itself has the unmistakably negative connotation of the miserly uncle who is furious that somewhere, just maybe, someone is having a good time. These proponents of perpetual deficits and unfunded entitlement programs love to portray proponents of restrained government as killjoys who will lead a nation to ruin because of their obsession. It is to their advantage to lump the data from tax increases together with spending cuts, using the poor results from the former to tar the latter.

This report examines not just what the governments in Europe and elsewhere said, but what they actually did, with precise technical descriptions and analysis. Some reduced spending, others increased taxes, and some pursued a combination of the two to right their fiscal imbalance. Interestingly, the data reveal that the governments did not always follow through with their plans as originally envisioned.

This report demonstrates that not all methods of fiscal restraint were equal: Increasing taxes was more damaging to the economy and less effective in reducing deficits than spending cuts. The effective way to shrink deficits—reducing spending—leads to stronger economic growth over time, while the counterproductive way—tax increases—leads to slower economic growth and lingering ill effects with less deficit reduction than advertised.

As the United States faces a flood of annual fiscal deficits and a tsunami of unfunded future liabilities, at some point, our policymakers will need to take more of the people's money or spend less. Thanks to this report, policymakers can refer to unambiguous data. To those who complain that it is not possible to close our annual and long-term structural deficits by focusing on spending, The Heritage Foundation has shown one way in its study *Saving the American Dream*.[1]

Instinctively, conservatives understand the incentive effects of austerity done poorly. We reject tax increases, particularly during times of slow growth. Increasing government spending may temporarily boost quarterly gross domestic product, but only to the long-term detriment of the private sector, the real creator of prosperity. (The private sector knows that spending today means higher taxes tomorrow and capital flows to government bonds instead of the productive private sector.) Spending borrowed money today is the fiscal equivalent of eating your seed corn.

The evidence marshaled in the following pages is clear: When the time for addressing deficits comes—and it will—we need to reduce spending, not raise taxes. We need to learn from Europe's mistakes, not repeat them.

1. Stuart M. Butler, Alison Acosta Fraser, and William W. Beach, eds., *Saving the American Dream: The Heritage Plan to Fix the Debt, Cut Spending, and Restore Prosperity*, The Heritage Foundation, 2011, http://savingthedream.org/about-the-plan/plan-details/.

Chapter 1

A Review of the Scholarship on Austerity

Alberto Alesina, PhD and Veronique de Rugy, PhD[2]

The debate over the merits of austerity (the implementation of debt-reduction packages) is frustrating. Most people focus only on deficit reduction, but that can be achieved in many different ways. Some ways, such as raising taxes, deeply hurt growth, while others, such as a package of spending cuts accompanied by growth-enhancing reforms, can be much less harmful.

As a result, miscommunications on both sides of the political aisle have confused the issue. For instance, when talking about the situation in Europe, free-market advocates say things like "Where is the austerity in Europe?" when they actually mean, "Spending wasn't cut very much in Europe, and often it wasn't cut at all." Liberals respond, "That is not true. Austerity was implemented in Europe, and this is precisely why Europe is suffering," pointing to data about the size of fiscal adjustment[3] packages in Europe.[4]

The data show that austerity has been implemented in Europe. However, with some rare exceptions, the forms of austerity were heavy on tax increases and far from involving savage spending cuts. Greece, a country at the center of the austerity debate, should be in its own category. The Greek government implemented both large spending cuts and large tax increases. However, austerity, no matter what form it took, had little chance of working in Greece given the underlying economic and institutional shortcomings.

Considering the confusion that persists on this issue despite years of debate, this chapter summarizes what scholars have learned so far from past fiscal adjustments. To start, we show that in the pursuit of austerity, the important question has less to do with the *size* of the austerity package than with the *type* of austerity measures that are implemented. In fact, the consensus in the academic literature is that the composition of fiscal adjustment is a key factor in achieving successful and lasting reductions in the ratio of debt to gross domestic product (GDP). Specifically, fiscal adjustment packages composed mostly of spending cuts are more likely to lead to lasting debt reduction than those made of tax increases are.

Finally, there is still significant debate about the short-term economic impact of fiscal adjustments. However, as we will show in this chapter, important lessons have emerged.

First, we find that fiscal adjustments and economic growth are not impossible.

Second, we show that, while fiscal adjustments do not always trigger immediate economic growth, spending-based adjustments are much less costly in output than tax-based adjustments are. In fact, when governments try to reduce the debt by raising taxes, the likely result is deep and pronounced recessions, possibly making the fiscal adjustment counterproductive.

Third, we discuss how expansionary fiscal adjustments are more likely to occur when accompanied by growth-oriented policies, such as liberalizing both labor regulations and markets for goods and services, in addition to a monetary policy that keeps interest rates low.

These findings are keys to designing proper policies to lead the United States and European nations out of their debt crises and onto a more sustainable fiscal path.

How to Reduce Debt-to-GDP Ratios

The United States is not the first nation to struggle with a worrisome debt-to-GDP ratio. The evidence suggests that the types of fiscal adjustment packages that are most likely to reduce debt are heavily weighted toward spending reductions, not tax increases.[5]

One difficulty of studying the impact of large fiscal adjustments on debt and economic growth involves the definition and identification of successful and expansionary episodes. For a long time, the identification criteria were based on observed outcomes: A large fiscal adjustment was an adjustment in which the cyclically adjusted primary deficit-to-GDP ratio fell by a certain amount (normally at least 1.5 percent of GDP).

Following the approach pioneered by University of California economists Christina Romer and David Romer,[6] economists at the International Monetary Fund (IMF) suggested a different way to identify large exogenous fiscal adjustments: defining a large fiscal adjustment as an explicit attempt by the government to reduce the debt aggressively, which is

unrelated to the economic cycle.[7] This new approach was meant to guarantee the exogeneity of the fiscal adjustments. The authors also suggest that a difference in how fiscal adjustments are measured would change the overall research results. However, the difference in the definition does not change the overall result.

A 2012 study by Alberto Alesina and Silvia Ardagna shows that spending-based adjustments are more likely to reduce the debt-to-GDP ratio, regardless of whether fiscal adjustments are defined in terms of improvements in the cyclically adjusted primary budget deficit or in terms of premeditated policy changes designed to improve a country's fiscal outlook.[8] Alesina and Bocconi University economists Carlo Favero and Francesco Giavazzi reached similar results with more advanced technical tools using the IMF episodes.[9] Other research has found that fiscal adjustments based mostly on the spending side are less likely to be reversed and, as a result, have led to more long-lasting reductions in debt-to-GDP ratios.[10]

Beyond showing whether spending-based adjustments or revenue-based ones are more effective at reducing debt, the literature also looks at which components of expenditures and revenue are more important. The results on these points are not as clear-cut, partly due to the wide differences in countries' tax and spending systems. With that caveat, successful fiscal adjustments are often rooted in reform of social programs and reductions in the size and pay of the government workforce rather than in other types of spending cuts.[11] Which types of revenue increases contribute to successful fiscal adjustment is a question that is much less clear.[12]

While successfully reducing the debt-to-GDP ratio is possible, a majority of historical fiscal adjustment episodes fail to do so. Data from studies by Alesina and Ardagna and by Andrew Biggs, Kevin Hassett, and Matthew Jensen show that roughly 80 percent of the adjustments studied were failures.[13] One explanation is that even—or especially—in a time of crisis, lawmakers are driven more by politics than by good public policy. Countries in fiscal trouble generally reach that point after years of catering to pro-spending constituencies, whether senior citizens or members of the military–industrial complex, and their fiscal adjustments tend to preserve too many of the old privileges. As a result, failed fiscal consolidations are more the rule than the exception.

Finally, cutting spending is often perceived as a sure way for lawmakers to lose their next election, but the data do not confirm this fear. For instance, a 2010 paper by Ben Broadbent in the Goldman Sachs *Global Economics Outlook* shows that spending cuts can actually be politically beneficial.[14] More recently, Alesina, Dorian Carloni, and Giampaolo Lecce looked at this issue and found "no evidence that governments which quickly reduce budget deficits are systematically voted out of office."[15] A paper by Ami Brender and Allan Drazen shows more generally that increasing deficits before an election has a mildly negative consequence on the chance of the incumbent's reelection.[16]

Can these positive election results be driven entirely by the popularity of the government implementing the adjustment? In other words, maybe only popular governments can cut spending without electoral risk. The paper finds that this is probably not the case, but the authors acknowledge that this assumption is difficult to test and so advise caution.

Fiscal Adjustments and Economic Growth

While there is little debate that sound fiscal balance and restraints on the burden of spending positively affect GDP in the long run, whether budget cuts shrink or grow GDP in the short term is far from settled.[17] This is an especially important question for countries that are spending nearly or above 50 percent of GDP. However, a few uncontroversial points have emerged, despite the differences in approaches and definitions of successful or expansionary episodes.[18]

First, expansionary fiscal adjustments are possible. A long trail of academic papers have studied and documented the impact of fiscal adjustments on economic growth. The first in the series was by Francesco Giavazzi and Marco Pagano in 1990.[19] It was followed by a large literature, which Alesina and Ardagna reviewed in depth in 2010.[20]

Today, the question is not whether expansionary fiscal adjustments are possible, but whether in the current circumstances it is possible to design fiscal adjustments with as little cost as possible to the economy, given that monetary conditions allow little additional help. It is perfectly possible that fiscal adjustment today might be on average more costly than in the past, but this does not mean that the medicine is not necessary.

CHART 1–1

10 Largest Fiscal Adjustments

COUNTRY	SUCCESSFUL?	EXPANSIONARY?	PERCENT CHANGE IN DEFICIT/GDP RATIO	PERIOD	
Denmark	Yes	Yes	–15.1 %	1983–1986	4 years
Sweden	Yes	Yes	–14.1	1993–1998	6 years
United Kingdom	Yes	Yes	–11.1	1994–2000	7 years
Germany	No	No	–10.7	1996–2000	5 years
Belgium	No	Yes	–10.6	1984–1990	7 years
Netherlands	Yes	Yes	–8.6	1996–2000	5 years
Canada	Yes	Yes	–8.1	1993–1997	5 years
Japan	Yes	No	–8.1	1979–1987	9 years
Ireland	Yes	Yes	–7.6	1986–1989	4 years
Norway	No	No	–7.4	1999–2000	2 years

Note: Successful adjustments are those in which the debt-to-GDP ratio two years after the end of the adjustment is lower than the debt-to-GDP ratio in the last year of the adjustment. Expansionary adjustments are those in which growth during the adjustment period is higher than beforehand.

Source: Authors' calculations based on data from Alberto Alesina and Silvia Ardagna, "The Design of Fiscal Adjustments," National Bureau of Economic Research *Working Paper* No. 18423, September 2012.

Second, while not all fiscal adjustments lead to economic expansion, spending-based adjustments are less recessionary than those achieved through tax increases.[21] When successful spending-based adjustments were not expansionary, they were associated with mild and short-lived recessions, while tax increases failed to reduce the debt and were associated with large recessions.[22] These findings hold even when using the IMF definitions of fiscal adjustments.[23]

In fact, these findings are consistent with IMF studies themselves.[24] For instance, IMF economists Jaime Guajardo, Daniel Leigh, and Andrea Pescatori studied 173 fiscal consolidations in rich countries and found that "nations that mostly raised taxes suffered about twice as much as nations that mostly cut spending."[25] IMF researchers, however, downplay this result and incorrectly attribute it—as shown by Alesina, Favero, and Giavazzi—to reactions of monetary policy to different types of fiscal adjustments.

Third, successful and expansionary fiscal adjustments are based mostly on spending cuts rather than on tax increases.[26] These adjustments lasted slightly longer and were associated with higher growth during the adjustment. Using data from 21 countries in the Organisation for Economic Co-operation and Development (OECD) from 1970 to 2010, Alesina and Ardagna found that successful fiscal adjustments reduced debt-to-GDP ratios by an average of 0.19 percentage point of GDP in a given year. GDP grew by 3.47 percentage points in total, which is 0.58 percentage point higher than the average growth of the G7 countries. Successful adjustments lasted for an average of three years.[27]

How can spending-based adjustments, compared with tax-based adjustments, result in lower or no output costs for the economy? IMF economists Prakash Kannan, Alasdair Scott, and Marco Terrones attribute this difference in outcomes to the business cycle picking up because of other government interventions, such as expansionary monetary policy, not to the composition of the fiscal adjustment packages.[28] However, Alesina, Favero, and Giavazzi's work shows that taking the business cycle and monetary policy into account does not change the main finding.[29]

If the difference between tax-based and spending-based fiscal adjustments is not the result of the business cycle or monetary policy, what explains it? The standard explanation is that lower spending reduces the expectation of higher taxes in the future, with positive effects on consumers and investors. In particular, it might boost investor confidence, as Alesina, Favero, and Giavazzi have shown, but there is more. As is often the case, the devil is in the details. Studies by Alesina and Ardagna and by Roberto Perotti have noted that fiscal adjustments are detailed, multiyear policy packages.[30] Austerity measures are often undertaken simultaneously with other growth-enhancing policy changes, and

much can be learned by looking into the details of each successful episode.

One important lesson is that several accompanying policies can moderate the contractionary effects of fiscal adjustments on the economy and enhance their chances of success.[31] For instance, spending-based fiscal adjustment accompanied by supply-side reforms—such as liberalization of the markets for labor, goods, and services; readjustments of public-sector size and pay; public pension reform; and other structural changes—tend to be less recessionary or even lead to positive economic growth.[32]

Such reforms signal a credible commitment to more market-friendly policies, including less taxation, fewer impediments to trade, fewer barriers to entry, less union involvement, and less regulation of the labor market and business. Of course, with enhanced economic freedom, unit labor costs become cheaper and productivity improves, making an expansionary fiscal adjustment more likely than a contractionary adjustment.

Germany's fiscal adjustment of 2004–2007 provides a good example.[33] First, the country implemented a stimulus by reducing income tax rates. This reduction was part of a series of supply-side reforms implemented between 1999 and 2005, including a wide-ranging overhaul of the income-tax system that was meant to boost potential growth but did not have much effect until 2004. In addition, Germany implemented significant structural reforms to tackle rigidity in the labor market and changed the pension system due to demographic pressures. These reforms included "an increase in the statutory retirement age, the elimination of early retirement clauses, and tighter rules for calculating imputed pension contributions."[34] Finally, Germany adopted large expenditure cuts in the fringe benefits in public administration (e.g., no more Christmas-related extra payments) and reduced subsidies for specific industries, including residential construction, coal mining, and agriculture.[35]

Sweden is another example of successful adjustment. The data show that after the 2008 recession, Swedish Finance Minister Anders Borg not only successfully implemented a reduction in welfare spending, but also pursued economic stimulus through a permanent reduction in the country's taxes, including a 20-point reduction in the top marginal income tax rate. At the same time, Sweden benefited from an extremely aggressive monetary policy, followed by strong export revenues and firm domestic demand. As a result, the country's economy has grown faster and more consistently than most of its European counterparts, which has helped Sweden to shrink its debt as a percentage of GDP rapidly over the past decade.[36]

The Swedish example raises the question of what role monetary policy can play in successful fiscal adjustments. For instance, some evidence indicates that exchange rate devaluation, induced by an accommodating monetary policy, can help to boost a country's exports as the country becomes more competitive and, as a result, can compensate for a previous slowdown in domestic demand.[37]

Economist Scott Sumner has made the case that the best way to achieve austerity and growth simultaneously is to increase "[nominal] GDP and budget surpluses—the Swedish way."[38] To be sure, monetary policy in Europe—or in the United States, for that matter—could increase the effectiveness of spending cuts and structural reforms (a little like the water you drink to help the medicine go down). Yet overselling it would be a mistake, and it certainly will not achieve long-term U.S. goals without serious reductions in government spending. In particular, devaluation of a country's currency is neither a necessary nor a sufficient condition for success, as shown by Alesina and Ardagna.[39]

However, growing evidence suggests that private investment tends to react more positively to spending-based adjustments. For instance, data from Alesina and Ardagna and from Alesina, Favero, and Giavazzi show that private-sector capital accumulation increases after governments cut spending, which compensates for the reduction in aggregate demand due to the fiscal adjustments.[40]

The good news is that it is possible to design a fiscal adjustment that could both reduce the deficit and have only minimal negative—or even in some cases positive—impact on the economy. It requires austerity based mostly on spending cuts. This can be done without hurting the least advantaged in society. Alesina wrote in November 2012:

> But if we cut spending, do we necessarily hurt the poor? Not in such countries as Greece, Portugal, Spain, and Italy, whose public sectors are so inefficient and wasteful that they can certainly spend less without affecting basic services. Even in countries with better-functioning public sectors—such as France, where public spending is nearly 60 percent of GDP—there's a lot of room to economize

without hurting the poorest and most vulnerable. And even in America, public spending is about 43 percent of GDP, a level common in Europe not long ago, and up from 34 percent in 2000.[41]

In other words, Western governments can save money and avoid inflicting injury on lower-income earners or the poor by improving how welfare programs are targeted, scaling back programs such as Medicare that use taxes raised in part from the middle class to give public services right back to the middle class, and gradually raising the retirement age to 70. The same is true of Social Security.

Furthermore, cutting subsidies to businesses could achieve significant savings. Subsidies often go to large, well-established, politically connected firms such as gas and oil companies, farms, automobile manufacturers, and banks.[42]

Conclusion

Economists disagree about a lot on fiscal policy. However, they seem recently to have reached a consensus that spending-based fiscal adjustments are not only more likely to reduce the debt-to-GDP ratio than tax-based adjustment are, but also less likely to trigger a recession.

In fact, if accompanied by the right type of policies—especially changes in public employees' pay and public pension reforms—spending-based adjustments can actually contribute to economic growth. As Salim Furth shows in Chapter 3 of this report, the early data from the most recent round of fiscal consolidation tend to confirm that tax-based austerity is the most harmful to growth.

However, it is important to refrain from oversimplifying these results because fiscal adjustment packages are often complex and multiyear affairs. Many successful (i.e., expansionary and debt-reducing) fiscal adjustments in this literature are ones in which exports led growth when the rest of the global economy was healthy or even booming. While there has been some recovery in the midst of the recession, we should recognize that achieving export-led growth may be much harder today when many countries are struggling.

While austerity based on spending cuts can be costly, the cost of well-designed adjustment plans will be low. Furthermore, it is not clear that the alternative to reducing spending is more economic growth. In fact, the alternative for certain countries could be a very messy debt crisis.

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32. See Alesina and Ardagna, "The Design of Fiscal Adjustments"; Alesina and Ardagna, "Tales of Fiscal Adjustments"; and Perotti, "The 'Austerity Myth.'" For specific statistics on average changes in goods regulation, barriers to entry, public ownership, employment protection, union density, and so forth, see Alesina and Ardagna, "Design of Fiscal Adjustments," Tables 17, 18, and 7b.
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35. The German consolidation also responded quickly to unanticipated challenges arising from the reforms. For instance, the government responded to the higher-than-expected cost of labor market reforms by raising the value-added tax (VAT) rate, using part of the VAT collection to reduce the overall tax burden through a cut in unemployment contribution rates.
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Chapter 2

Measuring Austerity and Stimulus

Salim Furth, PhD

There is a temptation to lump all of the economies and policies of Europe together. *The Progressive* trumpeted electoral results in Greece and France as "the beginning of the end of the age of austerity."[43] *The Observer* generalized, "Across Europe other governments, scared by the Greek debt crisis … have been doing the same [as Germany], raising the spectre of mass layoffs in public services in the name of European unity."[44] *The Washington Post's* Robert Samuelson wrote, "We have entered the Age of Austerity. It's already arrived in Europe and is destined for the United States. Governments throughout Europe are cutting social spending and raising taxes—or contemplating doing so."[45]

The formulaic "Age of Austerity" is a convenient crutch, but it obscures important differences in the existence, type, degree, and impetus of fiscal consolidation across countries. More can be learned by studying the differences than by averaging them.

As shown by Alberto Alesina and Veronique de Rugy in Chapter 1, tax increases have large and well-documented negative effects on growth. The data from Europe indicate that governments planned tax cuts and later planned subsequent tax increases but more consistently enacted the tax increases. Conversely, although spending cuts are clearly more successful than tax increases at deficit reduction, spending increases outnumbered and outweighed spending cuts in most countries.

For the purposes of this chapter, the terms "stimulus" and "fiscal expansion" are interchangeable, denoting a policy-induced increase in government expenditure or decrease in taxation. The vague term "austerity" can include spending cuts, tax increases, and some structural reforms, such as increases in the retirement age. This chapter generally focuses on spending cuts and tax increases, for which it uses the more precise term "fiscal consolidation."

If one looks only at averages, the 2007–2010 time period was one of Keynesian stimulus: extra government spending and tax breaks everywhere. Yet six of 29 countries actually planned spending cuts and six planned tax increases, the opposite of Keynesian stimulus. Even among countries with net stimulus, the plans ranged in magnitude from 0.5 percent of gross domestic product (GDP) to 6.1 percent of GDP.[46]

The Age of Austerity since 2010 has exhibited even less uniformity. Of the 28 countries with IMF data on fiscal adjustment, six engaged in fiscal expansion, and eight had fiscal consolidation of less than 2 percent of GDP.[47] Greece's well-known fiscal consolidation was an outlier, twice as great as second-place Portugal's. Paul Krugman is not exaggerating when he says that "Greece was a very special case, holding few if any lessons for wider economic policy."[48]

Economists believe that higher tax rates result in lower growth and that government spending results in temporary GDP growth, although it will crowd out the private sector in the long run.[49] In crises like

The 37 Countries

Australia	Korea
Austria	Latvia
Belgium	Lithuania
Bulgaria	Luxembourg
Canada	Malta
Cyprus	Netherlands
Czech Republic	New Zealand
Denmark	Norway
Estonia	Poland
Finland	Portugal
France	Romania
Germany	Slovakia
Greece	Slovenia
Hungary	Spain
Iceland	Sweden
Ireland	Switzerland
Israel	United Kingdom
Italy	United States
Japan	

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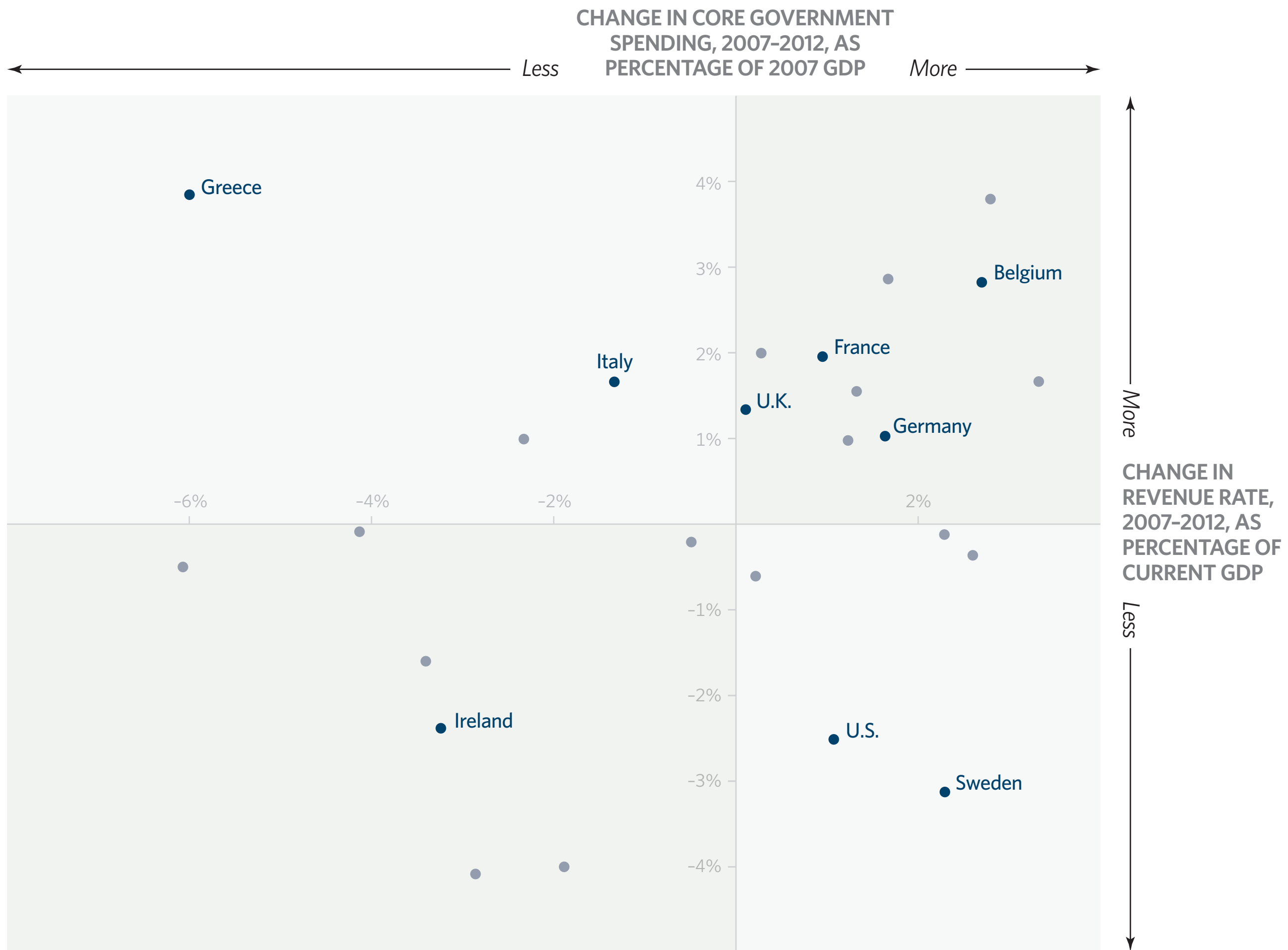
CHART 2–1

Growth of Spending and Revenues Since 2007



Notes: Figures for 2011 are used for countries lacking 2012 data. Chart includes only those countries in which GDP fell from 2007 to 2009.
Sources: Organisation for Economic Co-operation and Development, Stat Extracts, Annual National Accounts, Table 12: "Government Deficit/Surplus, Revenue, Expenditure and Main Aggregates," 1995–2012, http://stats.oecd.org/ (accessed May–December 2013), and European Commission, Eurostat, s.v. "General Government Expenditure by Function (COFOG)," http://epp.eurostat.ec.europa.eu/portal/page/portal/statistics/search_database (accessed January, 2014).

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the recent ones, the causal relationships can run in the opposite direction, too: Straitened governments are forced into fiscal consolidation.

Thus, unsurprisingly, GDP growth from 2007 to 2012 is positively correlated with spending and negatively correlated with the revenue rate[50] over the same period.[51] These correlations remain even after limiting consideration to countries that experienced positive GDP growth. One would thus reasonably expect that spending and tax rates are negatively correlated: In a crisis, the story goes, a country is either Keynesian or austere. Much of the public narrative is built around this assumed taxonomy.

Instead, taxes and spending are *positively* correlated (0.16) across countries. While there are examples of Keynesian and austere countries, these are the exceptions, not the rule. Chart 2-1 shows that every combination of fiscal policies has been tried and that the most common combination has been rising taxes and rising core spending. Europe's three largest economies followed that pattern.

Data Compendium

It is surprisingly difficult to measure fiscal policy. Simple metrics such as government expenditure, average tax rate, and budget deficit are fraught with problems. Those metrics and others can rise and fall based on a variety of factors, not limited to changes in government policy. To allow further analysis of austerity or stimulus, this report is accompanied by an online data compendium that compiles data from a variety of sources.[52]

No single data series is infallible, perfectly measured, or purely or exhaustively reflective of fiscal policy. The body of evidence should be considered as a whole and questions raised when series diverge sharply. Conversely, when a variety of metrics tell the same story, one can have greater confidence in each metric.

The data compendium draws on two types of sources: publicly available data published by international organizations and data or estimates reported on an ad hoc basis by various economists and organizations. The data include 37 countries in Europe and the developed world, although few series cover all 37 countries.

Choosing from a wide selection of publicly available data, the compendium primarily uses Organisation for Economic Co-operation and Development (OECD) series on government financing, as well as IMF data on structural balance and data on the interest rates at which governments borrow from multiple sources.

Ad hoc data series include several estimates of planned stimulus over the 2008–2010 time frame, the IMF's data on discretionary fiscal consolidation after 2009, and estimates of fiscal sustainability. The compendium also includes two key tax rates.

Specific details about each source and series are included with the compendium. This chapter discusses the data both thematically and descriptively.

Recessions

As Matthew Melchiorre has emphasized,[53] the timing of crises differed substantially across countries. Even the global "Great Recession" was more diffuse than many believe. In this section and elsewhere, GDP is used as the key indicator of economic growth. Of course, GDP is only one of many indicators, and increases in GDP that occur without increasing consumption, investment, median income, and employment may not reflect actual economic growth.

As Table 2-1 demonstrates, the beginning of the global recession rolled through the developed world from 2007 to 2009. By the time Greek GDP began to fall, France and Germany were just a few months from recovery. The length and depth of the recovery differed widely across countries, and the post-recession experience differed even more.

A New Measure of Stimulus and Austerity

In order to overcome the gap between measures of stimulus and austerity, I developed a measurement of core government spending. Using OECD and Eurostat data through 2012,[54] I strip interest and transfer payments out of total government expenditure.[55] The result is very similar to the OECD's "Government Output" series for most countries. The most significant differences occur when capital transfers, such as bank bailouts, are large. The exclusion of transfer payments is important because much of the period being considered had high unemployment and low incomes, which led to large increases in transfers.

I report core government spending growth in terms of percent of base-year GDP. Thus, the change from 2009 to 2012 is calculated as (2012 core government spending – 2009 core government spending)/2009 GDP.[56]

Core government spending peaked at different times. It peaked between 2009 and 2011 in about half of the countries. In the Baltics, Iceland, and Ireland core spending peaked in 2008. Economies that are growing fast or that engaged in little stimulus or little consolidation did not peak through the end of their respective data in 2011 or 2012. Considering the entire 2007 to 2012 period, core spending grew in 23 countries and fell in 12 countries.

Another way to measure core spending is as a share of current GDP. However, this metric does not capture policy well. Even when spending is cut, its share of current GDP may rise if GDP is falling faster. Thus, core spending's share of GDP rose in 21 countries and fell in 14 countries. In the U.S., core spending's share rose by 0.2 percentage point. In Estonia, it rose, then fell, and then rose again to 2.6 percentage points higher than in 2007.

Of the 12 countries that decreased core spending, 11 were under pressure from high or rising interest rates.[57] In all 11, the interest rate spread[58] in 2012 was at least 3 percent, and in 10 countries, the spread had risen substantially, reflecting inves-

TABLE 2–1

Change in Quarterly GDP

GDP decline | Largest one-quarter GDP decline, 2007–2013

	2007				2008				2009				2010				2011				2012				2013		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3
Australia	1.6	0.7	0.7	0.6	1.3	0.3	0.9	-0.9	1.0	0.1	0.7	0.8	0.4	0.5	0.6	1.1	-0.4	1.2	1.3	0.8	1.2	0.4	0.7	0.5	0.5	0.7	0.6
Austria	1.0	0.5	0.4	1.0	1.0	-0.1	-1.2	-1.8	-1.5	-0.5	0.7	0.6	-0.1	0.6	1.3	1.1	0.9	0.5	-0.1	0.0	0.4	0.2	0.1	0.1	0.1	0.0	0.2
Belgium	1.0	0.3	0.7	0.6	0.7	0.3	-0.5	-2.1	-1.8	0.1	1.0	0.7	0.1	1.0	0.5	0.4	0.8	0.2	0.1	0.0	0.1	-0.4	0.0	-0.1	0.0	0.2	0.3
Bulgaria	1.5	1.8	1.3	2.1	1.7	1.2	1.1	0.2	-6.0	0.0	0.3	-2.8	0.6	1.4	0.8	0.6	0.3	0.5	0.2	0.1	0.3	0.1	0.1	0.1	0.1	-0.1	0.5
Canada	0.6	0.8	0.6	0.3	0.0	0.5	0.7	-1.1	-2.2	-0.9	0.5	1.3	1.4	0.7	0.5	1.1	0.5	-0.2	1.5	0.5	0.2	0.4	0.2	0.2	0.6	0.4	0.7
Cyprus	1.8	1.1	1.2	1.4	1.0	0.6	0.4	0.0	-0.9	-1.4	-0.5	-0.1	1.4	0.1	0.9	0.2	0.4	0.1	-1.1	-0.2	-0.3	-0.8	-1.0	-1.5	-1.7	-1.8	-0.8
Czech Republic	2.3	0.0	1.6	1.5	0.4	1.2	0.1	-1.7	-3.4	-0.6	0.4	0.6	0.5	1.1	0.6	0.6	0.7	0.2	0.0	-0.2	-0.4	-0.4	-0.3	-0.3	-1.3	0.3	0.2
Denmark	0.9	-0.5	0.8	1.0	-1.4	1.5	-1.8	-2.4	-2.2	-1.8	0.4	-0.2	0.1	1.4	1.4	-0.2	0.2	0.3	-0.5	-0.1	0.2	-0.6	0.4	-0.3	-0.1	0.5	0.4
Estonia	3.6	0.1	1.0	0.1	-2.8	1.1	-0.7	-9.7	-4.0	-2.9	-2.6	0.9	0.3	2.2	2.5	2.9	3.2	2.2	0.9	-0.2	2.3	-0.1	1.3	0.5	-0.1	-0.2	0.6
Finland	1.8	1.7	0.5	1.4	-0.2	-0.5	-0.3	-2.6	-6.3	-0.8	1.2	-0.6	0.4	3.3	-0.1	1.9	0.0	0.4	0.6	-0.2	0.4	-1.5	-0.3	-0.9	-0.2	0.1	0.0
France	0.7	0.6	0.4	0.2	0.4	-0.7	-0.4	-1.6	-1.7	0.0	0.1	0.7	0.3	0.6	0.5	0.5	1.1	-0.1	0.3	0.1	0.0	-0.3	0.2	-0.2	-0.1	0.6	0.0
Germany	0.6	0.6	0.8	0.4	1.0	-0.4	-0.5	-2.0	-4.1	0.2	0.7	1.0	0.5	2.0	0.8	0.8	1.5	0.1	0.4	0.1	0.7	-0.1	0.2	-0.5	0.0	0.7	0.3
Greece	2.1	0.6	0.8	0.1	0.1	0.5	0.3	-0.8	-1.1	-1.0	-0.6	0.7	-1.9	-1.3	-1.6	-2.8	0.2	—	—	—	—	—	—	—	—	—	—
Hungary	-0.9	-0.3	0.2	0.7	1.4	-0.1	-0.9	-2.5	-3.3	-1.1	-0.8	0.3	0.8	0.5	0.4	0.2	1.1	-0.1	0.0	0.3	-1.4	-0.4	-0.3	-0.5	1.1	0.3	0.8
Iceland	0.5	5.3	2.2	-0.4	-0.4	-1.1	0.8	-0.3	-5.4	0.4	-2.5	-0.9	-2.4	-1.3	0.8	2.7	0.7	-1.7	2.2	0.5	3.0	-6.0	4.1	0.3	4.6	-6.6	6.1
Ireland	5.1	-1.6	-1.2	3.6	-1.5	-1.5	-0.6	-3.6	-1.1	-1.5	-1.3	-1.0	0.9	-0.4	0.7	-1.2	1.7	1.5	-0.3	0.6	-0.3	0.7	-1.7	0.2	-1.1	1.0	1.5
Israel	2.3	1.8	1.5	1.3	1.9	0.9	0.6	-0.4	-0.5	0.6	1.1	1.3	1.4	1.5	1.1	1.6	1.1	0.9	1.1	0.9	0.7	0.7	1.1	1.0	0.5	1.1	0.5
Italy	0.1	0.1	0.4	-0.5	0.5	-0.6	-1.3	-1.6	-3.5	-0.3	0.4	-0.1	0.9	0.6	0.5	0.3	0.1	0.2	-0.2	-0.7	-1.1	-0.6	-0.4	-0.9	-0.6	-0.3	0.0
Japan	1.0	0.2	-0.4	0.9	0.6	-1.1	-1.1	-3.3	-4.0	1.8	0.1	1.7	1.4	1.1	1.4	-0.5	-1.9	-0.6	2.6	0.2	0.9	-0.4	-0.8	-0.1	1.2	1.0	0.3
Latvia	3.0	2.6	0.3	0.3	0.3	-0.8	-5.7	-2.5	-9.4	-1.0	-7.2	1.2	1.2	-0.5	0.2	1.7	1.1	2.5	1.3	0.3	0.7	2.2	1.6	0.9	1.8	0.1	1.3
Lithuania	2.4	2.4	2.6	1.6	-0.3	0.8	-1.1	-0.7	-13.1	-1.2	0.4	-0.9	0.7	1.1	0.6	2.3	1.9	1.5	0.8	1.1	0.3	0.7	2.0	0.2	1.0	0.8	0.3
Luxembourg	2.4	1.9	0.7	-2.0	3.0	-1.5	-0.8	-5.7	-1.7	0.5	2.1	-1.1	1.3	1.2	0.6	0.7	0.6	-0.3	0.6	0.4	-1.2	0.1	0.2	1.2	-0.7	2.0	0.2
Malta	3.1	-1.0	1.3	0.5	1.7	1.7	1.1	-2.1	-3.4	0.4	0.8	1.9	0.5	-0.3	1.3	2.0	0.2	-1.1	0.7	0.0	-0.2	0.6	0.6	0.7	-0.4	2.0	-0.4
Netherlands	1.4	0.7	1.3	1.3	0.6	-0.3	-0.1	-1.2	-2.1	-1.4	0.7	0.5	0.6	0.4	0.0	1.1	0.6	-0.1	-0.5	-0.7	-0.2	0.5	-1.0	-0.7	-0.3	0.1	0.3
New Zealand	1.2	0.8	0.7	0.1	-0.4	-1.2	-0.2	-0.6	-1.0	-0.2	0.6	1.5	0.2	1.0	-0.3	-0.5	0.9	0.8	0.9	0.7	0.9	0.2	0.2	1.3	0.5	0.3	1.4
Norway	-0.2	0.1	1.6	1.2	-1.6	0.2	-0.4	0.1	-1.0	-0.8	0.3	0.4	1.8	-1.3	-2.2	2.6	-0.3	-0.1	1.7	0.2	1.8	0.7	-1.2	0.6	-0.4	1.1	0.8
Poland	1.8	1.6	1.3	2.2	1.4	0.7	0.7	-0.4	0.4	0.5	0.5	1.4	0.7	1.1	1.3	0.8	1.2	1.4	0.8	1.0	0.4	0.0	0.2	0.2	0.3	0.5	0.6
Portugal	1.5	0.0	-0.1	1.0	0.0	-0.2	-0.5	-1.1	-2.4	0.3	0.7	0.0	1.0	0.6	0.1	-0.3	-0.6	-0.1	-0.5	-1.7	-0.1	-1.0	-0.8	-1.9	-0.3	1.1	0.3
Romania	1.2	1.0	0.8	3.4	3.5	1.8	0.3	-2.0	-5.6	-0.8	0.8	-0.3	-1.2	0.4	-0.7	1.3	0.7	-0.3	2.3	-0.9	-0.9	1.5	-0.8	1.1	0.6	0.8	1.6
Slovakia	2.0	2.5	2.4	6.1	-2.4	1.2	1.3	1.1	-8.5	1.4	1.4	1.4	1.0	0.9	0.9	0.6	0.7	0.8	0.6	0.9	0.3	0.3	0.2	0.0	0.3	0.3	0.3
Slovenia	1.6	1.4	2.3	0.3	1.4	1.2	-0.3	-3.9	-4.7	-1.1	0.0	-0.1	0.2	1.1	0.4	0.8	0.0	0.3	-0.3	-0.5	-0.4	-1.3	-0.6	-0.8	-0.3	-0.1	0.0
South Korea	1.4	1.5	1.1	1.7	0.9	0.4	0.1	-4.6	0.1	2.5	3.4	0.3	2.2	1.4	0.6	0.7	1.3	0.8	0.8	0.4	0.8	0.3	0.0	0.3	0.8	1.1	1.1
Spain	0.9	0.8	0.8	0.7	0.5	0.0	-0.8	-1.1	-1.7	-1.1	-0.3	-0.1	0.1	0.2	0.0	0.2	0.2	-0.1	-0.3	-0.4	-0.4	-0.5	-0.4	-0.8	-0.4	-0.1	0.1
Sweden	1.0	0.5	0.6	1.5	-1.2	-0.1	-0.1	-3.7	-2.6	0.2	-0.1	1.3	2.5	2.1	1.2	1.9	-0.3	0.6	1.2	-1.3	0.7	0.8	0.4	-0.2	0.5	-0.1	0.1
Switzerland	1.3	0.8	0.7	0.7	0.9	1.0	0.1	-2.2	-1.0	0.0	0.8	0.4	1.1	0.8	0.6	1.0	0.3	0.4	-0.2	0.2	0.5	-0.1	0.7	0.3	0.6	0.5	0.5
United Kingdom	1.0	1.3	1.2	0.1	0.1	-0.9	-1.4	-2.1	-2.5	-0.4	0.0	0.4	0.5	1.0	0.4	-0.2	0.5	0.1	0.6	-0.1	0.0	-0.4	0.8	-0.1	0.5	0.8	0.8
United States	0.1	0.8	0.7	0.4	-0.7	0.5	-0.5	-2.2	-1.4	-0.1	0.3	1.0	0.4	1.0	0.7	0.7	-0.3	0.8	0.3	1.2	0.9	0.3	0.7	0.0	0.3	0.6	1.0

Note: Quarterly growth rates in this table are not annualized.
Sources: Organisation for Economic Co-operation and Development, Stat Extracts, Quarterly National Accounts, 2007–2013, http://stats.oecd.org/ (accessed February 20, 2014), and European Commission, Eurostat, Quarterly National Accounts, 2007–2013, http://epp.eurostat.ec.europa.eu/portal/page/portal/eurostat/home/ (accessed February 21, 2014).

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tor concerns about fiscal sustainability. The country that decreased core spending without direct pressure was the Czech Republic, which could easily have faced bond market pressure if deficits had been higher.[59] Spending fell in 10 of 11 countries in which the average interest rate spread rose more than 1.5 percentage points from the pre-crisis period to 2010–2012.

The exclusion of transfer spending implies that this measure does not capture the full magnitude of changes in government expenditure and may be deceptive if the composition of policy-driven spending shifts toward or away from transfers. Certainly, discretionary changes occur in government transfers, but automatic stabilization also plays a large role in transfer spending, making it difficult to identify transfer-based policy changes.

The *OECD Economic Outlook* shows that a median of 44 percent of stimulus spending was in transfers to households and businesses.[60] Hyunseung Oh and Ricardo Reis show that most of the change in U.S. government spending from 2007 to 2009 took place via transfers, but the increase in transfers was at least half nondiscretionary.[61] The *Fiscal Monitor* data show that cuts in “social and other benefits” averaged about half of all non-interest spending cuts from 2009 to 2012.[62] Core government spending represents a highly discretionary subset of all government expenditure and abstracts from the difficult question of how to identify and measure discretionary changes in transfer programs.

Measuring Stimulus

The various measurements of fiscal stimulus in the developed world are complex and sometimes contradictory. The author was unable to find a single measure of enacted stimulus that included and distinguished between tax and spending policies. During the crisis, the EU and OECD both compiled planned stimulus packages. However, the most recent versions appear to be from December 2008 and June 2009, respectively. The U.S. Library of Congress compiled a list of stimulus plans in early 2009 that reports details of many non-European countries’ plans.[63] Writing in early 2010, Yanchun Zhang, Nina Thelen, and Aparna Rao admit that “[d]ue to the often limited information, we focus on the fiscal stimulus plans announced, not necessarily on what has been passed by the legislature or implemented.”[64] The *Fiscal Monitor* reported stimulus actions and plans for nine countries as of November 2010 but did not distinguish between taxes and spending.[65]

The EU stimulus plans were incorporated in the European Economic Recovery Plan, which is detailed for the 16 eurozone countries by Jonas Fischer and Isabelle Justo and covers 2009 and 2010.[66] The OECD data and projections are from *Economic Outlook* and cover 2008, 2009, and 2010.[67] The OECD data record the stimulus timing and show that only eight of 23 countries[68] undertook any stimulus in 2008, and eight of the stimulus packages were planned to peak in 2010.

The OECD data and the Fischer and Justo data are highly correlated with each other: net tax changes at 0.94 and net spending changes at 0.87. The magnitudes are about equal. Thus, I incorporate the four countries for which only Fischer and Justo have data (Cyprus, Malta, Portugal, and Slovenia) into the OECD series without adjustment.

Spending increases and tax cuts are about equal in magnitude in the stimulus plans. There is relatively little difference between the eurozone and non-euro countries, except that four of the six countries planning net consolidation are euro countries. The diversity of stimulus magnitude and composition is illustrated in Chart 2-2.

A cruder, more direct measure of stimulus is the structural balance.[69] The IMF and the OECD publish similar but not identical measures, and the OECD refers to its version as “underlying primary fiscal balance.”[70] Structural balance aims to measure deficits by their narrowest definition: It removes interest payments and one-time costs such as bank bailouts, and it attempts to correct for the business cycle, adjusting tax revenues and unemployment insurance costs accordingly. However, some cyclical costs, including poverty-reduction transfer payments, are included, so the structural balance is not truly acyclical.

To minimize the effect of the choice of starting year, I use an average of 2006 and 2007 as the base from which structural deficit grows.[71] The IMF shows 25 of 36 countries with structural deficits in 2006–2007; the OECD shows 15 of 30.

John Maynard Keynes wrote that “the boom, not the slump, is the time for austerity at the Treasury,”[72] and his advice was taken to heart in Denmark, Korea, Sweden, and elsewhere. Those countries built up structural surpluses during the boom. Meanwhile, despite years of growth, Greece and

CHART 2–2

Stimulus Composition: Tax Cuts and Spending Increases

Sources: Organisation for Economic Co-operation and Development, *OECD Economic Outlook*, Vol. 2009/1, No. 85 (June 2009), pp. 62–64, http://dx.doi.org/10.1787/eco_outlook-v2009-1-en (accessed October 11, 2013), and Jonas Fischer and Isabelle Justo, "Government Fiscal and Real Economy Responses to the Crises: Automatic Stabilisers Versus Automatic Stabilisation," March 25, 2010, http://ssrn.com/abstract=1984670 (accessed October 11, 2013).

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Hungary had structural deficits of at least 5 percent of GDP. Others, including the U.S. and U.K., similarly failed to consolidate fiscally during the boom and thus left the difficult fiscal decisions until the aftermath of the recession. Of the U.K.'s "huge" 2011 and 2013 deficits, Scott Sumner writes that they "result from Gordon Brown's reckless decision to greatly increase the size of the British state in the good years (2000–07), combined with a decision to double down on an even bigger British state in the bad years (after 2007)."[73]

Structural balance shows a steep decline almost everywhere through 2010 and then shows a recovery. Among the 14 countries whose interest rate

TABLE 2–2

Coverage of Key Fiscal Indicators

Countries	Core Government Spending	OECD + Fischer & Justo Stimulus Plans	IMF Structural Balance	OECD Underlying Balance	IMF Fiscal Monitor
Countries	35	31	36	30	28
Reporting	Annual	2008–2010	Annual	Annual	2009–2012
Last updated	2013	July 2009	April 2013	June 2013	October 2012
Measures tax policy?	No	Yes	No	No	Yes
Measures spending policy?	Yes	Yes	No	No	Yes

Note: See text for complete data descriptions. Countries include those within the 37-country universe considered in this report.
Sources: Organisation for Economic Co-operation and Development, Stat Extracts, Annual National Accounts, Table 12: "Government Deficit/Surplus, Revenue, Expenditure and Main Aggregates," 1995–2012, http://stats.oecd.org/ (accessed May–December 2013); European Commission, Eurostat, s.v. "General Government Expenditure by Function (COFOG)," http://epp.eurostat.ec.europa.eu/portal/page/portal/statistics/search_database (accessed January, 2014); Organisation for Economic Co-operation and Development, *OECD Economic Outlook*, Vol. 2009/1, No. 85 (June 2009), pp. 62–64, http://dx.doi.org/10.1787/eco_outlook-v2009-1-en (accessed October 11, 2013); Jonas Fischer and Isabelle Justo, "Government Fiscal and Real Economy Responses to the Crises: Automatic Stabilisers Versus Automatic Stabilisation," March 25, 2010, http://ssrn.com/abstract=1984670 (accessed October 11, 2013); International Monetary Fund, *World Economic Outlook*, April 2013, http://www.imf.org/external/pubs/ft/weo/2013/01/weodata/index.aspx (accessed October 18, 2013); Organisation for Economic Co-operation and Development, *OECD Economic Outlook*, Vol. 2013/1, No. 93 (June 2013), p. 258, Annex Table 30, http://www.oecd-ilibrary.org/economics/oecd-economic-outlook-volume-2013-issue-1_eco_outlook-v2013-1-en (accessed October 18, 2013); and International Monetary Fund, "Taking Stock: A Progress Report on Fiscal Adjustment," *Fiscal Monitor*, October 2012, p. 21, Figure 15, http://www.imf.org/external/pubs/ft/fm/2012/02/pdf/fm1202.pdf (accessed March 29, 2014).

spreads did not grow significantly relative to Germany's spread,[74] there is an incomplete bounce-back effect: A dollar of growing deficit from 2007 to 2010 is associated with 20 to 30 cents of deficit reduction between 2010 and 2012, although the effect is far from uniform. The U.S. fits this profile, increasing its structural deficit by 5.3 percent of GDP (IMF measure) and then shrinking it by 1.7 percent of GDP.

Part of this bounce-back effect is due to the economic recovery, and part is due to the termination of temporary stimulus programs. This is evidence that, in countries with fiscal space before the recession, post-recession consolidation represents an incomplete unwinding of stimulus. The remaining countries showed no systematic relationship.

Comparing the OECD plans, structural balance, core government spending, and the panel tax rate data available, we see that the plans do not closely match other data, and correlations among the data are weak. The plans show ample personal tax cuts, but very few of these matched up with data on value-added tax (VAT) rate changes or top marginal tax rate (MTR) changes. Standard VAT rates fell—temporarily—in the U.K. and Portugal. During the crisis, top MTRs were cut in a handful of post-Communist countries and by 1 percent in Finland. Denmark actually increased its top MTR in 2008. Business tax cuts show up in the plans and in the data, but the correlation across countries is low.[75]

Economists have found in earlier research that countries tend to depart from fiscal plans. Roel Beetsma, Massimo Giuliodori, and Peter Wierts found that spending comes in systematically higher than announced plans.[76] Laurent Moulin and Wierts showed that EU countries missed targets to reduce spending during 1998–2005 and thus most likely forewent planned tax cuts.[77]

The next section further explores the challenge of identifying tax cuts in the data.

Structural balance change and total OECD planned stimulus—the two measures of total stimulus—are correlated at 0.27. Dropping three outliers,[78] the mean, median, and standard deviations of OECD stimulus are within 15 percent of the corresponding moments of structural deficit growth from 2006–2007 to 2010.[79] Despite the very similar distributions, countries occupy very different places on each distribution. Plans did not accurately predict which countries would expand their structural deficits.

Core government spending growth from 2007 to 2010 is correlated with OECD planned spending at 0.54. Although the maxima and minima of the two variables are nearly equal, median core spending growth was almost twice as large as planned stim-

CHART 2–3

Comparing Total Stimulus Metrics

Sources: Organisation for Economic Co-operation and Development, Stat Extracts, Annual National Accounts, Table 12: "Government Deficit/Surplus, Revenue, Expenditure and Main Aggregates," 1995–2012, http://stats.oecd.org/ (accessed September 1, 2013); Organisation for Economic Co-operation and Development, *OECD Economic Outlook*, Vol. 2009/1, No. 85 (June 2009), pp. 62–64, http://dx.doi.org/10.1787/eco_outlook-v2009-1-en (accessed October 11, 2013); Jonas Fischer and Isabelle Justo, "Government Fiscal and Real Economy Responses to the Crises: Automatic Stabilisers Versus Automatic Stabilisation," March 25, 2010, http://ssrn.com/abstract=1984670 (accessed October 11, 2013); and International Monetary Fund, W*orld Economic Outlook,* October 2013, http://www.imf.org/external/pubs/ft/weo/2013/02/pdf/text.pdf (accessed December 2013).

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ulus spending. In 18 of the 30 countries with data, actual core spending grew more than the stimulus plan indicated. However, actual core spending growth includes spending unrelated to stimulus, and core government spending had been growing faster than the rest of the economy in many countries before the crisis.

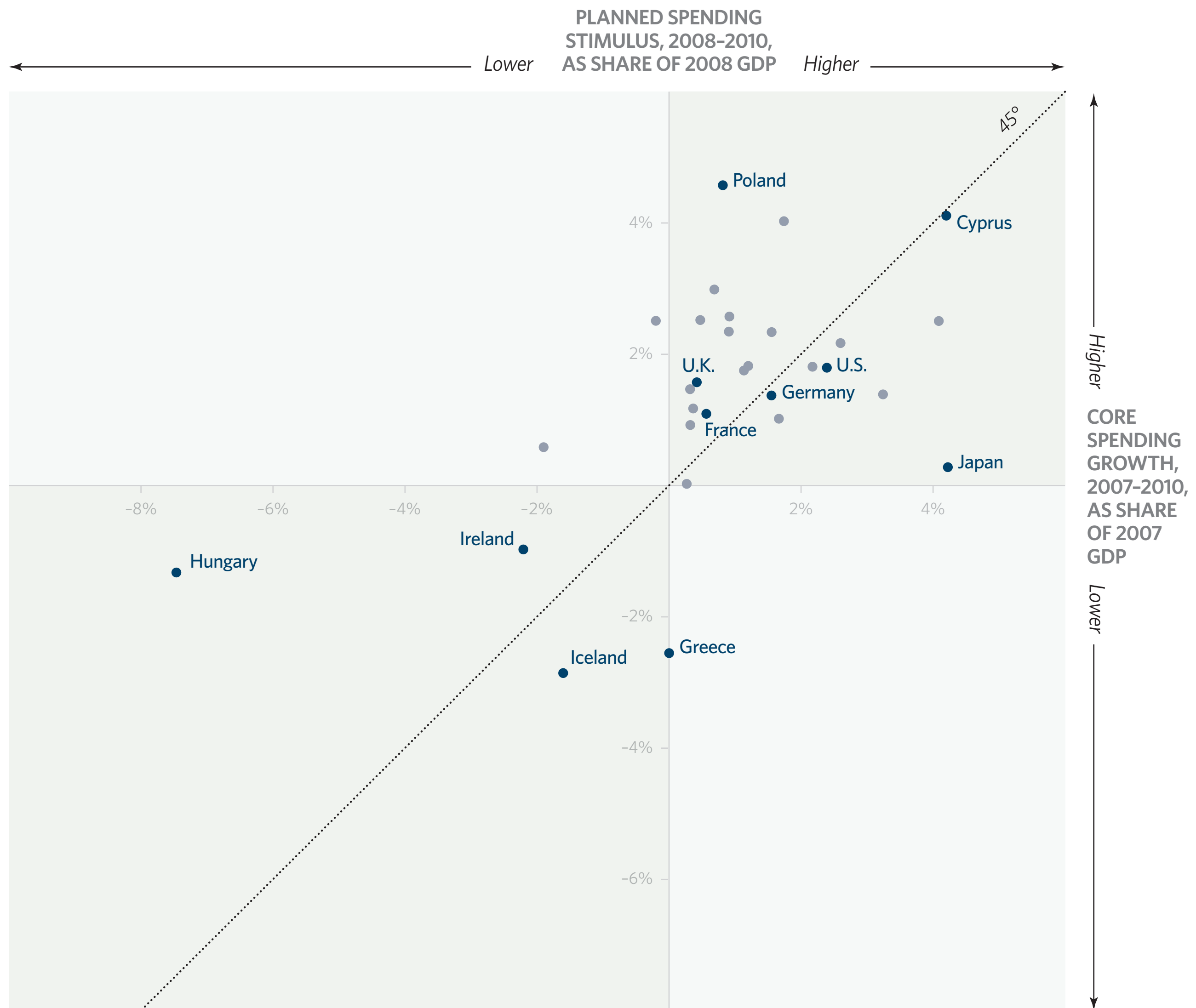
Among the countries in which core spending grew less than planned, fiscal consolidations that began in 2010 are a prime suspect. Greece, for example, increased government spending in 2008 and 2009 in accordance with its stimulus plan and then consolidated rapidly in 2010. Spain did likewise to a much lesser degree. However, four of the five non-European countries with data grew core spending less than planned. Since these are not cases where one expects to find early fiscal consolidation, the discrepancies may indicate differences in data definitions or stimulus structure.

Measuring Tax Policy Changes

The OECD stimulus plans indicate that tax cuts averaged about half of the total planned stimulus, but when comparing the plans to later data, it is difficult to evaluate whether the planned tax changes to provide stimulus were enacted. Chart 2-5 shows that planned revenue changes through 2010 were a poor predictor of actual revenue rate changes.

CHART 2–4

Comparing Spending Stimulus Metrics



Sources: Organisation for Economic Co-operation and Development, Stat Extracts, Annual National Accounts, Table 12: "Government Deficit/Surplus, Revenue, Expenditure and Main Aggregates," 2007–2012, http://stats.oecd.org/ (accessed March 20, 2014); European Commission, Eurostat, s.v. "General Government Expenditure by Function (COFOG)," http://epp.eurostat.ec.europa.eu/portal/page/portal/statistics/search_database (accessed January, 2014); and Jonas Fischer and Isabelle Justo, "Government Fiscal and Real Economy Responses to the Crises: Automatic Stabilisers Versus Automatic Stabilisation," March 25, 2010, http://ssrn.com/abstract=1984670 (accessed October 11, 2013).

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Actual revenues were systematically higher than plans predicted.

In most countries, some tax cuts are listed in the European Commission's "Tax Reforms in EU Member States" series and are consistent with the plans. However, at least the Czech Republic[80] and Sweden[81] did not follow through with major planned tax cuts.

Likewise, we can surmise that for some countries, tax increases recorded for 2009–2010 departed from the stimulus plans made in 2008. The "Tax Reforms" series[82] found that the tax-cutting habit of its 2008 report[83] (17 tax rate cuts with only three increases) was short-lived.[84] The report on 2009 and the first half of 2010 revealed 39 increases and 28 decreases.[85] A year later (2010 to mid-2011), there were even

TABLE 2–3

Revenue and Core Spending During the Great Recession

CHANGE FROM 2007 TO 2009

	Revenue Rate *(share of current GDP)*	**Core Government Spending** *(share of 2007 GDP)*	**GDP** *(log difference)*
Estonia	6.4%	0.1%	–19.4%
Luxembourg	4.6%	2.1%	–6.5%
Switzerland	1.8%	1.1%	0.2%
Germany	1.4%	1.3%	–4.2%
Hungary	1.3%	–1.5%	–6.1%
Lithuania	1.2%	–1.2%	–13.2%
Slovakia	1.1%	2.8%	0.5%
Austria	0.9%	1.2%	–2.5%
Finland	0.7%	2.0%	–8.6%
Italy	0.4%	0.3%	–6.8%
Netherlands	0.4%	2.7%	–1.9%
Slovenia	0.1%	2.0%	–4.9%
Belgium	0.0%	1.4%	–1.9%
Denmark	–0.3%	2.4%	–6.6%
Sweden	–0.6%	0.4%	–5.8%
Japan	–0.6%	0.2%	–6.7%
France	–0.6%	0.9%	–3.3%
Malta	–0.7%	0.1%	1.0%
Norway	–0.9%	3.0%	–1.6%
U.K.	–1.0%	2.0%	–6.1%
Canada	–1.3%	3.1%	–2.1%
Korea	–1.4%	2.8%	2.6%
Czech Rep.	–1.4%	1.7%	–1.6%
Portugal	–1.6%	1.0%	–3.0%
Latvia	–1.6%	–4.1%	–22.3%
Ireland	–2.4%	0.6%	–8.8%
Greece	–2.4%	1.6%	–3.4%
Australia	–2.8%	2.7%	3.7%
U.S.	–3.1%	1.4%	–3.1%
Poland	–3.1%	2.9%	6.6%
Romania	–3.2%	–0.8%	0.3%
Bulgaria	–3.3%	–2.9%	0.4%
Cyprus	–4.7%	3.9%	1.7%
Israel	–5.8%	0.9%	5.1%
Spain	–6.0%	2.3%	–3.0%
Iceland	–6.7%	–0.5%	–5.6%

Sources: Organisation for Economic Co-operation and Development, Stat Extracts, Annual National Accounts, Table 12: "Government Deficit/Surplus, Revenue, Expenditure and Main Aggregates," 2007–2012, http://stats.oecd.org/ (accessed May–December 2013), and European Commission, Eurostat, Annual Government Finance Statistics, http://epp.eurostat.ec.europa.eu/portal/page/portal/statistics/search_database (accessed January 2014).

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more tax rate increases, with 50 increases against 17 decreases.[86] In the report for 2011 to mid-2012, there were 67 increases and 13 decreases.[87] The most recent report had 54 increases and 14 decreases.[88] The relevant tables from the five reports—which break out tax changes by country, type, and direction—are reproduced in the online data compendium that accompanies this report.

In countries with progressive taxation, taxes act as an automatic stabilizer, falling faster than income during a recession: Corporations making losses pay no corporate tax, and individuals earning less income drop to lower tax brackets, paying lower marginal and average rates. Thus, for countries in which GDP fell from 2007 to 2009, one expects—in the absence of tax policy changes—a decline in government revenue's share of GDP.[89] Instead, the government revenue rate rose in eight of 24 countries that had planned tax stimulus, including half of the eurozone. (See Table 2-3.)

Comparing the OECD's stimulus plans to realized revenue rate changes reveals little regularity. Some countries that planned large tax cuts—Finland, Luxembourg, and Germany—increased their revenue rates substantially. Tax changes are negatively correlated across the two series due to two outliers: Ireland and Iceland. Without those two, there is essentially no correlation.

Among the countries that planned tax stimulus, the average revenue rate decreased by half of the average planned tax stimulus, but the standard deviation doubled, reflecting the surprising breadth of actual policy and economic results. Even after controlling for GDP growth, there is still no significant and robust relationship between tax plans and revenue rate changes. At least GDP growth has the expected (negative) relationship with revenue rate.

Of the revenue-rate increasers in Table 2-3, a few clearly raised key tax rates, such as the VAT in Estonia and Hungary.[90] The others conceivably could reflect GDP falling disproportionately in low-tax sectors. If that is the case, the high VAT and "social contributions" in Europe act as a sort of automatic *destabilizer*, and revenue rates should reverse when economic growth resumes. There is some evidence of bounce-back: Nine of 12 countries that had increasing revenue rates from 2007 to 2009 reversed part of the rise from 2009 to 2011,[91] but only one fully reversed it.

It is noteworthy that most countries pursue mixed tax changes, with increases as well as decreases.[92] The complex, constant flux of tax law helps to explain why

CHART 2–5

Comparing Tax Change Metrics, 2007–2010

Sources: Organisation for Economic Co-operation and Development, Stat Extracts, Annual National Accounts, Table 12: "Government Deficit/Surplus, Revenue, Expenditure and Main Aggregates," 2007–2012, http://stats.oecd.org/ (accessed March 20, 2014); Organisation for Economic Co-operation and Development, *OECD Economic Outlook*, Vol. 2009/1, No. 85 (June 2009), pp. 62–64, http://dx.doi.org/10.1787/eco_outlook-v2009-1-en (accessed October 11, 2013); and Jonas Fischer and Isabelle Justo, "Government Fiscal and Real Economy Responses to the Crises: Automatic Stabilisers Versus Automatic Stabilisation," March 25, 2010, http://ssrn.com/abstract=1984670 (accessed October 11, 2013).

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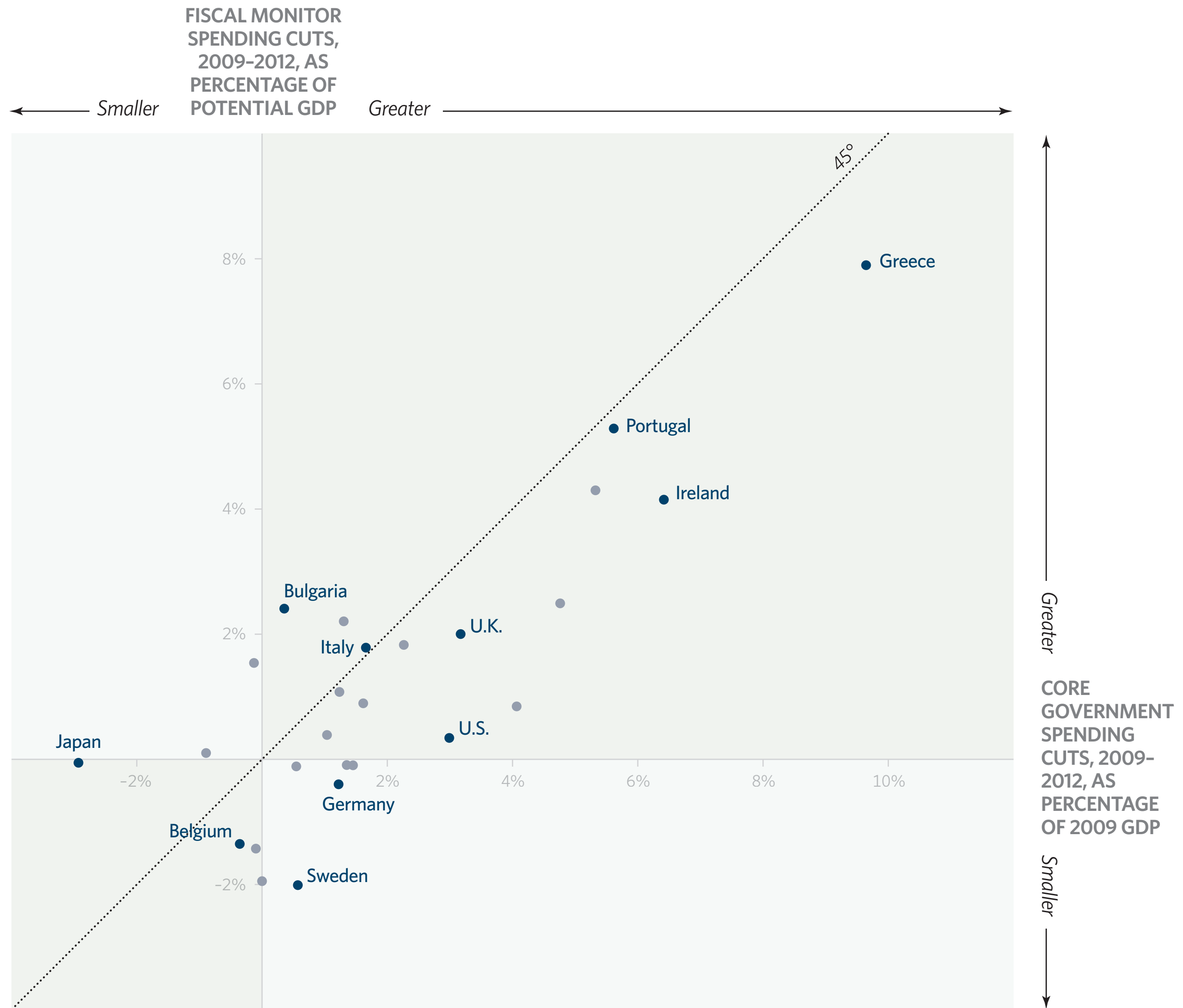
finding discretionary tax-change measurements is difficult. Later in this chapter, the statutory VAT and top marginal personal and corporate income tax rates are reported. These rates are economically important and comparable across countries.

Considering the frequent departures from tax-cutting plans and the moderate correlation of spending plans with measured spending growth, the stimulus plans can be used as a rough estimate but not as a final record. An accurate and detailed post-action

CHART 2–6

Comparing Spending Austerity Metrics



Sources: Organisation for Economic Co-operation and Development, Stat Extracts, Annual National Accounts, Table 12: "Government Deficit/Surplus, Revenue, Expenditure and Main Aggregates," 2009–2012, http://stats.oecd.org/ (accessed May–December 2013); European Commission, Eurostat, Annual Government Finance Statistics, http://epp.eurostat.ec.europa.eu/portal/page/portal/statistics/search_database (accessed January 2014); and International Monetary Fund, "Taking Stock: A Progress Report on Fiscal Adjustment," *Fiscal Monitor*, October 2012, p. 21, Figure 15, http://www.imf.org/external/pubs/ft/fm/2012/02/pdf/fm1202.pdf (accessed March 29, 2014).

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report on enacted stimulus measures would be a valuable contribution, but I found none in preparing this report. The November 2010 *Fiscal Monitor* shows that seven of the nine large economies in the sample were still enacting measures (some still planned for 2011) about as large as reported in the earlier OECD plans. Both France and Germany, however, reported large increases in their stimulus plans.

Measuring Fiscal Consolidation

Fiscal consolidation is measured more precisely and consistently than fiscal stimulus. The October 2012 "Taking Stock" report in the *Fiscal Monitor* measures net discretionary fiscal policy changes relative to 2009 in 28 of the countries in this dataset.[93] One drawback to this measure is that, in many cases, 2010 was still a year of stimulus, so fiscal expansion

and consolidation cancel each other out for countries such as the U.S. and Germany, in which stimulus peaked in 2010 or later.

When using *Fiscal Monitor* data, I exclude changes in interest expenditure and interest revenue, which likely reflect market forces more than policy decisions.

The three data sources on fiscal consolidation correlate closely: structural balance, core government spending, and *Fiscal Monitor* fiscal changes.

Total fiscal consolidation correlates at 0.92 with structural balance. The minimum and maximum values are about equal, and the mean and median changes in *Fiscal Monitor* data are about 25 percent larger than in structural balance data. Splitting fiscal consolidation into revenue and expenditure components and regressing the two on structural deficit changes, I find that they translate into structural deficit reduction at 93 cents and 85 cents on the dollar, respectively.

Likewise, *Fiscal Monitor* non-interest expenditure change is correlated at 0.83 with core government spending change, a relationship illustrated in Chart 2-6. Core spending changes are about one-third smaller in magnitude and standard deviation.

Core government spending and structural balance changes are correlated at 0.83, despite the fact that structural balance captures revenue changes as well as spending changes. As expected, the magnitude of core spending changes is about half that of structural balance changes.

Fiscal Monitor data firmly support the view that spending cuts have preponderated in recent fiscal consolidation. Among 22 countries that pursued net consolidation, the median spending share was 69 percent, but the distribution spans from the Netherlands and Belgium, which increased taxes and spending, to Germany, Slovakia, and others, which cut taxes and spending. The more austere countries tended to pursue larger consolidations in both spending and taxes, but there is substantial diversity in their approaches.

There is no correlation between the magnitude and composition of consolidation. Chapter 3 analyzes the relative impact of spending cuts and tax increases on growth. As expected from the academic literature reviewed in Chapter 1, tax increases have a much more severe effect on growth.

Plans Versus Reality

Unlike stimulus plans, planned and actual consolidations have been frequently reported and updated. The *Fiscal Monitor*'s October 2013 report compared 2010 consolidation plans with the same-year plans three years later. It found that 13 of 17 countries had exceeded their planned tax increases, despite lower-than-expected growth in most places.[94] Only nine of 17 had cut spending more than planned. The U.S. was one of the exceptions, cutting spending more than planned and raising taxes less than planned. On average, tax austerity increased by 1 percent of GDP in the 17 countries examined. Although the average spending austerity did not change much, revisions were large, averaging 2.2 percent of GDP in magnitude.

The tax and spending components of the adjusted plans were correlated with the original plans at 0.6 to 0.7, indicating that the original plans were indicative but not conclusive.

Throughout this report, I rely on data from the 2012 *Fiscal Monitor* report rather than the 2013 report. The 2012 report has more detail, covers 12 more countries, and is more appropriately compared with the OECD economic growth figures that are last reported for 2012. The two reports are generally similar, with spending cuts correlated at 0.92 and tax increases at 0.75. The deviations are significant,[95] hopefully representing new decisions taken since 2012 rather than corrections of pre-2012 data. Relative to 2012, the 2013 data show increased consolidation on average but with a significant shift toward tax-based austerity. The U.S., Spain, and Portugal shifted at least 1 percent of GDP of consolidation from spending cuts to tax increases. The largest shifts in total consolidation between the two reports occurred in Iceland and the Netherlands, which increased consolidation by about 3.5 percent of GDP.

Austerity Eurozone?

The 2012 *Fiscal Monitor* data on fiscal consolidation reveal little regularity in the geography of austerity. The three largest consolidations are in euro members Greece, Portugal, and Ireland. Spain's consolidation is similar to those of Romania and Iceland, non-euro countries that experienced crises. The U.S. and Poland—steadily growing economies—had greater fiscal consolidation than the U.K. and Italy, which are stagnant. The bulk of the European economy[96]—Germany, Austria, the Netherlands, and Belgium—consolidated by a mere 1 percent of GDP. Finland acted like its non-euro neighbors Sweden and Denmark in continuing expansionary policy.

CHART 2–7

Fiscal Consolidation Measures, 2009–2012

Source: International Monetary Fund, "Taking Stock: A Progress Report on Fiscal Adjustment," *Fiscal Monitor*, October 2012, p. 21, Figure 15, http://www.imf.org/external/pubs/ft/fm/2012/02/pdf/fm1202.pdf (accessed March 29, 2014).

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Core government spending also shows that several eurozone crisis countries significantly cut spending from 2010 to 2012: Portugal, Spain, and Greece reduced spending by at least 3 percent of GDP. Italy again is well short of the crisis group, with a 1.4 percent of GDP cut in spending. The core eurozone again shows little austerity: Government spending fell 1.4 percent of GDP in the Netherlands and 0.1 percent of GDP in France but rose slightly in Austria, Belgium, and Germany. New euro member Estonia increased spending by 4.5 percent of GDP.

Outside the eurozone, spending fell by more than 1 percent of GDP in the U.K. and five former Warsaw Pact countries and rose by more than 1 percent of GDP only in Sweden.

Revenue changes, however, show that the eurozone engaged in a general shift toward higher taxation, unlike non-eurozone countries. Apparently, while non-euro countries used spending and tax stimulus first and subsequently consolidated, eurozone countries did not engage in tax stimulus but did engage in tax austerity. Among 12 non-euro countries that never came under significant pressure from debt markets,[97] revenue rates fell by 1.6 points on average from 2007 to 2009, but among 10 eurozone countries that did not eventually come under market pressure,[98] the average revenue rate actually rose by 1.5 points, with rates rising in all but three countries. By contrast, core spending increases were very similar across the two sets of countries. Following the shift to consolidation, the 10 eurozone countries increased revenue rates more on average than the 12 non-euro countries. Furthermore, government spending actually continued to grow in the eurozone countries.

During 2007–2012 , the 12 non-euro countries increased spending by 1.8 percent of GDP and cut

TABLE 2–4

Summary of Fiscal Policy

	Countries Not Under Bond Market Pressure		Countries Under Bond Market Pressure
	Eurozone	Non-Eurozone	
Number of Countries	10	12	13
2007–2009 Revenue Rate Change	1.5%	–1.6%	–2.2%
2007–2009 Core Spending Change	1.5%	1.8%	0.0%
2009–2012 Revenue Rate Change	0.4%	0.4%	1.0%
2009–2012 Core Spending Change	0.6%	0.0%	–3.0%
Total Revenue Rate Change	**1.8%**	**–1.2%**	**–1.2%**
Total Core Spending Change	**2.0%**	**1.8%**	**–3.1%**
2007–2012 Total GDP Growth	**1.7%**	**6.5%**	**–5.3%**

Notes: Numbers may not sum to totals due to rounding. Bond pressure here denotes a 2010–2012 average long-term bond spread versus Germany of greater than 3.5 percent or spread growth of more than 2 points from the pre-crisis period.
Sources: Organisation for Economic Co-operation and Development, Stat Extracts, Annual National Accounts, Table 12: "Government Deficit/Surplus, Revenue, Expenditure and Main Aggregates," 2007–2012, http://stats.oecd.org/ (accessed May–December 2013), and European Commission, Eurostat, Annual Government Finance Statistics, http://epp.eurostat.ec.europa.eu/portal/page/portal/statistics/search_database (accessed January 2014).

the revenue rate by 1.2 points. The 10 euro countries increased spending by 2.0 percent of GDP and revenue rate by 1.8 points. Moreover, as shown in Table 2-4, the 13 countries that experienced market pressure had falling spending (–3.1 percent of GDP) and falling revenue rates (–1.2 points).

Europe as such has not engaged in severe fiscal consolidation, although several European countries have done so. In light of the *Fiscal Monitor* data, claims that the U.S. economy is outpacing Europe's due to the former's lack of austerity are unconvincing. The eurozone's steadily rising revenue rates and spending totals distinguish it from the rest of the developed world and from some popular narratives of the eurozone's recent history. Explanations for the eurozone's economic performance should take the data into account.

What Precipitated Fiscal Consolidation?

Interest rate increases are one of the primary causal factors leading to fiscal consolidation since higher interest rates make borrowing more expensive and signal the possibility of exclusion from borrowing markets and an accompanying debt crisis. Several countries cut spending and raised taxes in response to bond-market pressure, but in countries not facing interest rate pressure, one finds only scattered evidence of mild fiscal consolidation following the financial crisis and no examples of clearly sustained and severe austerity.

Using annual averages of interest rate spreads,[99] one can easily identify cases in which interest rates reached worrying levels for public borrowing. Just four of 35 countries had a year in which spreads averaged at least 7 percentage points above their 2004–2006 averages: Greece, Latvia, Lithuania, and Portugal. Latvia and Lithuania experienced interest rate spread spikes around 10 points in 2009. Greece's spread kept spiking from 2010 to 2012, when it averaged 21 percent. Portugal's spread jumped in 2011 and remained elevated through 2013.

Less dramatic spread increases of at least 3 points occurred in six more countries. Bulgaria's spread jumped in 2009. Ireland's grew steadily by almost 7 points, peaking in 2011. The spreads of Cyprus, Italy, Spain, and Slovenia peaked in 2012 near 4 points above baseline.

Other crisis countries—Iceland, Hungary, and Romania—did not satisfy these definitions because their spreads were elevated during the baseline period. Iceland's spread reached its highest value in 2008, Romania's in 2009, and Hungary's in 2012, but each country had multiple episodes of rising and falling spreads.

Did austerity measures follow bond yield increases? Only core government spending, structural balance, and revenue rate measures are presented as annual data, and structural balance and revenue rate are strongly influenced by economic conditions as well as by policy decisions.

In 130 12-month observations (averaged from July to June) from 26 European countries, there are nine instances of spreads increasing at least 3 percentage points, 14 instances of spreads increasing 1 point to 3 points, and 56 instances of steady and moderate spreads.[100] The nine extreme cases (from Cyprus, Greece, Ireland, Latvia, Lithuania, and Portugal) were followed by sharp drops in GDP (–6.2 percent on average) and core government spending (–11.8 percent) and an increase in revenue rate (+0.4 percent) despite the shrinking economy. The 14 intermediate cases were in the same vein with declines in GDP (–2.7 percent), spending (–5.5 percent), and revenue rates (–0.6 percent of GDP).

Of the 23 observations with significant spread increases, only three were followed by rising government spending, and 16 had spending cuts greater than 4 percent of GDP.

The 56 steady observations include great variety but average to increasing GDP (+1.0 percent), spending (+1.3 percent), and steady revenue rate. Only seven of these observations saw core spending fall by more than 2 percent of GDP.

Core spending fell more than 4 percent in only two "steady" cases: Slovakia and the U.K. in 2011. Both had rising GDPs and revenue rates, and both had substantially increased spending in 2008 and 2009.

When looking at spread levels instead of changes, only one of 33 core spending reductions of at least 4 percent occurred in a country with a spread below the median (1.03)—again, the U.K. in 2011.

The evidence shows very few spending cuts that were not associated with high or rising interest rates. The U.K.'s spending cuts may be the closest thing to discretionary spending austerity, although core government spending in the U.K. in 2011 and 2012 was about equal to its pre-recession level, and transfers had grown substantially.

In a sample of 34 countries,[101] I estimate that 13 faced substantial pressure from interest rates.[102] Among the remaining 21, only the Czech Republic decreased core government spending from 2007 to 2012—by just 0.5 percent of its 2007 GDP. The median change among the 21 was an increase of 2.1 percent of 2007 GDP.

In conclusion, government spending cuts appear to be responses to outside pressure from bond markets. There is little evidence of ample unforced spending cuts. However, the next sections show that tax increases have occurred often in the absence of market pressure.

VAT Rate Changes

A major source of government revenues in most European countries is the value-added tax, which is comparable to a sales tax. In 2007, the EU's standard VAT rates ranged between 15 percent and 25 percent.[103]

During the crisis, only Portugal and the U.K. temporarily lowered their standard VAT rate as a form of stimulus; following the crisis, 19 of 27 EU countries raised the VAT by an average of 2.7 points. Table 2-5 lists all of the VAT increases.[104] Recalling that the deadweight loss caused by a tax is approximately proportional to its square,[105] the U.K. increased the harm from its VAT by roughly 30 percent by increasing its VAT from 17.5 percent to 20 percent.

Not one of the 27 EU countries ended the crisis with a standard VAT lower than it was in 2007. Clearly, the VAT was not a preferred stimulus instrument but has been a preferred consolidation instrument.

As Table 2-4 records, VAT increases usually followed substantial increases in the interest rate spread. (Because the data record when the tax increase took effect, markets may respond earlier, when the change is announced.)

At low spreads, however, VAT increases were more common than major spending cuts. Ten of the 30 VAT increases took place in countries with low spreads that were not rising noticeably, with seven of the 10 taking place in 2012 or earlier.[106] Most striking is that in all seven cases through 2012, core government spending fell at least slightly in the same year as the tax increase. This suggests that VAT increases were part of broader fiscal consolidation agendas, which in these cases were not forced by bond markets. However, the spending cuts that accompanied the unforced VAT increases were modest, amounting to an average rollback of less than half of the earlier increases in core government spending. In six of the seven, a major tax rate increase accompanied an overall increase in core government spending from 2007 to 2012.

Some countries apply a lower ("reduced") VAT rate to favored products or sectors. Reduced VAT

TABLE 2–5

VAT Rate Increases

Country	Date	Increase in Standard VAT Rate	Spread Movement (100 bp = 1 percentage point)
Ireland	December 2008	0.5	Rose 100 bp in past 3 months (temporary VAT expired December 2009)
Latvia	January 2009	3	Rose 500 bp in past 3 months
Lithuania	January 2009	1	Rose 900 bp in past 3 months
Estonia	July 2009	2	Lacking data; however, Estonia has nearly no debt
Hungary	July 2009	5	Peaked in March 2009 at 500 bp above July 2008 level
Lithuania	September 2009	2	Steady above 11 percent since February
Czech Republic	January 2010	1	Steady around 1 percent; peaked above 2 percent previous year
Greece	March 2010	2	Rose 150 bp in past 4 months; still a modest 3 percent
Finland	July 2010	1	Steady near zero
Greece	July 2010	2	Rose 340 bp since March 2010 VAT increase
Romania	July 2010	5	Steady around 4.5 percent; peaked above 8 percent in mid-2009
Spain	July 2010	2	Rose 100 bp in past 3 months.
Latvia	January 2011	1	Declined 400 bp in past 2 months, 800 bp over past year
Poland	January 2011	1	Steady around 3 percent
Portugal	January 2011	2	Rose 100 bp in past 6 months
Slovakia	January 2011	1	Steady around 1 percent
United Kingdom	January 2011	2.5	Steady below 1 percent
Italy	September 2011	1	Rose 200 bp in past 3 months
Hungary	January 2012	2	Rose 300 bp over past 6 months
Ireland	January 2012	2	Declined 400 bp from July 2011 peak
Cyprus	March 2012	2	Steady above 5 percent after rapid 400 bp rise in late 2011
Spain	September 2012	3	Peaked two months prior above 5 percent
Netherlands	October 2012	2	Steady below 1 percent
Czech Republic	January 2013	1	Steady below 1 percent
Cyprus	January 2013	1	Steady but above 5 percent
Finland	January 2013	1	Steady near zero
Slovenia	July 2013	2	Rose 170 bp in past 6 months
Italy	October 2013	1	Dropping slowly and below 3 percent
France	January 2014	0.4	Steady around 50 basis points

Sources: European Commission, "VAT Rates Applied in the Member States of the European Union," January 13, 2014, http://ec.europa.eu/taxation_customs/resources/documents/taxation/vat/how_vat_works/rates/vat_rates_en.pdf (accessed January 29, 2014); Organisation for Economic Co-operation and Development, *OECD Economic Outlook*, Vol. 2013/2, No. 94, November 2013, Annex Table 35, http://www.oecd.org/eco/outlook/economicoutlookannextables.htm (accessed February 21, 2014); and European Central Bank, Statistical Data Warehouse, 11.15 Harmonised Long-Term Interest Rates for Convergence Assessment Purposes, 2004–2013, http://sdw.ecb.europa.eu/browse.do?node=bbn3146 (accessed February 21, 2014).

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rates were cut six times between 2007 and 2014 and were raised 24 times.

Personal Income Tax Rate Changes

The top marginal personal income tax rate covers a much smaller share of the economy than the standard VAT, and its definition and application varies across countries.[107] Yet it captures attempts to finance government by taxing high earners or to expand the economy by flattening the tax structure. Both types of tax changes took place between 2007 and 2013.

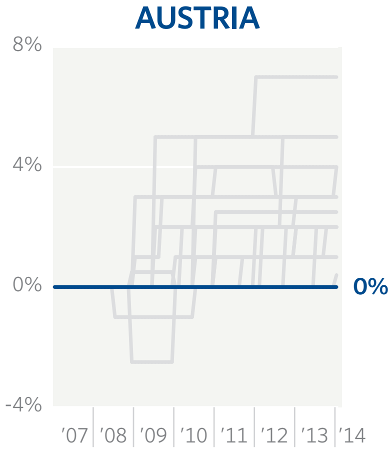
The top marginal rate was raised by 6 percentage points to 11 percentage points in seven countries at risk of a sovereign debt crisis.[108] In addition, the United Kingdom, United States, and France enacted top marginal rate increases of 4 percentage points to 5 percentage points.

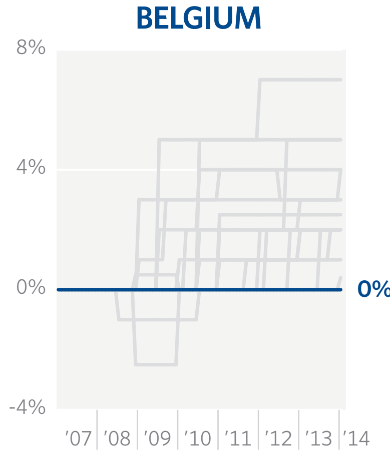
Hungary slashed its 40 percent top tax rate to 20 percent in 2011 and then to 16 percent in 2013. Large top rate cuts took place in Bulgaria and the Czech Republic when both governments enacted flat taxes in 2008. Lithuania, Poland, Denmark, and New Zealand enacted other sizable tax cuts.

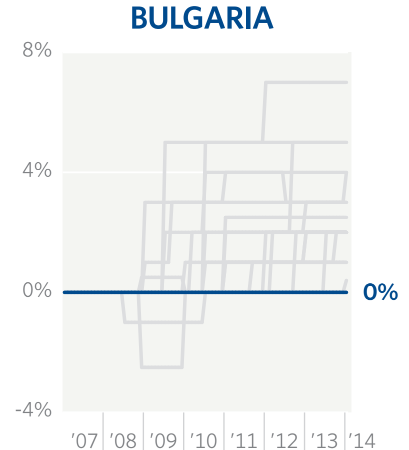
CHART 2–8

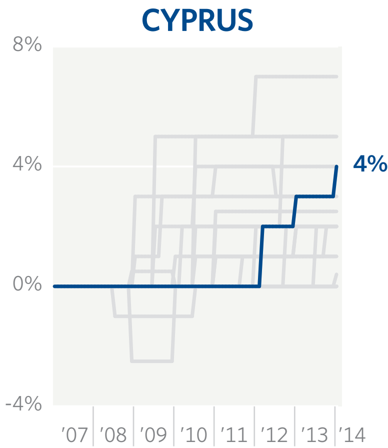
Changes to VAT Rates Relative to 2007 (Page 1 of 3)

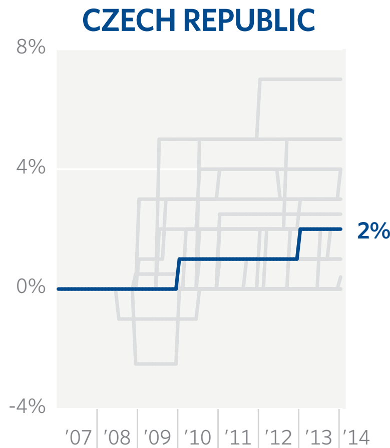
The charts below show how 27 countries in Europe changed their Value-Added tax (VAT) rates from 2007 to 2014. Eight countries left their rates unchanged, but 19 others raised their rates.

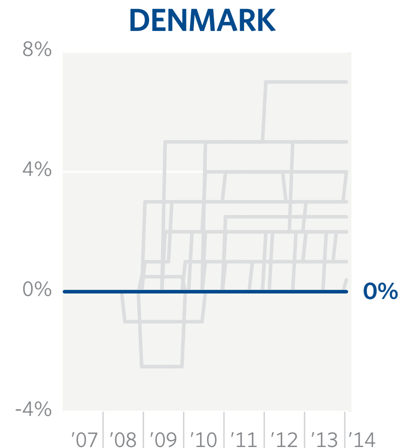


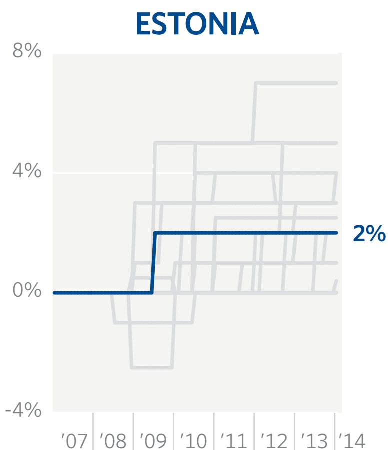


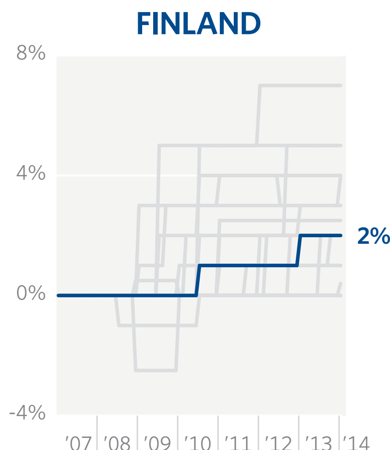












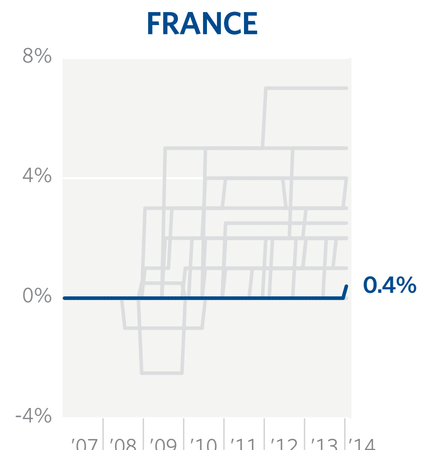


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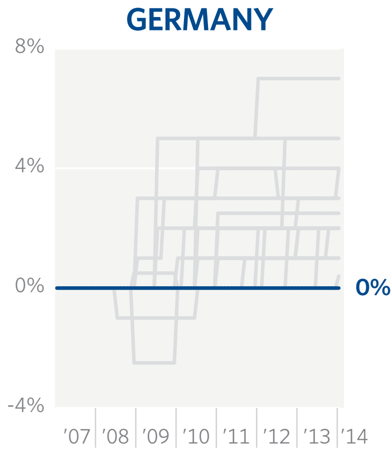
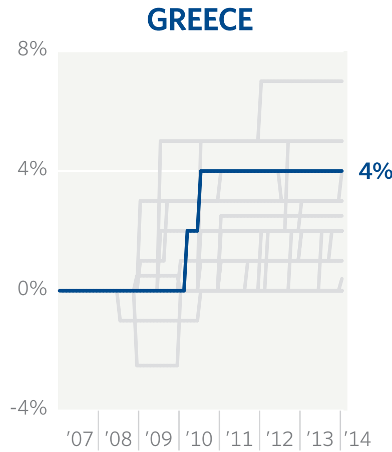
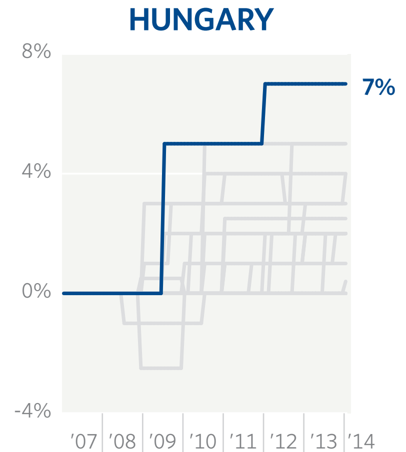
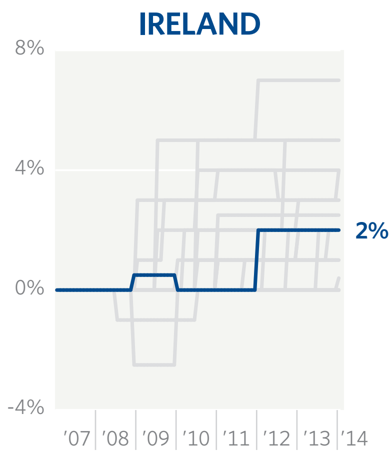
CHART 2–8

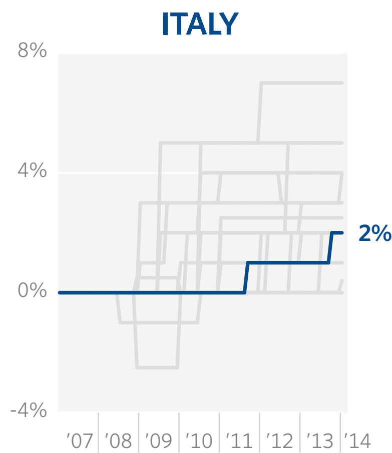
Changes to VAT Rates Relative to 2007 (Page 2 of 3)

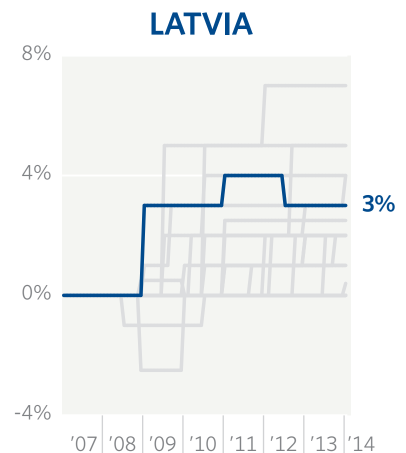


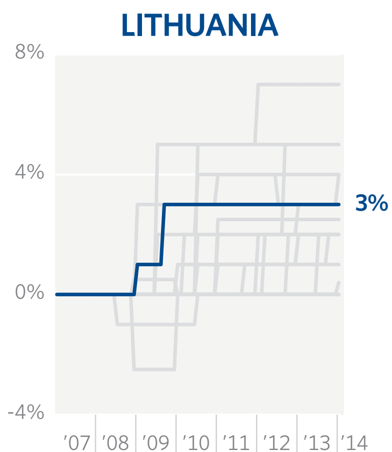


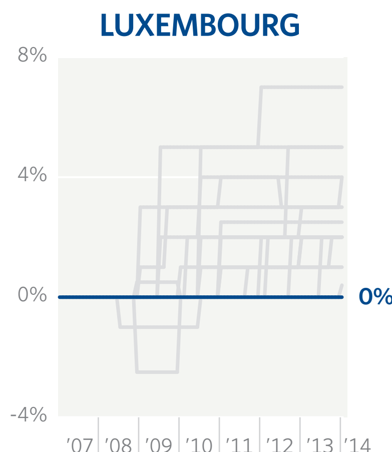












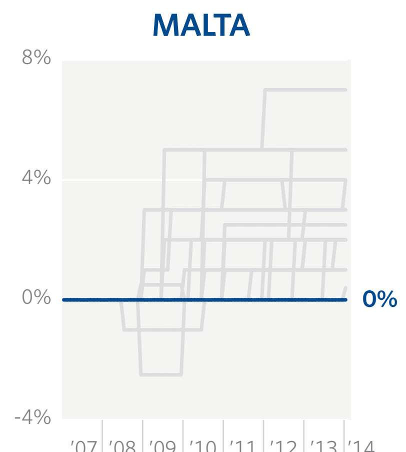


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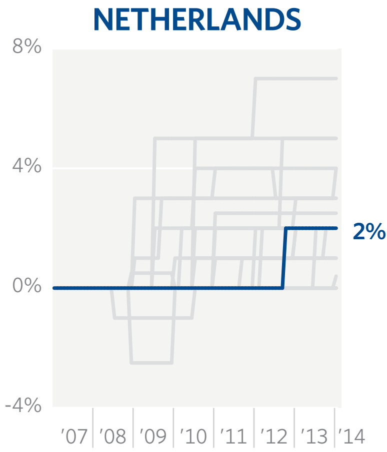
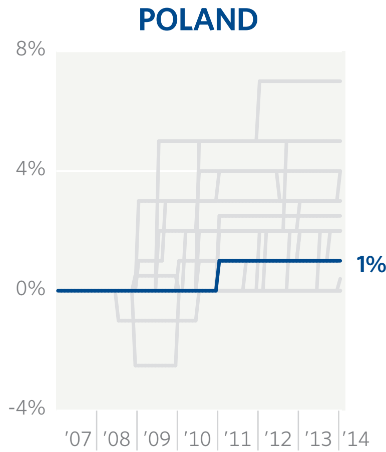
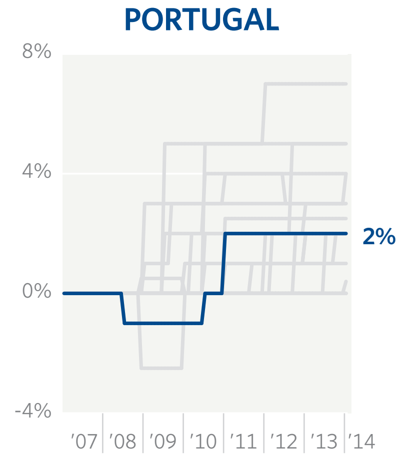
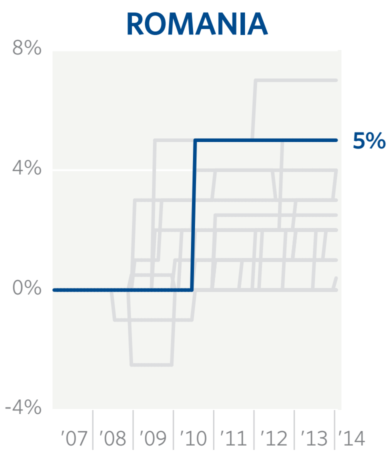
CHART 2–8

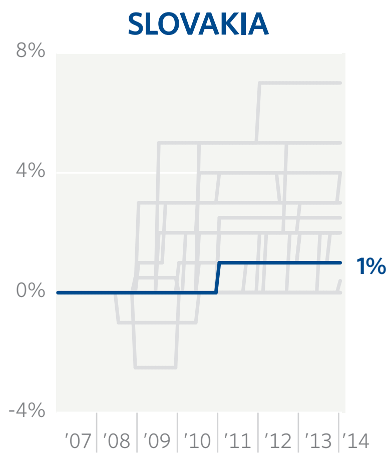
Changes to VAT Rates Relative to 2007 (Page 3 of 3)

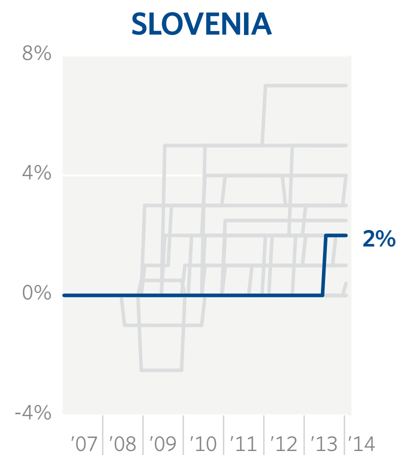


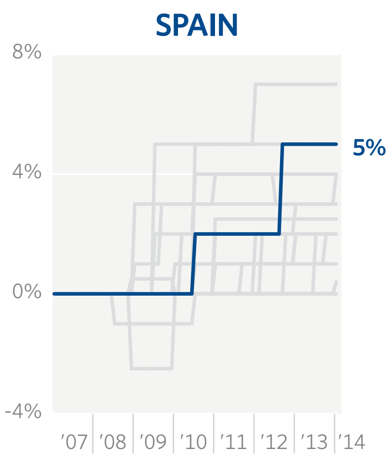


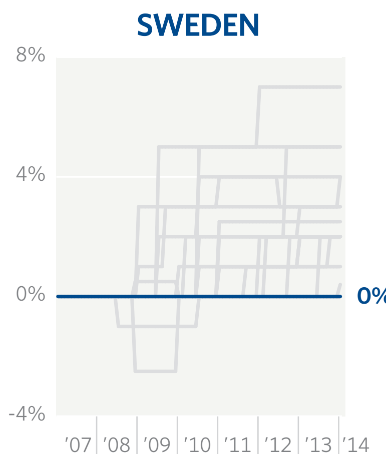


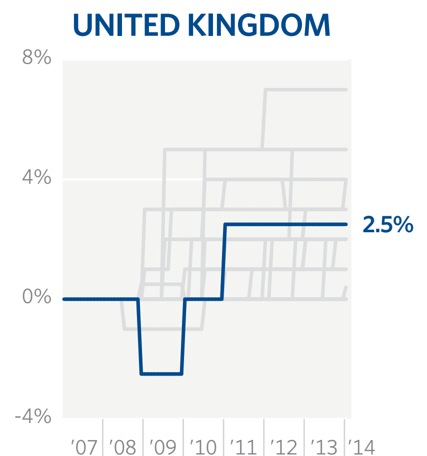












Source: European Commission, "VAT Rates Applied in the Member States of the European Union," January 13, 2014, http://ec.europa.eu/taxation_customs/resources/documents/taxation/vat/how_vat_works/rates/vat_rates_en.pdf (accessed Janaury 29, 2014).

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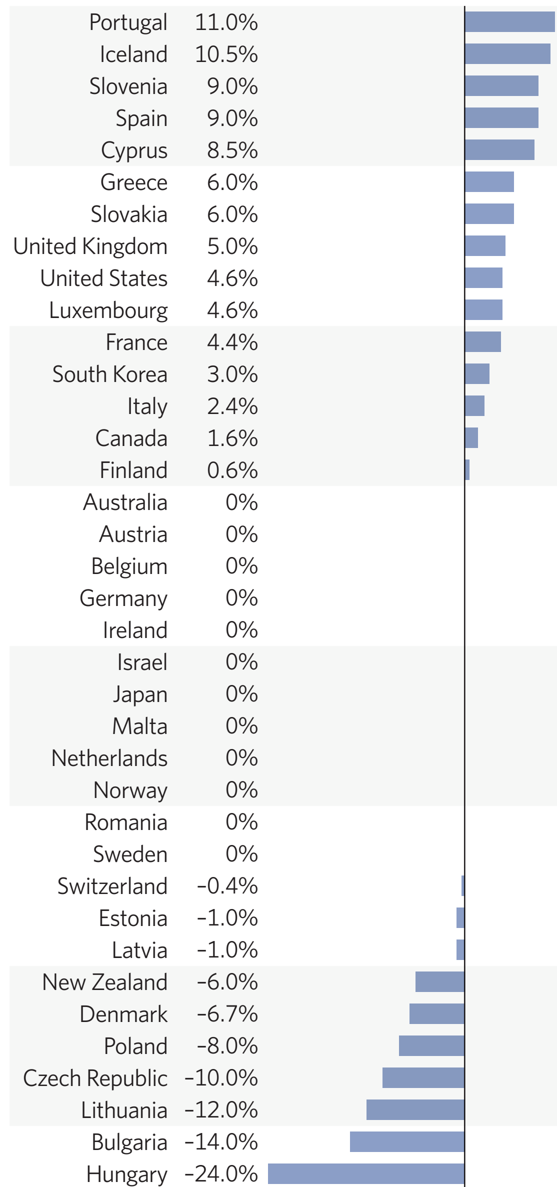
CHART 2–9

Top Marginal Tax Rate Change, 2007–2013



Sources: Eurostat, *Taxation Trends in the European Union*, 2013 ed. (Brussels: European Commission, May 2013), p. 35, http://ec.europa.eu/taxation_customs/taxation/gen_info/economic_analysis/tax_structures/index_en.htm (accessed October 18, 2013), and KPMG, "Individual Income Tax Tables," http://www.kpmg.com/global/en/services/tax/tax-tools-and-resources/pages/individual-income-tax-rates-table.aspx (accessed October 18, 2013).

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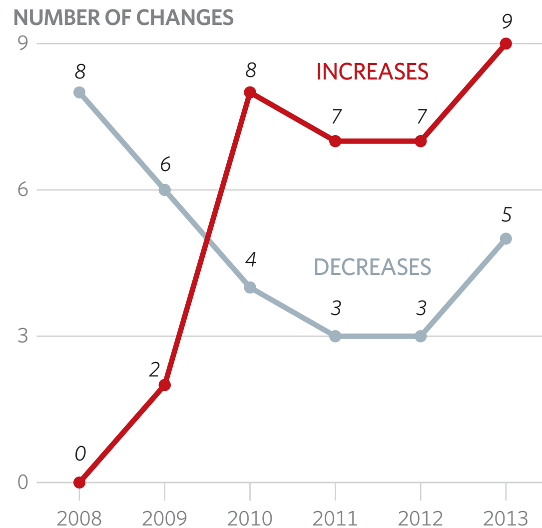
CHART 2–10

Changes to the Top Marginal Income Tax Rate



Note: Data are from 37 countries.
Sources: Eurostat, *Taxation Trends in the European Union*, 2013 ed. (Brussels: European Commission, May 2013), p. 35, http://ec.europa.eu/taxation_customs/taxation/gen_info/economic_analysis/tax_structures/index_en.htm (accessed October 18, 2013), and KPMG, "Individual Income Tax Tables," http://www.kpmg.com/global/en/services/tax/tax-tools-and-resources/pages/individual-income-tax-rates-table.aspx (accessed October 18, 2013).

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A few temporary increases and cuts have been enacted and (partially) reversed. The U.K. raised the top rate from 40 percent to 50 percent with a temporary surtax before returning to 45 percent. The Czech Republic originally set its flat rate at 15 percent and then raised it to 22 percent in 2013. Israel had a small, temporary rate cut. Greece undid one-third of its original 9-point rate increase.

Over time, there is an apparent break in 2010 between a tax-cutting trend (which dates to before the crisis) and a tax-increase trend. However, most of the countries now increasing tax rates had not cut them in the recent past, so the trend break obscures diverging tax policies. Since 2004, the dispersion of top rates has risen by half.[109] More countries have a top rate below 25 percent, but the median top rate has risen from 40 percent to 45 percent.

TABLE 2–6

Taxing Wages Summary Average and Marginal Tax Rates

This table refers to changes in average and marginal tax rates from 2007 to 2012 for a single adult earning the average wage and for an adult earning the average wage with two children and a spouse earning two-thirds of the average wage.

CHANGES FROM 2007 TO 2012

Four Tax Rates Falling	Mixed	Four Tax Rates Rising
Denmark	Australia	Belgium
Finland	Austria	Estonia
Germany	Czech Republic	France
Hungary	Greece	Iceland
Israel	Korea	Ireland
Netherlands	Norway	Italy
Poland	Portugal	Japan
Sweden	Slovakia	Luxembourg
Switzerland	Slovenia	Spain
United Kingdom		
United States		

Source: Organisation for Economic Co-operation and Development, Stat Extracts, s.v. "Taxing Wages: Comparative Tables, 2007–2012," http://stats.oecd.org (accessed October 18, 2013).

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The OECD's "Taxing Wages" publication provides taxpayer-level details on each member country's income tax policies.[110] The summary measures published by the OECD are expressed in terms of the taxes paid by someone at the average worker's income level, which make them endogenous to the business cycle.

I used four summary measures of middle-class income tax to capture an aggregated sense of the overall direction of tax policy. The measures indicate, as usual, great diversity across countries, but these metrics also indicate that the middle-class income tax burden has fallen more widely than it has risen. With the strong caveat that economic performance can influence average and marginal tax rates, I look at change from 2007 to 2012 in the net average and net marginal tax rates faced by a single adult earning the average income and by a parent of two earning the average income with a spouse earning 67 percent of the average income. In 11 of 29 countries, all four metrics showed declining taxes. In nine countries, all four metrics showed rising taxes. The other nine were mixed. Table 2-6 lists the countries in each category.

Among the reasons to be cautious in drawing conclusions from the "Taxing Wages" summary measures is that they do not correlate as expected with other data. On both an annual and a five-year basis, revenue rate change is weakly correlated or uncorrelated with "Taxing Wages" tax changes. One of the four measures has a reasonable relationship to revenue rate in regressions,[111] but coefficients on the others are very small and statistically insignificant. Two of the "usual suspects" for austerity, Greece and Portugal, give mixed results despite a steady diet of tax increases and higher top marginal rates recorded in European Commission publications,[112] perhaps indicating that falling incomes can overwhelm rising tax rates.

Corporate Income Tax Changes

During the crisis, governments continued to lower corporate income tax rates. The IMF and others have recommended that countries shift from corporate taxes to value-added taxes to reduce distortion and increase growth.[113] Accordingly, 17 countries lowered top corporate tax rates between 2007 and 2013, and only five crisis countries increased them on net. The frequency of corporate tax rate cuts slowed from 11 in 2008 to three in 2013, while increases increased from none in 2008 to four in 2013.[114] The largest rate cuts were in Canada, Germany, and the U.K.

Corporate tax rates thus appear to be a prime candidate for identifying fiscal stimulus. However, top corporate tax rate changes in 2008 and 2009 are uncorrelated with OECD planned "business tax" stimulus measures. For example, the largest business tax measure in the OECD data—1.08 percent of GDP in Korea—matches a 3.3 percent corporate tax cut. However, the second-largest business tax measure—0.83 percent of GDP in the U.S.—did not correspond to a corporate tax rate cut.[115]

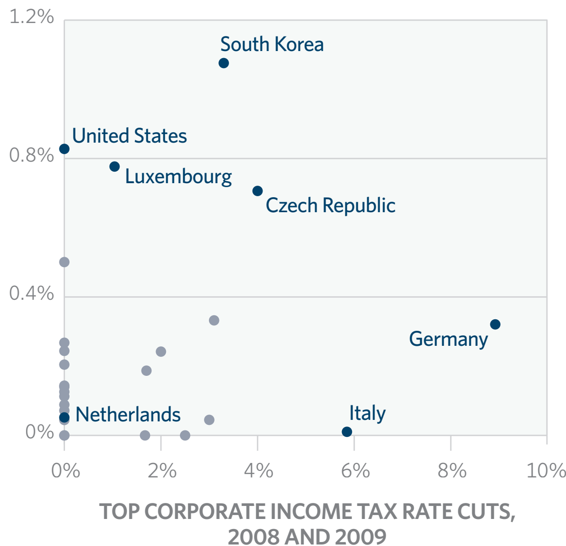
Spending Stimulus, Tax Austerity

Comparing changes in tax rates and core government spending reveals asymmetries in policymaking. Tax increases occurred much more frequently

CHART 2–11

Business Tax Stimulus Plans Did Not Predict Actual Tax Rate Cuts

OECD STIMULUS BUSINESS TAX CUT PLANS AS PERCENTAGE OF GDP



Sources: KPMG, "Corporate Tax Rates Table," http://www.kpmg.com/global/en/services/tax/tax-tools-and-resources/pages/corporate-tax-rates-table.aspx (accessed February 3, 2014); and OECD, Economic Outlook, Volume 2009/1, No. 85, June 2009, Appendix 1.A1, pp. 62–64, http://dx.doi.org/10.1787/eco_outlook-v2009-1-en (accessed October 18, 2013).

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than tax cuts. Stimulus efforts changed spending but rarely changed taxes, at least as measured by VAT or top income tax rates, while fiscal consolidation often increased those key tax rates.

During periods of fiscal consolidation, there was a strong association between rising tax rates and lower core spending, but the reverse was not true in periods of fiscal expansion. Of the 28 cases in EU countries in which core spending fell by at least 1 percent of GDP, the VAT rate rose in 14 cases.[116] By contrast, there were 36 episodes in which core spending grew at least 1 percent of GDP, and only two of those were accompanied by a VAT decrease. Top marginal tax rates were also asymmetric: They were almost twice as likely to be raised in a year when core spending was cut as they were to be lowered when spending rose.[117]

The tendency of governments to create and reduce deficits asymmetrically has been documented in the political economy literature. Alesina and Roberto Perotti found in an earlier era that "fiscal expansions are the results of increases in expenditures … while contractions are typically due to tax increases."[118] James Buchanan and Richard Wagner posited in 1978 that boom-and-bust patterns in government finance lead to "ratchet" spending increases,[119] and Zvi Hercowitz and Michel Strawczynsk confirmed the pattern empirically in 2004.[120] Paulo Mauro notes that in "most of the case studies, expenditure cuts did not materialize to the extent initially envisaged; by contrast, revenues often turned out above expectations."[121]

When fiscal policies changed during recessions, the changes were more likely to be "austere" in tax rates but expansionary in spending. During the 2007–2012 period, 16 of 35 countries saw increases in government revenue's share of GDP, and 23 increased core government spending as a share of GDP. The share of GDP going to government transfer spending increased in 34 of 35 countries, and the real value of transfers increased by at least 10 percent in 28 countries. Thus, transfers are a poor candidate for finding widespread austere spending policies. While tax austerity shows up frequently in every measure, spending austerity is elusive outside a well-defined set of crisis countries on Europe's periphery.

Endnotes: Chapter 2

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55. The series can be duplicated for OECD countries by subtracting series GD41P, GD62_631XXP, GD7P, GD8P, and GD9P from series GTE.
56. This measures changes in the level of government spending expressed as a share of the economy. It does not measure the change in government spending's share of the economy.
57. Formally, spreads either exceeded 5 percent at some point from 2009 to 2012 or rose at least 2 percentage points to 3.5 percent or more. European Central Bank, Statistical Data Warehouse, 11.15 Harmonised Long-Term Interest Rates for Convergence Assessment Purposes, 2004–2013, http://sdw.ecb.europa.eu/browse.do?node=bbn3146 (accessed January, 2014), and Organisation for Economic Co-operation and Development, *OECD Economic Outlook*, Vol. 2013/1, No. 93 (June 2013), p. 263, Annex Table 35, http://www.oecd-ilibrary.org/economics/oecd-economic-outlook-volume-2013-issue-1_eco_outlook-v2013-1-en (accessed October 11, 2013).
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70. Organisation for Economic Co-operation and Development, *OECD Economic Outlook*, Vol. 2013/1, No. 93 (June 2013), p. 258, Annex Table 30, http://www.oecd-ilibrary.org/economics/oecd-economic-outlook-volume-2013-issue-1_eco_outlook-v2013-1-en (accessed January, 2014).
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73. Scott Sumner, "What British Austerity?" TheMoneyIllusion, October 5, 2013, http://www.themoneyillusion.com/?p=24017 (accessed October 7, 2013).
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92. European Commission, "Tax Reforms in EU Member States."
93. The *Fiscal Monitor* lists the changes as "2009–2012." In personal communication, Marialuz Moreno Badia confirmed that the data refer to changes relative to 2009 and, hence, policy actions in 2010 and beyond. International Monetary Fund, "Taking Stock."
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95. For both taxes and spending, the average of the absolute value of the changes exceeds 1 percent of GDP.
96. *Fiscal Monitor 2012* has no data on France, but 2013 data show that France pursued policies that were very similar to Belgium's policies: nearly 4 percent of GDP tax austerity and a small spending increase.
97. Specifically, they did not face an average long-term bond spread versus Germany of greater than 3.5 percent, nor did the spread grow more than two points from the pre-crisis period.
98. That is, the "core" plus Estonia, Malta, and Slovakia.
99. The spread here is the difference between a country's 10-year borrowing rate and Germany's 10-year borrowing rate. Within the eurozone, spread changes are dominated by risk concerns. Outside the eurozone, expectations of currency movements can also play an important role, so spread levels and changes are less indicative of risk perceptions.
100. I measured interest rate spread versus Germany averaging over the 12 months from July of the previous year to June in order to better capture causal effects from spread change to other variables. The "steady and moderate spreads" are all of those within 150 basis points of zero and with less than 25 basis points spread change in the previous year, including all of Germany's observations. This section uses only data for 2008–2012.
101. This sample is based mainly on OECD interest rate data.
102. Bulgaria, Cyprus, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Portugal, Romania, Slovenia, and Spain.
103. This section relies on European Commission, "VAT Rates Applied in the Member States of the European Union."
104. I exclude temporary VAT cut expirations in Portugal and the U.K.
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107. Data for this section came from the EU's *Taxation Trends* 2013 and, for non-EU countries, from KPMG. Eurostat, *Taxation Trends in the European Union*, 2013 ed. (Brussels: European Commission, May 2013), p. 35, http://ec.europa.eu/taxation_customs/taxation/gen_info/economic_analysis/tax_structures/index_en.htm (accessed October 11, 2013), and KPMG, "Individual Income Tax Tables," 2014, http://www.kpmg.com/global/en/services/tax/tax-tools-and-resources/pages/individual-income-tax-rates-table.aspx (accessed January 29,2014).
108. Cyprus, Greece, Iceland, Ireland, Portugal, Slovakia, Slovenia, and Spain.
109. The standard deviation of top marginal tax rates has risen from 10 percent to 14.5 percent.
110. Organisation for Economic Co-operation and Development, Stat Extracts, s.v. "Taxing Wages: Comparative Tables, 2000–2012," http://stats.oecd.org/Index.aspx?DataSetCode=AWCOMP (accessed September 30, 2013).
111. Controlling for GDP growth and adding country dummies had very little effect on the estimates.
112. European Commission, "Tax Reforms in EU Member States," and Eurostat, *Taxation Trends in the European Union*.
113. International Monetary Fund, "Taxing Times," p. 31.
114. This counts tax rate changes of at least 0.2 percent. KPMG, "Corporate Tax Rates Table," http://www.kpmg.com/global/en/services/tax/tax-tools-and-resources/pages/corporate-tax-rates-table.aspx (accessed February 3, 2014).
115. In fact, there is no obvious candidate in the record matching this planned tax cut of about $120 billion. Corporate tax benefits in the American Recovery and Reinvestment Act, largely in the form of energy subsidies, amounted to less than $28 billion. See Joint Committee on Taxation, "Estimated Budget Effects of the Revenue Provisions Contained in the Conference Agreement for H.R. 1, the 'American Reinvestment and Recovery Act of 2009,'" JCX-19-09, Title I(B–D), February 12, 2009, https://www.jct.gov/publications.html?func=startdown&id=1172 (accessed February 3, 2014).
116. Specifically, the annual average rate rose, although in some cases the rate increase took place during the previous year.
117. This is true for the 54 EU cases and also when non-EU countries, for which I lack VAT data, are included.

118. Alberto Alesina and Roberto Perotti, "Fiscal Expansions and Fiscal Adjustments in OECD Countries," National Bureau of Economic Research *Working Paper* No. 5214, August 1995, http://www.nber.org/papers/w5214 (accessed March 22, 2014).
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120. Zvi Hercowitz and Michel Strawczynsk, "Cyclical Ratcheting in Government Spending: Evidence from the OECD," *The Review of Economics and Statistics*, Vol. 86, No. 1 (February 2004), http://www.jstor.org/stable/3211678 (accessed March 22, 2014).
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Chapter 3

Growth Effects of Taxation and Spending

Salim Furth, PhD

Do the data from the past several years confirm or refute previous economic research? As Alesina and de Rugy show in Chapter 1, tax increases are empirically more harmful to growth than spending cuts are. Using the data presented in Chapter 2, I find that recent history reaffirms the research on the economic effects of different types of fiscal consolidation.

Two common fallacies have cropped up in analyzing the poor growth record of the past several years. The first is averaging: The analyst takes the average policy and average growth record across all European countries and concludes that the former causes the latter. However, the averages mask wide and important dispersion. The second fallacy is to lump tax increases and spending cuts together, implicitly assuming that the two have the same effect despite an extensive literature to the contrary.[122]

This chapter explores a few of the simpler ways in which the data presented in this report can be used.

Stimulus

As the financial crisis became a global economic downturn in 2008 and 2009, many countries enacted fiscal expansions with the intention of stimulating their economies. The data can help us to understand what determined the size of fiscal expansions and to approximate the effects.

Determinants of Stimulus. It is broadly accepted that fiscal policy is responsive to economic conditions. A country that believes itself to be facing a deeper recession will enact a larger stimulus. But fiscal policy is also responsive to the fiscal situation. Countries with deficits under control and low borrowing costs enacted larger stimulus policies. Accordingly, the 2008 interest rate spread and pre-crisis structural balance, both of which reflect fiscal flexibility, can explain 55 percent of the variation in size of planned stimulus packages.

Of the variation unexplained by fiscal conditions,[123] the countries that had early crises stand out: Hungary, Iceland, and Ireland planned large consolidations instead of expansions. Switzerland enacted much less stimulus than its strong fiscal position could have supported. The Scandinavian countries, Japan, and Canada were also on the low end of stimulus efforts. The largest stimulus plans were in Australia, Korea, and the United States. Among European countries, Greece and Spain had larger fiscal expansions than their underlying fiscal conditions would have indicated, suggesting that their plans were larger than they could afford.

Growth Effects of Stimulus. One method of disentangling the causal knot and estimating the effect of fiscal policy on contemporaneous or subsequent growth is to use instrumental variables, an econometric technique. Fiscal space—the ability to borrow—is a good instrument for subsequent stimulus, so interest rate spread (averaged for 2004–2006) and structural balance (2006–2007)[124] can be used as instruments for stimulus spending in 2009–2010.[125]

Contemporaneous growth from 2007 to 2010 shows very little impact of total stimulus on growth (multiplier = 0.3) when instrumenting for the Organisation for Economic Co-operation and Development (OECD) plans of stimulus.[126] Future growth from 2010 to 2012 has a similar relationship to the instrumental variables (0.5). However, in the absence of outlier Greece, the multipliers fall to 0.2 and 0.1.[127] These estimates have a reasonable degree of precision by the standards of the fiscal multiplier literature, with standard errors below 0.4. Narrowing consideration to spending stimulus only,[128] the contemporaneous multipliers are 0.5 and 0.7, falling to 0.3 and 0.2 without Greece.

Since government spending is a component of gross domestic product (GDP), spending cuts can directly lower GDP over short periods of time. Thus, examining the growth effects on GDP components other than government spending can give a better sense of how fiscal policy affects the private economy. Considering growth only in particular components of GDP, such as household consumption and private investment, yields slightly lower results than for overall GDP, with contemporaneous multipliers between 0.2 and 0.7 and future multipliers between –0.5 and 0.5.

While the instruments predict stimulus spending plans reasonably well, they fail to predict struc-

tural deficits, core spending growth, and planned tax stimulus. This may reflect the ways that countries departed from their stimulus plans or may merely indicate that the instruments are a poor measure of fiscal space.

However, fiscal space may plausibly affect growth through avenues other than stimulus. Thus, it might be more appropriate to investigate the impact of pre-crisis fiscal responsibility and space directly instead of implicitly assuming that structural balance and interest rate spread affect only subsequent GDP growth through stimulus. I find that structural balance in 2006–2007 has a marginally significant positive association with growth from 2007 to 2012, but the pre-crisis interest rate spread has no effect.

In addition to using the amount of the stimulus, one can investigate its composition, taking the ratio of spending stimulus to total stimulus.[129] Spending-focused stimulus during 2009 and 2010 is loosely associated with lower growth.

A simple regression of contemporaneous growth (2007–2010) on the OECD plans of tax and spending stimulus shows that both multipliers are less than 1.0 and that the tax multiplier is larger than the spending multiplier. The literature suggests that the differential effects of taxes and spending are greatest in private investment. Indeed, the tax stimulus multiplier for private investment is 1.2, and the spending stimulus is just 0.2. However, this approach cannot be interpreted causally because economic conditions and fiscal flexibility affect the size of stimulus measures.

Another approach is to control for the total amount of the stimulus and assume that its composition reflects policy preferences.[130] Estimates are imprecise, but a stimulus plan composed of just 20 percent in extra spending is associated with less than 1 percentage point lower contemporaneous growth and 2 percentage points higher subsequent (2010–2012) growth than a stimulus plan composed 80 percent of extra spending. Examining growth in nongovernment output and investment shows the same pattern: Tax stimulus is less effective immediately but more effective in the future. This is consistent with the idea that government spending crowds out private economic activity less in the short run and in recessions.

Spending stimulus may contribute to a rising interest rate spread, although estimates are again statistically imprecise.[131] For a stimulus of a given size, 60 percentage points more in spending is associated with 180 basis points in the growth of the spread, or two-thirds of a standard deviation. The effect is somewhat stronger among euro countries and negligible among non-euro countries.

Austerity

As the global recession ended and the unsuccessful attempts at stimulus tailed off, many governments saw deficits shrink, in some cases quite rapidly. The wide variety of post-2009 fiscal policy paths allows us to study the causes and effects of spending cuts and tax increases, frequently caricatured as "austerity."

Fiscal Consolidation and Bond Market Vigilantes. Like stimulus, fiscal consolidation was primarily responsive to short-term fiscal flexibility. In a multiple regression, interest rate spread growth, structural balance, and euro membership were significant predictors of fiscal consolidation as measured by the IMF's *Fiscal Monitor*. Those three factors explained 92 percent of the variation in fiscal consolidation undertaken by 2012 within the EU and 84 percent of the variation in a broader sample. The European Commission's "S2" measure of long-term fiscal sustainability[132] is closely related to structural balance and has a similar association with austerity but less explanatory power.

Some economists have worried that austerity is driven by self-fulfilling pessimism in the bond market and is disconnected from economic fundamentals. Paul De Grauwe and Yuemei Ji raise this question in two papers.[133]

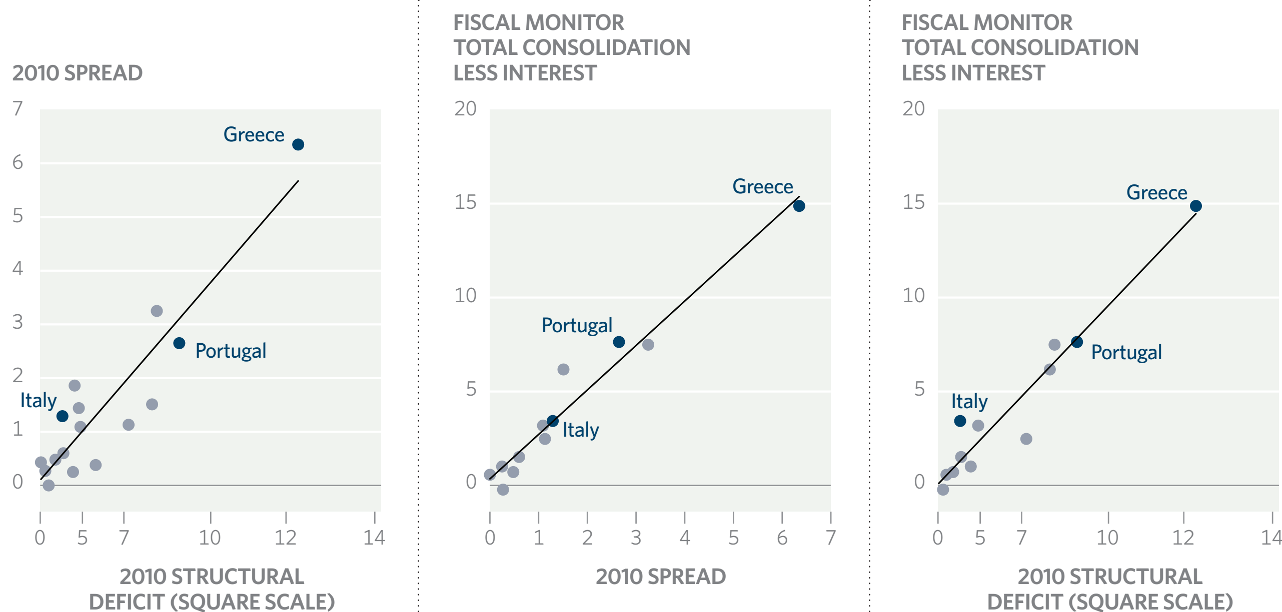
As Chart 3-1 shows, structural balance, interest rate spread, and fiscal consolidation were extremely closely linked within the eurozone.

In nine non-euro EU countries, interest rates contribute little, and 60 percent to 75 percent of variation in consolidation can be explained by structural balance and long-run fiscal sustainability (S2). This is consistent with De Grauwe and Ji's 2012 finding that factors unique to the eurozone rapidly raised borrowing costs there, contributing to the downward spiral in the weak economies.

De Grauwe and Ji also measure the interest rate spread improvement among 10 eurozone countries after the European Central Bank (ECB) committed "to unlimited support of the government bond markets."[134] They find it a "surprising phenomenon" and "remarkable feature" that the ECB announcement

CHART 3–1

Structural Deficit, Interest Rate Spread, and Fiscal Consolidation Were Closely Linked in the Eurozone



Notes: Structural deficit is the negative of IMF Structural Balance, 2010, and is displayed on a squared axis. Spread is 10-year bond versus Germany in 2010, from OECD and ECB data. Fiscal consolidation is total IMF *Fiscal Monitor* fiscal consolidation less interest.
Sources: International Monetary Fund, *World Economic Outlook*, October 2013, http://www.imf.org/external/pubs/ft/weo/2013/02/weodata/index.aspx (accessed December 2013); European Central Bank, Statistical Data Warehouse, 11.15 Harmonised Long-Term Interest Rates for Convergence Assessment Purposes, 2004–2013, http://sdw.ecb.europa.eu/browse.do?node=bbn3146 (accessed February 21, 2014); Organisation for Economic Co-operation and Development, *OECD Economic Outlook*, Vol. 2013/1, No. 93 (June 2013), p. 258, Annex Table 35, http://www.oecd-ilibrary.org/economics/oecd-economic-outlook-volume-2013-issue-1_eco_outlook-v2013-1-en (accessed October 18, 2013); and International Monetary Fund, "Taking Stock: A Progress Report on Fiscal Adjustment," *Fiscal Monitor*, October 2012, p. 21, Figure 15, http://www.imf.org/external/pubs/ft/fm/2012/02/pdf/fm1202.pdf (accessed March 29, 2014).

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caused spreads to decline proportionally. But a proportional decline is exactly what one should expect if investors become partially protected from solvency crises.[135] The finding is valuable, even if unsurprising, because it shows that markets reacted rationally to the ECB's announcement, and it is equally consistent with a bond market priced by risk-return fundamentals or by panicked bond vigilantes.[136]

Austerity and Growth

Tax austerity is very harmful to growth, while spending cuts are partially replaced by private-sector activity, making them less harmful.

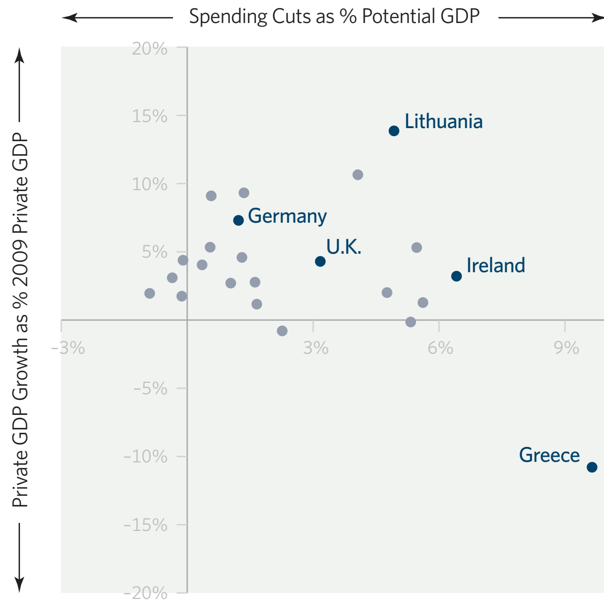
Using fiscal consolidation data (2009–2012) from the *Fiscal Monitor*, I find that tax increases have a multiplier of –2.0 and spending cuts have a multiplier of –0.7 on contemporaneous growth (2009–2012).[137]

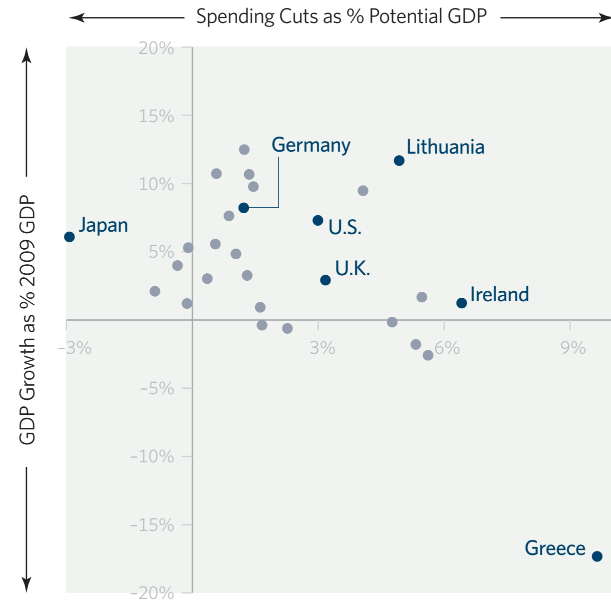
Controlling for the growth in the interest rate spread, the effects of fiscal consolidation fall slightly to –1.8 (taxes) and –0.4 (spending cuts). Alternatively, excluding Greece has a similar effect, bringing the multipliers down from –2.0 to –1.3 and from –0.7 to –0.4.

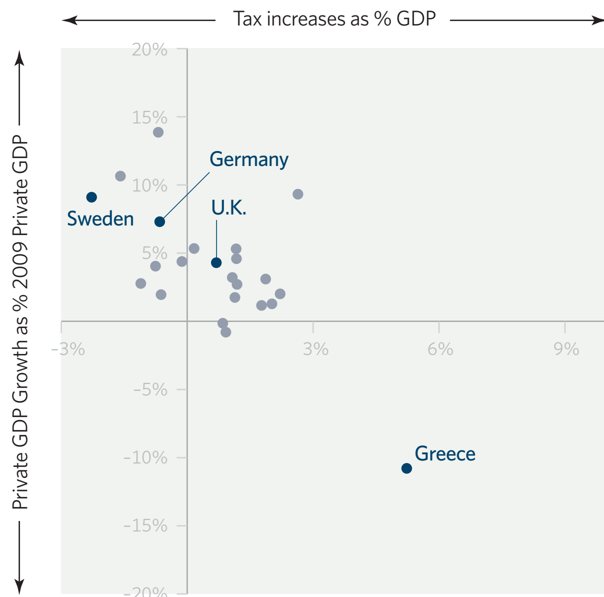
Estimating growth effects on private GDP, the difference between tax and spending multipliers grows predictably. A two-dollar decline in private GDP is associated with every dollar of tax increases, but spending cuts are associated with no change in private GDP. About a third of the tax multiplier occurs in private investment. Controlling for interest rate spread growth does not change the estimates much, although government spending cuts are actually associated with slightly higher private GDP and investment growth.

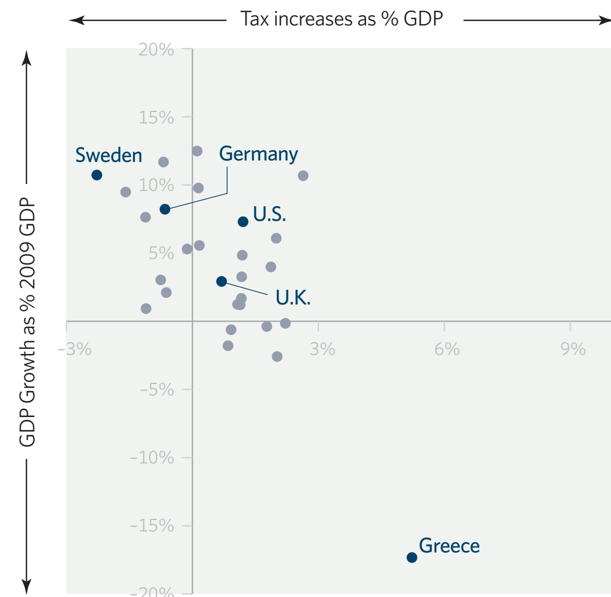
CHART 3–2

Change in Taxes, Spending, and Growth, 2009–2012









Notes: Private GDP is GDP minus government purchases (G), and data are missing for five non-European countries. Fiscal consolidation excludes interest.
Sources: International Monetary Fund, "Taking Stock: A Progress Report on Fiscal Adjustment," *Fiscal Monitor*, October 2012, p. 21, Figure 15, http://www.imf.org/external/pubs/ft/fm/2012/02/pdf/fm1202.pdf (accessed March 29, 2014); Organisation for Economic Co-operation and Development, Stat Extracts, Annual National Accounts, 2007–2012, http://stats.oecd.org/ (accessed November 2013); and European Commission, Eurostat, Annual National Accounts, 2007–2012, http://epp.eurostat.ec.europa.eu/portal/page/portal/eurostat/home/ (accessed November 2013).

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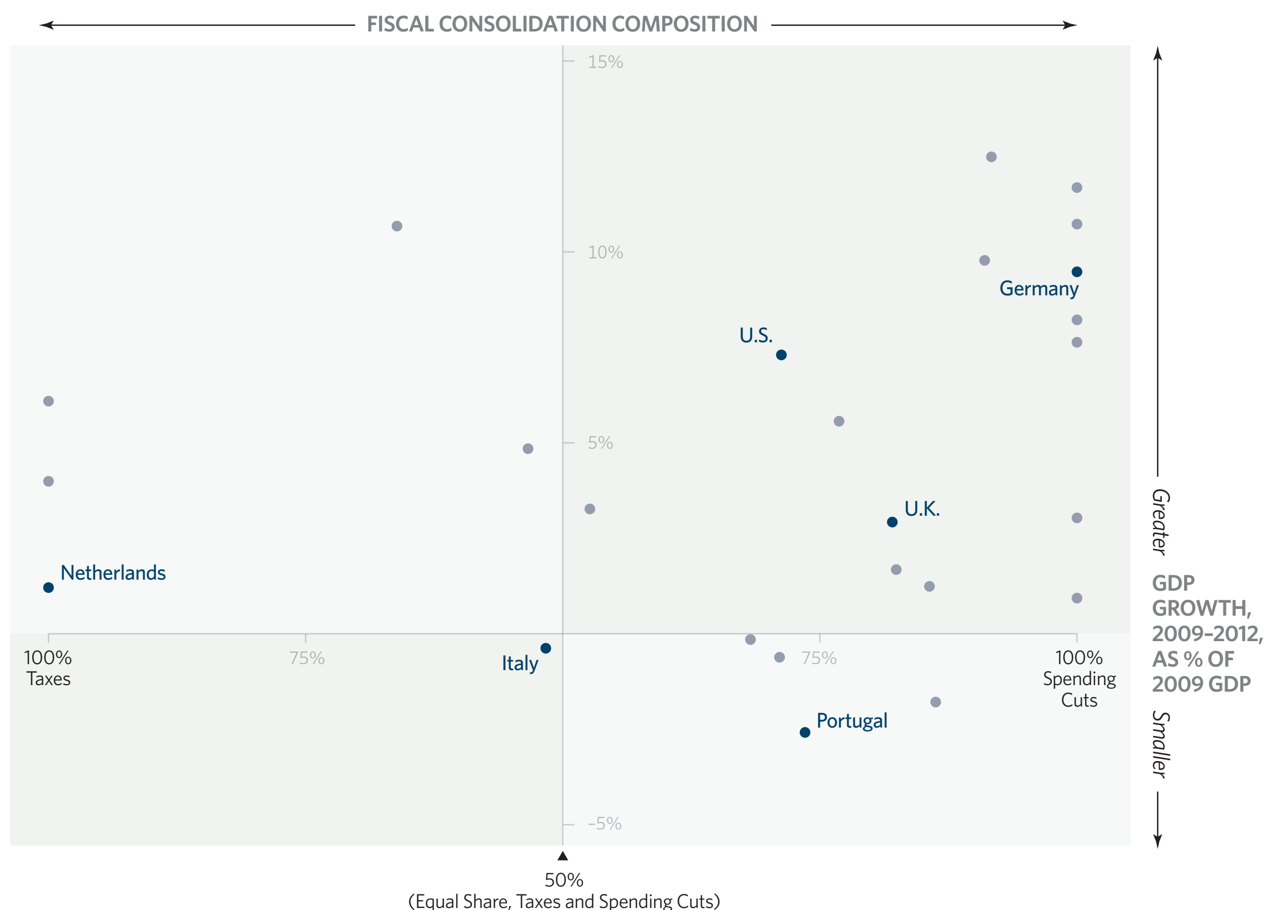
CHART 3–3

GDP Growth and Austerity Composition



Notes: Greece is not shown. Fiscal consolidation excludes interest.
Sources: International Monetary Fund, "Taking Stock: A Progress Report on Fiscal Adjustment," *Fiscal Monitor*, October 2012, p. 21, Figure 15, http://www.imf.org/external/pubs/ft/fm/2012/02/pdf/fm1202.pdf (accessed March 29, 2014); Organisation for Economic Co-operation and Development, Stat Extracts, Annual National Accounts, 2007–2012, http://stats.oecd.org/ (accessed November 2013); and European Commission, Eurostat, Annual National Accounts, 2007–2012, http://epp.eurostat.ec.europa.eu/portal/page/portal/eurostat/home/ (accessed November 2013).

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There is considerable variance in the timing of the beginning of austerity. Thus, using GDP growth from 2010 instead of 2009 may better capture the post-crisis era in many countries, and doing so results in smaller multipliers for all measures.[138] In the most extreme case—growth from 2010 to 2012 excluding Greece—the multipliers are –0.7 for taxes and 0.0 for spending.

Taking the total amount of fiscal consolidation as a given and considering only countries that enacted net fiscal consolidation, fiscal consolidation that relied 60 percentage points more on spending cuts was associated with 3.1 percentage points more GDP growth from 2009 to 2012, when average growth was just 3.3 percent over the entire period. In other words, a country that had a fiscal consolidation composed of 80 percent of spending cuts and 20 percent of tax increases would grow much more rapidly than a country in which only 20 percent of the consolidation was spending cuts and 80 percent was tax increases. The association is slightly stronger for private GDP. Since spending's share of the total consolidation is uncorrelated with the magnitude of austerity or spread growth, it is reasonable to conclude that spending's share was more likely a policy choice than an endogenous economic outcome.

The magnitude of the relationship between spending share and growth is arresting. Fortunately, few countries relied heavily on taxation for post-2009 consolidation. Recalling that these are imprecise estimates, a cursory look shows that the difference between Germany's 8 percent growth from 2009 to 2012 and the 1 percent growth in the Netherlands is largely accounted for by Germany's cut-spending, cut-taxes approach and the Netherlands' raise-spending, raise-taxes approach. The U.K. and Italy enacted similarly-sized austerity packages, but Italy's was half tax increases while the U.K. favored spending cuts. Neither country excelled, but over half of the gap between the U.K.'s 3 percent growth and Italy's negative growth is explained by Italy's tax increases.

As a robustness check, I also use the 2010-vintage fiscal plans for 16 countries as implied by the 2013 *Fiscal Monitor*. This exercise is valuable if the composition or size of plans evolves in ways that are related to ongoing GDP growth, but I find similar results. The tax multiplier (–1.6) remains much more important than the multiplier on spending cuts (–0.5).

Confirming the Literature

The experience of the global crisis and aftermath confirms the findings of previous research. As detailed by Andrew Biggs, Kevin Hassett, and Matthew Jensen, among others, there is a substantial research consensus that fiscal consolidation through spending cuts is less contractionary than fiscal consolidation through tax increases.[139] Robert Barro and Charles Redlick found that tax multipliers were larger than the multiplier for military purchases,[140] and Christina Romer and David Romer defend a tax multiplier considerably higher than the usual range of spending multipliers.[141]

Thus, a finding that tax policy was more potent than spending policy is not unexpected: Tax cuts aided the recovery more, and tax increases were more harmful in the consolidation. The exception from the primacy of taxes is that spending-focused stimulus was slightly more expansionary during the first years of the recession. Although all of the estimates are imprecise, they are consistent with most of the literature on fiscal policy: Government spending boosts GDP instantly and then crowds out private spending slowly. The incentive effects of taxation may take effect over several years, but they are permanent and especially pronounced in investment. If anything, this recent crisis shows how brief the short run is: Countries whose spending-focused stimulus put them one step ahead in 2010 were already two steps behind in 2012.

Making policy based only on one recent and incomplete historic episode would be a mistake. Nonetheless, it is comforting to know that the data from the most recent years are broadly consistent with economic theory and empirics from prior decades.

Endnotes: Chapter 3

122. Menzie Chinn provides examples of both fallacies. His analyses are fine as far as they go but would be inappropriate to use, for example, as evidence on the effects of spending cuts. Menzie Chinn, "Lehman plus Five," Econbrowser, September 17, 2013, http://www.econbrowser.com/archives/2013/09/lehman_plus_fiv.html (accessed September 25, 2013), and Menzie Chinn, "GDP Growth and the Change in the Cyclically Adjusted Budget Balance," Econbrowser, September 18, 2013, http://www.econbrowser.com/archives/2013/09/gdp_growth_and.html (accessed September 25, 2013).
123. The residual of a regression of planned stimulus on interest rate, pre-crisis balance, and euro membership.
124. I choose the earlier dates for the interest rate spread to avoid contaminating the data with early warnings of the crisis. The choice of dates does not significantly affect the results.
125. Public debt is another potential instrument but has less predictive power, probably reflecting the wide range of debt tolerance levels across countries.
126. These regressions are two-stage least squares with robust standard errors. The first stage has an R^2 of 0.37.
127. I also used change in structural balance as a dependent variable but found that the first stage had an R^2 of just 0.13. Those regressions estimate a contemporaneous multiplier of 1.3 and a future multiplier of 2.2, although both fall below 1.0 when Greece is excluded. Standard errors are three times larger than for stimulus plans.
128. Here, I am on thinner theoretical ice since tax stimulus is an omitted variable. For the record, the residuals from the second stage are correlated at 0.37 with the measure of tax stimulus, and fiscal space is a much better predictor of spending than of tax stimulus.
129. Some countries planned spending stimulus but tax austerity at the same time, or vice versa. I hand-coded these at 100 percent and zero percent spending, respectively. Countries that planned stimulus in neither area are excluded here.
130. The correlation between stimulus magnitude and spending's share of stimulus plans is just –0.16.
131. The 10-year borrowing spread is versus Germany. Estimates are similar in three specifications, with p-values between 0.12 and 0.18.
132. European Commission, "Fiscal Sustainability Report 2012," *European Economy*, No. 8, December 2012, http://ec.europa.eu/economy_finance/publications/european_economy/2012/fiscal-sustainability-report_en.htm (accessed October 11, 2013).
133. Paul De Grauwe and Yuemei Ji, "Self-Fulfilling Crises in the Eurozone: An Empirical Test," Centre for European Policy Studies *Working Paper* No. 366, June 2012, http://aei.pitt.edu/35633/1/WD_No_366_PDG_%26_YJ_Empirical_Test_Fragility_Eurozone.pdf (accessed August 22, 2013), and Paul De Grauwe and Yuemei Ji, "Panic-Driven Austerity in the Eurozone and Its Implications," February 21, 2013, VoxEU.org, http://www.voxeu.org/article/panic-driven-austerity-eurozone-and-its-implications (accessed August 22, 2013).
134. De Grauwe and Ji, "Panic-Driven Austerity in the Eurozone and Its Implications."
135. The fact that the decline was not near 100 percent indicates that some risk remains.
136. I am not hereby taking the position that interest rate spreads in Europe reflect market fundamentals.
137. The robust standard errors are 0.8 and 0.3, respectively.
138. That the multipliers decline by a third when the period in question is reduced from three to two years is unsurprising, particularly if one believes that multipliers reflect incentive effects, not just additive shifts.
139. Andrew G. Biggs, Kevin A. Hassett, and Matthew Jensen, "A Guide for Deficit Reduction in the United States Based on Historical Consolidations That Worked," American Enterprise Institute *Economic Policy Working Paper* No. 2010-04, December 2010, http://www.aei.org/papers/economics/fiscal-policy/a-guide-for-deficit-reduction-in-the-united-states-based-on-historical-consolidations-that-worked/ (accessed March 26, 2014).
140. Robert J. Barro and Charles J. Redlick, "The Macroeconomic Effects from Government Purchases and Taxes," *The Quarterly Journal of Economics*, Vol. 126, No. 1 (February 2011), pp. 51–102, http://intl-qje.oxfordjournals.org/content/126/1/51.full (accessed October 17, 2013).
141. Christina D. Romer and David H. Romer, "The Macroeconomic Effects of Tax Changes: Estimates Based on a New Measure of Fiscal Shocks," *American Economic Review*, Vol. 100, No. 3 (June 2010), pp. 763–801, http://www.aeaweb.org/articles.php?doi=10.1257/aer.100.3.763 (accessed October 11, 2013).

Appendix: Country Profiles

APPENDIX CHART 1

Key Metrics for Estonia

Sources: Eurostat, OECD, and Heritage Foundation calculations.

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Estonia

Salim Furth, PhD

Estonia's fiscal policy has been dramatic, even operatic.[142] Estonia exacerbated its problems by raising taxes at the bottom of its deep recession. However, a commitment to near-zero debt before and during the crisis has left Estonia with all policy options available going forward.

Boom and Bust

Estonia's economy grew rapidly during the 2000s, although Estonia remained one of Europe's poorest countries. A housing bubble led to a quadrupling of home prices in five years even as construction soared.[143] Estonia joined the EU in 2004 and the eurozone in 2011. The boom kept government finances in surplus, but rapidly expanding government transfers pushed the underlying fiscal balance into deficit in 2006 at the height of the boom.[144]

Then the housing market crashed. In the second half of 2008, gross domestic product (GDP) dropped like a stone, down 13 percent from the fourth quarter of 2007 to the fourth quarter of 2008. Investment dropped 20 percent, and exports and consumption began headlong falls. Yet government consumption and revenues grew slightly, and transfers leapt 20 percent in a single year, largely due to a 20 percent increase in the size of the average state-funded pension.[145] Despite steady tax revenue, the fiscal balance dropped by 5.5 percent of GDP, greater than the growth of the U.S. deficit in 2008 or 2009.

Policy Reaction

As the crisis progressed, Estonia's lawmakers strove to maintain their annual balanced-budget fiscal rule. Several measures were one-time budget boosters: Sales of public land and accounting gimmicks with pension plans and national companies artificially increased 2009 and 2010 revenue.[146] Hours and wages for public employees were frozen or cut.[147] Pension reform limited a promised 14 percent annual pension boost to 5 percent during the recession.

Regrettably, the most durable fiscal consolidations took the form of tax increases. The unemployment insurance contribution increased from 0.9 percent to 4.2 percent of payrolls, effectively undoing the past three income tax cuts. The standard value-added tax (VAT) rate rose by 2 points, some tax exemptions were canceled, and scheduled income

tax cuts were canceled.[148] Even as Estonia's economy recovers, its revenue rate appears to be permanently, substantially higher than before the crisis. Government's share of the economy has risen concomitantly.

The Organisation for Economic Co-operation and Development (OECD) has criticized Estonia for its "pro-cyclical" fiscal policy: spending during the boom, cutting during the bust.[149] Likewise, tax cuts during the boom and tax increases during the bust amplify the business cycle. Yet the trend toward higher taxes and larger government is a greater danger to Estonia's long-term growth than is poor cyclical financing.

Structural Reforms

The most encouraging Estonian policy changes are permanent reforms in the labor market and pension system. The retirement age will increase to age 65 by 2026, easing the strain of funding pensions. A 2009 employment protection reform eased hiring and firing, allowing employers and employees to find good matches more quickly and efficiently.[150] As the OECD emphasizes in its 2009 report, flexibility is particularly important after a major economic dislocation.

Estonia's broader challenge in the 21st century is to stem its population decline, due both to emigration and to a high abortion rate.[151] Labor market flexibility, low taxes, and low prices may improve family finances, encourage family formation, and discourage emigration at the margin.

Rebound

Estonia's growth since the economy cratered in 2010 has been exceptional. The economy could exceed its pre-crisis peak in 2014, and unemployment fell below 8 percent in 2013 from a high of 19 percent in 2010.[152] Trade has been the primary growth area, underlining Estonia's position as a small open economy. Estonia has broad financial flexibility and has earned trust among global investors by following through on its promise to maintain a balanced budget. Voters endorsed the government's handling of the recession by returning the conservative governing coalition in 2011 elections.

The challenge for Estonia going forward is to maintain momentum in bringing its productivity (and thus wages) up to the technological frontier. Textbook economic theories suggest that countries that are further behind will grow quickly as long as they have access to advanced technology and do not have institutional barriers to growth. If Estonia expands economic freedom, curtails the growth of the welfare state, lowers taxes, and maintains open borders with Europe, it can continue its rapid growth of the past 20 years.

142. The cantata *Nostra Culpa* was written and performed to commemorate the argument between Paul Krugman and President Toomas Henrik Ilves. See Michael Amundsen, "Estonian Austerity, Paul Krugman, and Twitter: All the Elements of an Opera?" *The Christian Science Monitor*, March 13, 2013, http://www.csmonitor.com/World/Europe/2013/0313/Estonian-austerity-Paul-Krugman-and-Twitter-All-the-elements-of-an-opera (accessed March 27, 2014).

143. Baudouin Lamine, "Estonia: Analysis of a Housing Boom," European Commission, Directorate-General for Economic and Financial Affairs *Country Focus*, July 17, 2009, http://ec.europa.eu/economy_finance/publications/publication15590_en.pdf (accessed March 27, 2014).

144. Author's calculations based on OECD data, including Organisation for Economic Co-operation and Development, "Overview" for *OECD Economic Surveys: Estonia*, October 2012, p. 10, Figure 5B, http://www.oecd.org/eco/surveys/estonia2012.htm (accessed March 27, 2014).

145. An Estonian government report shows that the average pension increased 14 percent in 2007 and 20 percent in 2008 (nominal Estonian kroons). Republic of Estonia, Ministry of Social Affairs, *Health, Labour and Social Life in Estonia 2000–2008*, 2009, pp. 98–99, Table 2, http://www.sm.ee/fileadmin/meedia/Dokumendid/V2ljaanded/Publikatsioonid/2009/esinduskogumik_2009eng.pdf (accessed March 27, 2014). The total number of pensioners was steady. Ibid., p. 97–98, Table 1.

146. Organisation for Economic Co-operation and Development, *OECD Economic Surveys: Estonia, 2011*, April 2011, http://www.keepeek.com/Digital-Asset-Management/oecd/economics/oecd-economic-surveys-estonia-2011_eco_surveys-est-2011-en (accessed March 27, 2014).

147. The OECD's 2011 *Economic Survey* reports a 25 percent drop in "[s]tate budget expenditures" from 2008 to "the second half of 2009," but OECD statistics show smaller cuts. In real terms, government wage payments fell 6 percent from peak to trough, government output fell 18 percent, and non-transfer primary expenditure fell 17 percent. The latter two drops were from 2007 to 2009.

148. Organisation for Economic Co-operation and Development, *OECD Economic Surveys: Estonia, 2011*.

149. Organisation for Economic Co-operation and Development, "Overview."

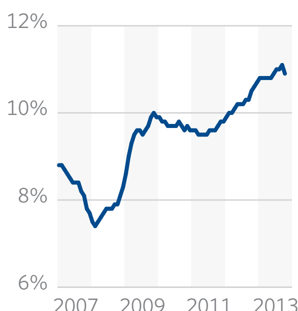
150. Organisation for Economic Co-operation and Development, *OECD Economic Surveys: Estonia, 2009*, 2009, http://www.keepeek.com/Digital-Asset-Management/oecd/economics/oecd-economic-surveys-estonia-2009_eco_surveys-est-2009-en (accessed March 27, 2014).

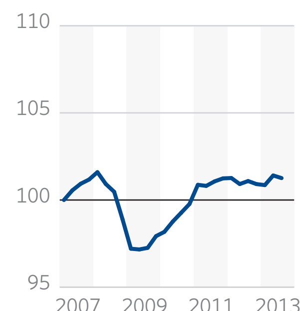
151. Republic of Estonia, *Health, Labour and Social Life in Estonia 2000–2008*.

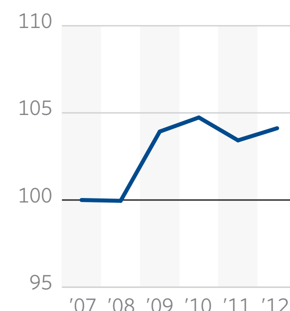
152. European Commission, Eurostat, s.v. "Unemployment Rate by Sex and Age Groups—Monthly Average, %," July 2013, http://epp.eurostat.ec.europa.eu/portal/page/portal/eurostat/home/ (accessed October 9, 2013).

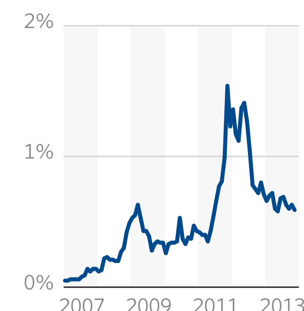
APPENDIX CHART 2

Key Metrics for France









Note: Interest rate spread is borrowing cost relative to Germany's.
Sources: Eurostat, OECD, and Heritage Foundation calculations.

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France

Veronique de Rugy, PhD

When the French elected President François Hollande, putting a Socialist president in power for the first time since the 1980s, many attributed his victory to his rejection of austerity measures. According to Hollande, spending cuts had failed, and it was time to adopt "pro-growth" spending increases. However, this was hardly a break from the policies implemented by his predecessor, President Nicolas Sarkozy. Sarkozy's response to the crisis mostly took the form of increased government spending and higher taxes. In other words, Hollande is mostly continuing in Sarkozy's steps—only with a greater emphasis on tax increases.

The data show that very little is austere about France's spending. According to Eurostat data, French public spending reached 56.6 percent of GDP in 2012, up from 52.6 percent in 2007.[153] In fact, Sarkozy's main response to the financial crisis was to adopt spending stimulus bills in hopes of jump-starting the economy. In 2008 and 2009, the government announced that it would spend €26.5 billion over that period.[154] However, the *Cour des comptes* (French Court of Auditors) reported that the stimulus spending cost €34 billon.[155]

The government adopted other measures to stimulate the economy that, according to a document released by the French Senate, led to a total cumulative effort of €47.2 billion over 2009 and 2010.[156] This was in addition to measures adopted in 2008 to stabilize the banking system. In July 2013, Hollande announced a plan to spend an additional €12 billion to stimulate the economy in 2013.[157]

France has relied heavily on tax increases to contain the deficits exacerbated by stimulus spending. Total revenue stood at 49.9 percent of GDP in 2007 but has increased since then to 51.8 percent.[158]

While the tax burden in France decreased in the 2000s, taxes increased between 2009 and 2012. The average French worker faced a tax burden of 50.2 percent on labor income in 2012, much higher than the Organisation for Economic Co-operation and Development (OECD) average of 35.6 percent.[159]

In addition, data compiled by taxpayers' watch groups and newspapers show that taxpayers were subjected to 205 separate increases in their tax burden between 2007 and the end of 2012.[160] The list of tax increases ranges from excise levies on televisions, tobacco, and diet soda to an increase in the value-added tax (VAT) and the wealth tax. Also noticeable is an increase in the top marginal income tax rate from 40 percent to 41 percent in 2010 and to 45 percent in 2012.[161]

In a special report in September 2013, the liberal newspaper *Le Monde* used data from the Minis-

try of Finance to show that 84 new taxes have seen the light of day since 2009 under President Sarkozy and President Hollande.[162] The article also noted that Sarkozy increased tax revenue by €16.2 billion in 2011 and €11.7 billion in 2012, while Hollande added another €7.6 billion as soon as he was elected and planned to raise an additional €20 billion in 2013. That is €55.5 billion in new tax revenue in four years with more than half of the total collected from businesses.

Sadly for French taxpayers, taxes are set to increase even further in 2014. For instance, Hollande campaigned for and proposed a 75 percent tax rate on personal income above €1 million.[163] Objections from the Constitutional Council initially posed an obstacle to Hollande, but he plans to revive the 75 percent tax rate by 2014. Even worse, the VAT, which has been stable at 19.6 percent since 2007,[164] is scheduled to increase in 2014.[165]

Policy Responses to the Global Crisis

A list of noteworthy French policies adopted since the beginning of the global crisis reveals a strong tilt toward higher spending and higher taxes.

2008. In October 2008, the French Parliament passed a law to restore trust in the French banking and financial system and guarantee the good functioning of the economy. The plan included up to €360 billion in loans for refinancing and recapitalization.[166]

- At the end of 2008, the French government announced a €26 billion stimulus plan.[167]
- Many small taxes were increased during 2008.[168]

2009. In February, the government unveiled a series of measures totaling €26.5 billion to support the economy over 2009 and 2010. The plan included three sections:

- €11.4 billion to improve businesses' cash flow and allow them to invest,
- €11.1 billion for direct state investment, and
- €4 billion from large state-run companies to improve rail and energy infrastructures and the postal service.[169]

However, an October 2010 report by the French Court of Auditors assessed that the stimulus plan actually cost €34 billion over the course of 2009 and 2010, with the lion's share spent in 2009.[170] Many of the transfers took place through the tax code but without lowering tax rates to enhance economic incentives. Among other things added to the plan were loans to the automobile industry and households and transfers to lower-income individuals.

2010. The original stimulus plan was augmented by a few additional items. For instance, as part of the March 2009 revisions in the 2009 stimulus plan, the government had announced a €1,000 subsidy for new car purchases. This measure was extended into 2010, but the subsidy was cut to €700 in January 2010 and to €500 in June 2010. The subsidy cost a total of €900 million over 2009 and 2010—four times the original projected cost of €220 million.[171]

Tax increases in 2010 included:

- A 6 percent increase in the tobacco tax,[172]
- Several taxes on health insurance,[173]
- A special 50 percent tax on bonuses to French traders in financial instruments above €27,500,[174] and
- Extension of a 15-year-old "temporary" social security tax.

2011. Taxes were increased again in 2011, including:

- An increase in the period over which the capital gains tax applies to real estate—in the case of a second home, to 30 years;
- Removal of some tax deductions for large corporations and wealthy individuals;
- Partial reversal of the 2007 reform exempting workers and employers from taxes on overtime pay;
- An increase in the reduced VAT rate from 5.5 percent to 7 percent[175]; and
- A new tax on hotel rooms.[176]

2012. The Finance Law of 2012 increased many taxes,[177] including this partial list compiled by *Tax Notes International*:

- A lower ceiling on the inheritance tax exemption, from €159,000 to €100,000 per child;
- A new 3 percent surcharge on cash dividends;
- A new top tax bracket of 75 percent for those earning above €1 million annually;
- Europe's first financial transaction tax on share purchases;
- A wealth tax for 2012, using a progressive scale between 0.55 percent and 1.80 percent;
- A new 15.5 percent "social tax" on income and gains from vacation homes, paid on top of the usual 20 percent income tax and 19 percent capital gains tax;
- An increase in the dividends withholding tax rate to 21 percent for residents and higher for nonresidents;
- An increase to 55 percent in the tax rate for income paid to residents of noncooperative states;
- A reduction of tax niches (exceptional regimes) by 15 percent with a 4 percent global ceiling on taxable income; and
- A substantial increase in the cigarette tax.[178]

In addition, Hollande reversed a reduction of the wealth tax adopted under Sarkozy in 2007 that was to be implemented in 2012.[179]

2013. More tax increases were announced:

- A 75 percent tax on salaries over €1 million, to be levied only on corporations in 2013 and 2014. The shift happened after the French judiciary declared the 75 percent tax rate on personal income unconstitutional.[180] Under the new proposed payroll tax, employers would be required to pay an additional, temporary tax on salaries exceeding €1 million. The tax would apply on top of the 45 percent top income tax rate, surcharges, and social contributions, bringing the rate on high incomes to 75 percent.[181]
- A proposed carbon tax and nuclear power levy.[182]
- Under the Finance Act for 2013, repeal of the flat rates previously applied to stock options and share grants, with such gains to be taxed based on the normal progressive income tax scale.[183]

President Hollande also announced a €12 billion stimulus plan focusing on new technology and ecology.[184] The plan will be financed partially with revenue from the sale of state stakes in private companies to avoid adding too much to the deficit. *The Wall Street Journal* reported that Hollande is planning to spend an additional €20 billion over the next decade on infrastructure projects, such as revamping roads and power networks.[185]

2014. More tax changes[186] are proposed in the 2014 budget bill:

- An increase in the higher VAT rate from 19.6 percent to 20 percent.[187]
- An increase in the intermediate VAT rate from 7 percent to 10 percent.[188]
- A decrease in the lowest VAT rate from 5.5 percent to 5 percent.[189]
- A reduction in the "family quotient" income tax exemption.[190]
- An increase in personal pension contributions.[191]
- An increase in the transfer tax on property acquisition from 3.8 percent to 4.5 percent.
- Abolition of some tax deductions, including one for school costs.[192]

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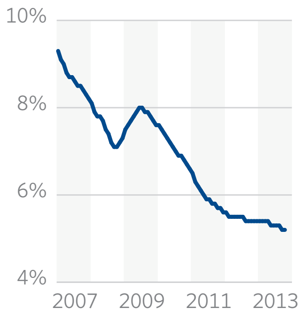
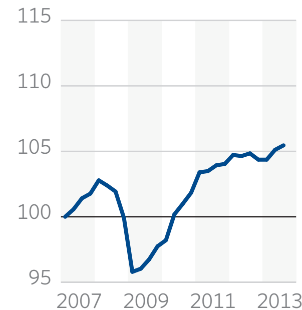
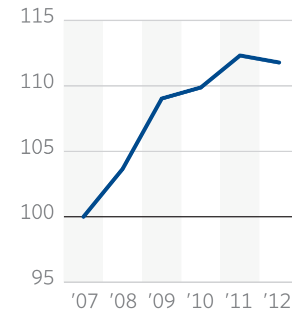
APPENDIX CHART 3

Key Metrics for Germany







Sources: Eurostat, OECD, and Heritage Foundation calculations.

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Germany

Romina Boccia

Germany emerged as the strongest eurozone member after the global recession of 2008 and 2009, largely as a result of economic changes and policy decisions that occurred before the crisis, notably the Hartz reforms. During the recession, Germany's economy suffered from banks' vast exposure to faltering U.S. financial instruments and from a sudden and steep decline in export-sector demand. The government responded with several rounds of domestic and EU bank bailouts and enacted fiscal stimulus measures, which worsened the country's fiscal situation.

Germany's system of short-time work (*Kurzarbeit*) was an effective alternative to expanding the unemployment system and facilitated a quick recovery by the German manufacturing sector once global demand for German exports picked up again. Germany's economy is growing, and unemployment is low, but spending and bailout measures have raised public debt to 82 percent of gross domestic product (GDP), posing fiscal risks for the future.

Reform After Reunification

Germany was not always a poster child for economic success. Prolonged economic weakness followed the 1990 reunification of East Germany and West Germany. From 1995 through 2004, average GDP growth was only 1.3 percent,[193] but German economic growth accelerated, averaging 3 percent from 2005 to 2008. The economic upswing resulted from parallel reforms in the labor market and the corporate sector, which increased competition and market flexibility.

The Hartz labor reforms were a response to high unemployment and surging welfare rolls. The most significant was Hartz IV, which went into effect in 2005. Hartz IV increased job search activity by the unemployed and especially succeeded at reducing long-term unemployment. Between 2005 and 2008, Germany's unemployment rate decreased from about 11 percent to 7.5 percent. Tom Krebs and Martin Scheffel argue that Hartz IV was responsible for a 1.4 percentage point reduction in the long-run unemployment rate, leading to an expansion in output while lowering wages.[194] At the core of the Hartz reforms were the unification of the welfare and unemployment offices and a flat benefit of €382 per month for those who did not find work within the first year of unemployment.

In industry, Germany's reunification led to the disintegration of *Modell Deutschland* ("the German model") and corporatist coordination among capital, labor, and government, which dominated much of German industry.[195]

Increasing globalization of German production processes was another factor driving competition. The establishment of the European Union (EU) enabled German firms to expand production and regional integration within Europe. *Modell Deutschland* adjusted to slow wage growth and kept production in Germany.[196]

Germany During the Global Recession

Due to these and other policy and economic changes before 2008, Germany was better able to weather the "Great Recession." Germany suffered initially but recovered quickly and played an important role in stabilizing the eurozone.

German banks, like other major European banks, were badly exposed to faltering U.S. financial instruments.[197] The Bank for International Settlements showed that nearly half of foreign holdings of U.S. securities were in Europe immediately before the 2008 financial crisis.[198] This caused major distress in the banking system, and in October 2008 the German government granted a €480 billion bank rescue package—the largest in German history.[199]

Kurzarbeit

One of the automatic stabilizers that expanded the federal budget during the crisis was the *Kurzarbeit* system. While many nations, notably the United States, expanded unemployment benefits, Germany had a long-established alternative to subsidizing joblessness. *Kurzarbeit* is a federal subsidy that makes up a portion of lost pay for workers when employers temporarily reduce workers' hours during cyclical reductions in demand. Its purpose is to encourage employers to retain trained staff so that production can recover more quickly in response to recovering demand.

In response to the Great Recession, Germany extended short-time work, first from 12 months to 18 months and then to 24 months. The government further loosened a number of other conditions to make the program even more attractive to employers, such as lifting the rule requiring that at least one-third of employees be affected by reduced hours and making temporary workers eligible for benefits.

Karl Brenke, Ulf Rinne, and Klaus Zimmermann argue that without *Kurzarbeit*, unemployment in Germany would have gone up twice as much as it did. However, as with any government intervention, the system has downsides as well. Some firms may resort to short-time work to delay necessary competitive adjustments, allowing them to remain comfortably inefficient. For example, short-time work was used even in sectors that were largely shielded from the recession's impact.[200] Moreover, the authors argue that special-interest pressures led to an unnecessary extension of the program after significant improvements in the employment rate were well underway.[201]

In the choice between unemployment benefits and short-time work, the latter was more effective at facilitating a speedy recovery within the German context. By keeping workers on staff during the recession rather than laying them off, German producers could rapidly take advantage of rising demand when the global economy improved.

Growth picked up again in Germany in mid-2010, with rebounding exports as the main driver. Overall, economic growth registered 3.6 percent of GDP in 2010—a level not seen since German reunification.[202] Employment levels reached a new high in 2010 with the strongest growth in services and construction.

Bailouts and EU Stimulus

In addition to passing the largest bank rescue package in history, Germany passed the "Bad Banks law" in July 2009. The law allowed banks to create specific institutions to which they could sell their bad assets at pre-crisis value. Any structured securities sold to "bad banks" would be exchanged for debt securities at 90 percent of the pre-crisis book value of those assets.[203] The structure of this bad bank law was influenced by an aversion to bailouts in Germany. As Cordelius Ilgmann and Ulrich van Suntum write:

> [U]nder the pressure of public sentiment and scientific criticism of previous plans, more and more safeguards against any form of a state sponsored bailout were incorporated in the act. In its final form, it is now determined that ultimately banks and their (original) shareholders respectively bear all losses.[204]

The immediate result for participating banks was an improvement in their balance sheets, freeing more bank capital for investment.

Germany was also a large contributor to stabilizing other eurozone countries. In May 2010, the EU passed the Greek rescue package, funneling €110

billion to the Greek government over the course of three years. Germany's share of the package amounted to €22 billion. Further, increasingly concerned with the future of the euro currency, the EU and International Monetary Fund granted a €750 billion aid package consisting mostly of intra-EU loans and credit guarantees, with Germany providing nearly €150 billion in funds.[205]

Bailouts and stimulus measures significantly worsened Germany's immediate fiscal situation, and the country responded with fiscal consolidation.

Fiscal Consolidation

Bailouts and stimulus packages drove up German sovereign debt by 23 percent, from 66.8 percent of GDP in 2008 to 82.4 percent of GDP in 2010.

To curb the rise in debt, the German government adopted a constitutional *Schuldenbremse* ("debt brake"). Following the example of Switzerland, which adopted a similar measure in 2001, the German debt brake limited the size of the structural annual deficit beginning in 2011.

To accomplish deficit and debt reduction, the German government passed a five-year budget in September 2010 that included €80 billion in fiscal consolidation measures. According to Guido Westerwelle, then federal chairman of the classical liberal Free Democratic Party (FDP), "We had to decide whether we wanted to take the path to fiscal consolidation through tax increases or spending cuts. We decided on spending cuts."[206]

One-third of the package concentrated on cuts in social programs. Among other changes, the reforms reduced benefits for the long-term unemployed and those receiving housing assistance, shrank the federal workforce, and cut funding for military personnel and equipment. It included tax increases as well, mostly in reduced subsidies for energy-heavy industry and higher taxes on the nuclear sector.

A Leader in Europe

Germany has emerged as a leader in Europe with a growing economy and low unemployment. Reforms undertaken before the global recession strengthened Germany's economy and labor market. *Kurzarbeit*, as an alternative to unemployment benefits, facilitated a strong recovery once export demand returned. After stimulus and bailout measures worsened the country's fiscal balance, the most recent federal fiscal surplus, coupled with spending restraint measures, gives hope that the country will address its demographic challenges and reduce its public debt levels in the future.

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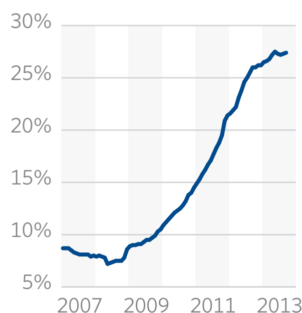
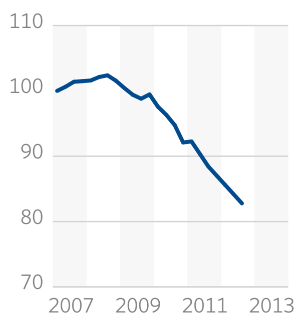
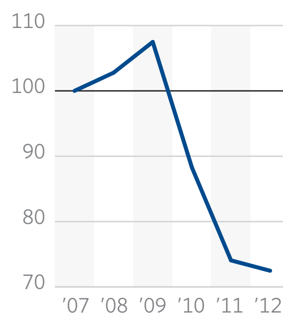
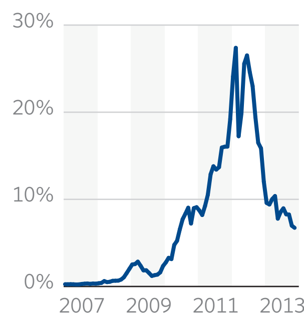
APPENDIX CHART 4

Key Metrics for Greece









Notes: For real GDP, some figures have been interpolated. Interest rate spread is borrowing cost relative to Germany's.
Sources: Eurostat, OECD, and Heritage Foundation calculations.

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Greece

Filip Jolevski

Greece's economic collapse in the past several years has been unlike any other country's crisis. With a continuous five-year decline in gross domestic product (GDP), record-breaking 27.8 percent unemployment, and gross government debt exceeding 175 percent of GDP,[207] this epic Greek tragedy will likely continue in the near future.

Early Growth in Government Spending

Prior to the 2000s, Greece attempted to keep its budget near balance in order to meet the required 3 percent deficit-to-GDP benchmark for membership in the eurozone. When it failed in its fiscal responsibilities, Greece used questionable reporting to make the numbers work.[208] Between 1999 and 2004, government expenditures grew more than 50 percent, and GDP increased 23 percent.

In 2005, Greece's government implemented half-hearted spending cuts that delayed the growth in the structural deficit. One segment of the reforms attempted to end "jobs for life" in the public sector by legalizing government layoffs. These reforms met with resistance and protests in major cities throughout Greece.[209]

Pushing the Limits on Spending

From 2005 to 2009, Greece's structural deficit grew steadily from 6.7 percent to 19.1 percent of potential GDP.[210] These spending policies pushed the gross government debt-to-GDP ratio to its 2011 apex of 170 percent. A significant amount of this spending was for public-sector compensation, which rose by 39 percent in real terms from 2003 to 2009,[211] and pension increases that were exacerbated by the growing number of retirees.

Since its 2008 peak, Greece's economy has contracted by more than 23 percent, and there are still no clear signs that the economy has reached bottom. In late 2013, GDP was 2.3 percent below the prior year,[212] and unemployment rose to 27.5 percent in December.[213] The government's inability to pay its debts has led to two sovereign defaults, effectively shutting Greece out of international borrowing markets.

Political instability and unrest are further fueling Greece's economic decline. With numerous protests and violence in the streets, the tourism industry dropped by 1.5 million tourists in 2012.[214] The unsteady political outlook and chronic lack of political will to follow through with promised reforms have increased uncertainty, driving investors fur-

ther away. Since 2007, investment has fallen by more than half.

Restructuring and Bailouts

Given the civil unrest that followed the bailout and various austerity plans, it is doubtful that Greece would have attempted to restructure its public sector without pressure from the international community.[215] Despite two bailouts and a default allowing a 50 percent write-down of debt, Greece still has not reduced its total deficit below the 3 percent target. To continue to receive bailout funds, Greece must adhere to the international agreements that require substantial reforms in the public sector, more effective tax collection, some privatization of public property, and other fiscal adjustment measures.[216]

The government of Greece has adopted the Economic Adjustment Programme to implement reforms to improve the business climate, restore competitiveness, and ensure growth.[217] Thus far, it has implemented reforms in public service, pensions, taxation, and privatization of state assets.

Public Service. Public-sector jobs took a general wage cut of 10 percent for salaries above €1,800 a month. Jobs for life were—in theory—abolished in the public sector. Only about 20 percent of retiring employees are being replaced in order to reduce the number of public-sector jobs.[218] In October 2013, public employees lost a "hardship" bonus of six extra vacation days per year for anyone working with a computer. In April 2013, an attempt[219] at public-sector layoffs targeted 15,000 public-sector jobs, including many at the state-owned television station.

Pension Reform. The retirement age is being increased to 67, although many workers retire early, and these reforms do not affect civil servants.[220] One policy target is to increase the average age of retirement from 61 to 63.[221] Reforms have also attempted to make early retirement less attractive. Additionally, pensions will now be calculated based on average pay over a worker's whole career instead of just the last five years of pay, which are much higher than career average pay.[222]

Taxation. In January 2011, the Greek government increased the standard value-added tax (VAT) to 23 percent. New taxes on gasoline were introduced. Beginning in 2014, a new property tax that aims to raise $3.5 billion per year takes effect. Alongside this new tax, Greece's parliament renewed the ban on home foreclosures.[223] New luxury taxes on vehicles, swimming pools, and aircraft have been introduced.[224] Greece's total tax revenues have fallen overall due to the weak economy but have still risen sharply from 40 percent to 46 percent of GDP.[225]

Privatization of State Assets. In 2011, Greece established the Hellenic Republic Asset Development Fund (HRADF) to oversee the privatization program. The HRADF's target was to generate €5 billion in revenues for 2011 and €50 billion by 2015,[226] but it managed to raise only €1.7 billion in 2011 and €0.7 billion in 2012.[227]

As of mid-2013, the government of Greece had sold the Mobile Telephony Licenses; 10 percent of the Hellenic Telecommunications Organization; one-third of the state lottery OPAP; a 120-acre parcel of land on the island of Corfu;[228] four real estate properties in London, Belgrade, Brussels, and Nicosia;[229] and four Airbus A340s.[230] The government lowered its initial targets twice, down to €11 billion by 2015.[231] Thus far, only 13 projects have been privatized, yielding €3.8 billion since 2011, far below the initial targets.[232]

Structural Reforms

The Greek government has begun to integrate several agencies, particularly in the revenue collecting sectors. The Fiscal Management Law requires an annual rolling three-year budgetary strategy with expenditure ceilings. Liberalization of regulated professions is also planned.[233] Automatic cuts in expenditures are triggered when targets are missed.[234]

Outlook

Despite a five-year depression, there have been only a few signs of improvement. Most recently, Greece recorded its first primary government surplus of $1.35 billion. However, recent verdicts by Greek courts, such as the decision that the public-sector wage cuts are unconstitutional, will likely threaten implementation of the reforms and the sustainability of the decreasing deficit.[235]

With youth unemployment over 60 percent and total unemployment at 28 percent, and with tax rates rising and real GDP falling, private consumption will likely decrease further. An IMF estimate predicted that gross government debt would surpass 173 percent of GDP in 2013, leading some to raise the prospect of a third bailout for Greece.[236]

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216. International Monetary Fund, "Greece: Letter of Intent, Memorandum of Economic and Financial Policies, and Technical Memorandum of Understanding," July 17, 2013, http://www.imf.org/external/np/loi/2013/grc/071713.pdf (accessed February 20, 2014).
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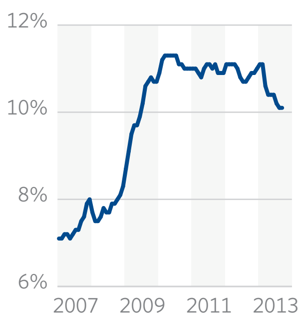
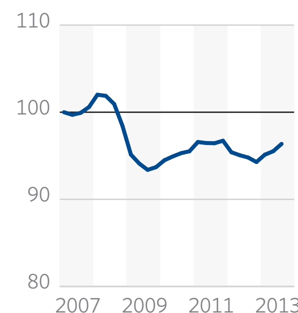
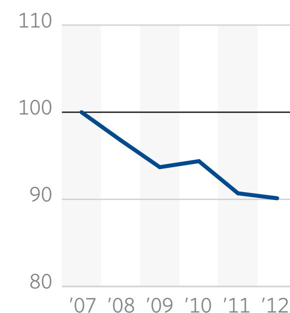
APPENDIX CHART 5

Key Metrics for Hungary







Notes: Hungary does not use the euro, so its spread can move for reasons other than fiscal risk. Interest rate spread is borrowing cost relative to Germany's.
Sources: Eurostat, OECD, and Heritage Foundation calculations.

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Hungary

Dalibor Roháč

Notwithstanding its reform successes in the 1990s, Hungary's economy prior to the financial crisis of 2008 was characterized by high levels of household indebtedness, unsustainable public finances, and structural problems, particularly in the labor market. The policy response to the crisis was unsystematic and worsened the perceptions of legal protection of private property and investors.

Economic Performance Before the Crisis

In the early 1990s, Hungary was seen as one of the most successful transitional countries in Central and Eastern Europe. Due to reforms adopted in the 1980s, Hungary had direct experience with private markets even before the collapse of Communism.

Given Hungary's starting position and its early progress in the transition, its economic performance of the 1990s and the 2000s was disappointing. Between 1995 and 2008, annual growth rates averaged just 3 percent.[237] Various structural problems persisted, most prominently in the labor market, which was characterized by extremely low rates of labor force participation.

Throughout the 2000s, the government's fiscal situation worsened, with public debt rising by almost 30 percentage points between 2001 and 2008. Simultaneously, Hungarian households accumulated large foreign-denominated debts, primarily in Swiss francs. By 2008, foreign-currency loans constituted almost 30 percent of gross domestic product (GDP), compared with less than 10 percent in the Czech Republic and Slovakia.[238]

The Crisis of 2008

The combination of high public debt and high external debt made Hungary financially vulnerable. The dramatic depreciation of the Hungarian forint relative to the euro and the Swiss franc in 2008 and 2011 not only increased the relative size of foreign-denominated loans, but also led to an explosion of nonperforming loans. The portion of nonperforming loans increased from around 2 percent in 2007 to 14 percent by 2011.[239]

The combination of the global financial crisis and depreciation made it more difficult for the Hungarian government to issue bonds, prompting it to request an aid package from the International Monetary Fund, the European Union, and the World Bank. The standby loan of $15.7 billion approved in November 2008 was the first in a series of rescue packages provided to EU countries in financial distress.

Unsurprisingly, the crisis in the financial sector had repercussions on the real economy. Hungary's economy contracted by 6.8 percent in 2009

and has yet to resume pre-crisis growth rates. The average economic growth rate in the recovery has been around 0.5 percent per year. Unemployment increased from 7.4 percent in 2007 to 11.2 percent in 2009 and has remained in double digits since.

Policy Response

The Hungarian government has responded to the crisis with financial, fiscal, and structural reforms.

Financial Sector. The policy response to the crisis in the financial sector consisted of a series of negotiated measures aimed at reducing the burden of debt on households. Three key measures have been put in place. First, the government and financial institutions negotiated a repayment program that gives households an option to use a fixed discounted exchange rate to repay their loans until the end of 2014. Second, the government and the banks agreed to convert loans that have been nonperforming for more than 90 days into Hungarian forints, with a 25 percent "haircut" imposed on financial institutions. More controversially, in September 2011, the government—without consulting the financial industry—adopted legislation that enabled households to make one-off repayments of their foreign loans at a discounted exchange rate, forcing the resulting losses on banks.

Fiscal Consolidation. Hungary began consolidating its finances in 2007, while its economy was still growing. The revenue rate jumped up permanently by 3 percent of GDP and a 2006 expenditure increase was reversed. Consolidation continued inconsistently after 2008. Calculated as a percentage of GDP, taxes rose and non-interest expenditure declined slightly from Hungary's business cycle peak in 2008 to 2012. Converted to real U.S. dollars, the figures are starker: expenditures fell $8 billion and revenue fell $4 billion. Due to the rapid depreciation of the forint, the real value of government expenditures and revenue fell despite nominal increases; the same was true of GDP. Inflation eroded the value of government transfers, where half the decline in expenditure took place. Inflation most likely accounts for a large share of the drop in government purchases, as well. Hungary has traditionally had the highest public spending in the region, with public spending at 49 percent of GDP in 2012, compared with 37.4 percent in Slovakia, 44.6 percent in the Czech Republic, and 42.3 percent in Poland.[240]

The tax rate increases came primarily from ad hoc levies on the financial, telecommunications, and retail sectors. Simultaneously, the government cut income taxes by introducing a 16 percent flat tax rate on wages, but the higher value-added tax and other tax increases overwhelmed the cut, increasing tax revenues overall. The attempted fiscal consolidation involved nationalizing $14 billion in assets of private pension funds in 2011—a measure that increased revenue in the immediate short term but cannot be a systematic remedy to the country's deficit problem.[241]

In 2008, as part of a more systematic effort to bring public finances under control, Hungary introduced the Fiscal Council, a nominally independent body charged with assessing the short-term and longer-term effects of policy changes on the government budget. In 2011, after the Fiscal Council criticized the adopted tax increases as unsustainable, the government of Viktor Orbán stripped it of its powers and replaced it with a three-member panel with a much narrower mandate.[242] In December 2011, Hungary also adopted the Financial Stability Act, which puts in place an automatic formula beginning in 2015 that limits the growth of nominal debt whenever debt-to-GDP ratio exceeds 50 percent.

Structural Reforms. The financial crisis exacerbated the structural problems of the Hungarian economy, particularly the labor force participation rate, which remains among the lowest in the European Union.[243] This is driven by the heavy tax burden imposed on labor and the minimum wage, which interacts with the tax system. In Hungary, firms typically underreport salary expenditures, supplementing official earnings with cash-in-hand wages. Increases in the minimum wage—from €260 monthly in 2007 to €341 in 2013[244]—are forcing firms to report a greater portion of their salary expenditure, thus increasing their tax burden,[245] while the tax reforms of 2010–2012 have only partly reduced the significant employment disincentives facing Hungarian workers and firms.[246]

Furthermore, Hungary's regulatory burden has traditionally been heavy. According to the *Global Competitiveness Report*, Hungary's regulatory burden ranks among the heaviest in the world—138th out of 144.[247] The business environment appears to be deteriorating because of growing legal uncertainty, driven largely by the government's unconventional policy response to the crisis.

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243. European Commission, Eurostat, "People Outside the Labour Market," July 2013, http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/People_outside_the_labour_market (accessed March 29, 2014).
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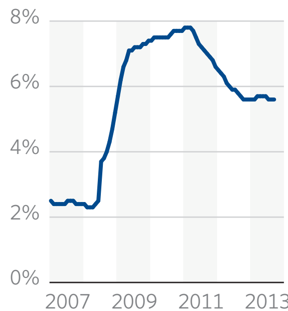
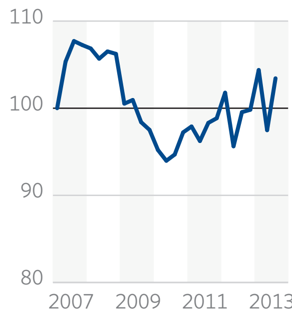
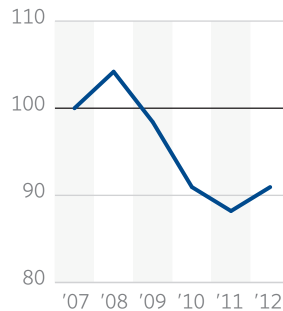
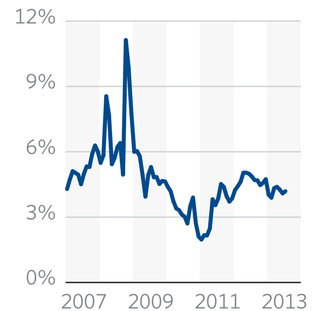
APPENDIX CHART 6

Key Metrics for Iceland









Notes: Iceland does not use the euro, so its spread can move for reasons other than fiscal risk. Interest rate spread is borrowing cost relative to Germany's.

Sources: Eurostat, OECD, and Heritage Foundation calculations.

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Iceland

David Howden, PhD

During its economic and financial crisis in 2008, Iceland became the first developed country in more than 30 years to request aid from the International Monetary Fund (IMF). In terms of stock market decline and output lost, the small island nation's recession over the past five years has been rivaled only by those of Greece and Ireland. However, by refusing to bail out its banks, the government avoided an indebted fate that would have left taxpayers on the hook for a generation, as is the case in Ireland.[248] Today, Iceland's recovery is a success story, although there is still work to do on the policy front.

Boom and Bust

Iceland's economic growth in the early 2000s was a European success story. Yearly real gross domestic product (GDP) growth averaged 2 percent, and the stock market's capitalization grew by about 11 percent of GDP per year. Strong economic growth kept government finances largely under control, with the debt-to-GDP ratio dropping to 40 percent by 2005.

Yet this economic growth proved to be largely illusory, with large increases in the money supply playing a key role.[249] Between 2001 and 2008, the money supply (M1) increased at an average annual rate of 33 percent. Supported by a wide-reaching mortgage support system via the government's Housing Financing Fund, real estate prices averaged double-digit growth throughout the decade, and homeowners cashed out their equity to increase consumption.[250]

Low interest rates, largely promoted by the accommodative monetary policy of the Central Bank of Iceland (CBI), encouraged large amounts of borrowing. Real borrowing rates remained negative for 2004–2008 as the CBI overshot its inflation target. An expansive deposit insurance plan increased the perceived risk-adjusted returns on bank investments and enticed banks to set up foreign subsidiaries to offer higher Icelandic interest rates to foreigners. Funding to these subsidiaries was funneled back into Iceland, creating the "carry trade." By converting the foreign deposits to Icelandic króna, Icelandic banks ensured that the króna remained strong on foreign exchange markets and that domestic Icelanders had ample access to credit.

By 2008, international private and public debt totaled nearly 400 percent of Icelandic GDP, with another 360 percent of GDP in domestic indebtedness. The country had grown reliant on short-term funding, which dried up with the collapse of Lehman Brothers in September 2008.

Iceland's largest banks collapsed without funding. Although the government initially attempted to save them, it was soon clear that their size dwarfed

the small island's fiscal capabilities. By the end of 2009, public debt had surpassed 100 percent of GDP, and the government requested assistance from foreign governments to remain solvent.

Policy Reaction

In the early stages of the crisis, the government and the CBI remained committed to aiding Iceland's ailing financial sector. The CBI did not back away from its pledge to honor deposit insurance, even though the banks held more than 14 times the available deposit insurance funding in their foreign subsidiary accounts. With a banking sector 11 times the size of Iceland's 2007 GDP, any bailout would imperil the government's finances.[251]

The early commitment to saving the banking sector soon gave out, and Iceland's financial supervisor placed the big three banks (which held more than 80 percent of the country's banking assets) into receivership. The supervisor then proceeded to ring fence the banks along the standard lines of good bank versus bad bank, although Iceland differed from most other countries because it divided the assets along geographic lines. "Bad" banks included foreign subsidiaries and would not be eligible for government assistance. "Good" banks included the domestic operations, which the government backstopped with €7.96 billion in loans. This undertaking saved depositors in the domestic banking sector from losses but set the government's finances on an unsustainable trajectory.

In a bid to forestall a sovereign default, the government sought outside assistance. To secure a requested IMF standby agreement, Iceland had to agree to certain policies. Chief among these were capital controls, ensuring that public finances return to a sustainable path, and restructuring the financial sector.

Putting public finances on a sustainable path has been a slow process, although after several years of double-digit deficits, the government ended 2012 with only a modest budgetary shortfall of 1.5 percent of GDP. Iceland's fiscal consolidation came primarily on the spending side, with cuts totaling more than 4 percent of GDP.[252] Tax increases have been limited largely to the financial and tourism industries, with most businesses paying a flat 20 percent corporate rate. (Individuals pay the same amount on capital gains, although a highly progressive income tax system claims 46.22 percent of income above $60,000, or 739,000 Icelandic króna.)

Structural Reforms

Major reforms moving forward will involve removing the capital controls imposed by the IMF to promote trade. Prior to 2008, Iceland's economy enjoyed large capital inflows, which halted with the end of the carry trade in September 2008. Capital inflows are now severely hampered by capital controls, which ration access to foreign currency and set an onshore króna exchange rate that is typically 30 percent to 40 percent lower than offshore rates.[253]

While the capital controls were originally implemented to avoid a sharp depreciation of króna, they are quickly outliving whatever usefulness they once had. Evidence now suggests that the supply of foreign investment has dried up as foreigners have become unsure whether they could draw on their investments in the future. One area in which the ailing economy can generate an export-led recovery is its ample fishing sector. Regrettably, Icelandic authorities traditionally have not been open to foreign investors in this sector,[254] and some evidence suggests that the government is using the capital controls to further discourage foreign encroachment in this area.[255]

Perhaps most troubling is that the controls are slowing the needed restructuring of the banking sector. The three "new" banks created from the ashes of the 2008 receiverships are still controlled by the Icelandic government, which retains veto power on the boards of directors. Without foreign funding entering the country to rebuild the banking sector, the emphasis is on recovering distressed assets and minimizing short-term losses.[256] While avoiding losses is not necessarily unwarranted, the goal has conflicted with banks' returning to normalcy and has promoted a dysfunctional banking sector that is not focused on core operations.[257]

Rebound

Despite the hardships created by its capital controls, the Icelandic recovery has been formidable. Inflation is coming under control, the trade balance was 6.3 percent of GDP in 2012, unemployment is hovering around 6 percent, and income is up over 2 percent in real terms since the previous year. The export sector has led the recovery, and fisheries exports have provided some of the green shoots in the once bleak economy.

Moving forward, the Icelandic economy faces three challenges.

- Removing capital controls to promote greater inward investment will require more effort the longer they remain in place and domestic business grows accustomed to a lack of foreign competition.
- Getting government finances under control is already underway, although with a debt-to-GDP ratio over 130 percent, much still needs to be done to completely ease investors' fears of a sovereign default.
- Finally, moving banks to sustainability is an ongoing struggle, but one that will have the largest payoffs for the economy as a whole. Removing the dependence on cheap short-term credit by the CBI and allowing foreign capital to take its place would significantly reduce the engrained nature of the banking establishment. In this regard, softening or eliminating the capital controls would have the twofold benefit of increasing inward investment while also reducing the stronghold of the existing banking establishment.

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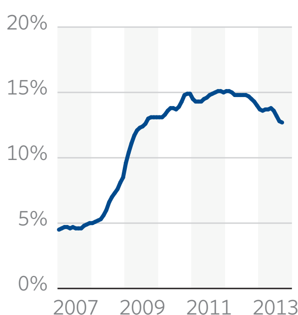
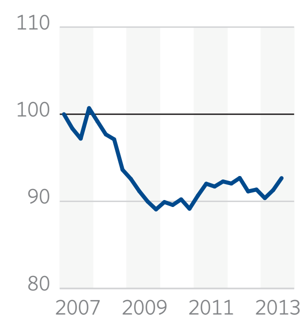
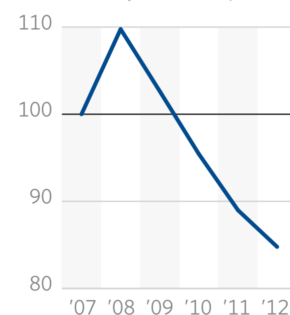
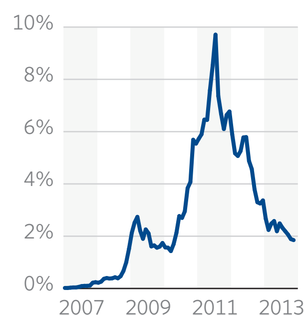
APPENDIX CHART 7

Key Metrics for Ireland









Note: Interest rate spread is borrowing cost relative to Germany's.
Sources: Eurostat, OECD, and Heritage Foundation calculations.

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Ireland

David Howden, PhD

After an era of rapid economic growth, Ireland's luck changed in 2008. The freeze in global credit markets coupled with a downturn in the Irish real estate market brought the country's financial system to its knees. Irish policies focused on a broad bailout of the banking establishment. Most pertinent to Ireland's continuing recovery were the bad policies that it could have enacted—such as capital controls—but instead eschewed.

Boom and Bust

The sustained economic growth in Ireland between 1990 and 2008 resulted primarily from policies that attracted foreign capital coupled with structural reforms in anticipation of accession to the eurozone. A low corporate tax rate—at one point as low as zero percent on exported manufactured products—caught the attention of large multinational corporations.[258] By 1997, more than 30 percent of the economy and 40 percent of exports were derived from foreign-owned companies.[259] The resultant growth in the private sector helped to lower Irish public debt to 22 percent of gross domestic product (GDP).

High nominal interest rates, no exchange rate risk within the eurozone, and low levels of (Northern) European inflation led to large credit inflows.[260] The added credit was directed primarily to the real estate market. Private household debt skyrocketed from under 8 percent of GDP in 2000 to over 100 percent of GDP in 2007. Housing prices doubled on average between 2003 and 2007.

The buildup in debt was fragile. Irish homeowners relied on steadily increasing real estate prices to maintain their ability to pay off their mortgages. Banks relied on the continuation of low short-term borrowing rates to reinvest their loan portfolios.

Bank Bailouts

After the financial crash, Ireland enacted steadily more intrusive and expensive guarantees and bailouts in an effort to restore its banking sector to financial health. In September 2008, faced with the real possibility of a complete collapse of its financial sector, the Ministry of Finance removed the maximum insurable limit on its deposit guarantee. This policy had the short-term benefit of attracting much-needed capital but came at the cost of creating a contingent liability of about 200 percent of GDP.[261] Political tensions rose as Ireland's neighbors caviled at Ireland's "poaching" banking liquidity at a time when it was scarce.

By December 2008, the Irish government had spent €5.5 billion to take a controlling stake in the country's three largest banks. Anglo Irish Bank was

nationalized in an emergency legislative session in January 2009, and the others received an additional €3.5 billion each in recapitalizations.

These measures proved insufficient, and in late 2009, the National Asset Management Agency (NAMA) was set up to purchase nonperforming real estate development and property loans in exchange for government bonds. NAMA purchased loans with a face value of €72 billion, paying €30 billion in cash and €42 billion in newly issued government bonds. This set in motion a steady increase in government debt, which quickly rose from a low level of 28 percent of GPD in 2007 to more than 100 percent by 2011.

It was soon apparent that the Irish government could not service the increasing debt, and by November 2010, it was obliged by the EU and the International Monetary Fund (IMF) to accept an €85 billion bailout, with another €150 billion provided through the European Central Bank (ECB), to meet the liquidity needs of the banking system. The EU, ECB, and IMF loans amounted to over 14 percent of Ireland´s GDP in 2009 and 32 percent in 2010.[262]

Despite these efforts, by April 2011, all six of the major Irish banks had been reduced to junk bond status. The total cost of the bank bailouts is now estimated at 50 percent to 60 percent of the country's 2010 GDP.[263] Ireland's banking sector is no more solvent today than it was five years ago, despite over €235 billion in government loans.

Allowing Prices to Rebalance the Economy

Although the bailouts of Ireland's financial sector have imperiled the government's solvency and have bound a generation of Irish citizens to debt repayment, Ireland avoided some of the worst policies of its neighbors.

Ireland's membership in the euro functioned almost as a modern-day "gold standard," preventing Ireland from attempting to inflate its way out of the crisis.[264] Ireland experienced some short-term pain in the low post-crisis inflation, and internal adjustments created outright price deflation of almost 2 percent in 2009 and 2010. While declining prices made it more difficult for debtors to repay loans, there was an important silver lining.

Deflation did not affect all prices equally. Inelastic goods, such as food, declined in price by only 5 percent from 2008 to 2013.[265] Over the same period, prices of assets that were the most overvalued at the peak of the boom, such as housing, declined by nearly 20 percent. Years of credit growth had resulted in overinvestment in some goods, such as property development, and prices had risen too high relative to some other goods. For example, food prices increased by 24 percent between 2000 and 2008, while housing prices shot up by more than 120 percent over the same period. The recession of the past five years was a corrective to the extent that relative prices adjusted to sustainable ratios. Inflating the money supply as the crisis progressed would have prolonged the price adjustment phase because financial assets and loan collateral prices, such as real estate, would not have declined as quickly.

By not pursuing an inflationary policy, Ireland forced some difficult decisions on its investors. As prices and investment shifted, the realignment guided entrepreneurs to the most needed activities.

The result is greater efficiency today. Because of deflated housing and construction prices, very little investment is being dedicated to those activities, with a relative shift to more beneficial activities. Deflationary forces have curtailed investment in previously overvalued sectors. In their place, funding is being directed to more sustainable industries to aid the recovery, notably export markets.

Recovery

By enduring some painful adjustments in the short run, Ireland has built a more stable foundation for resuming sustainable long-term growth. However, two problems remain.

First, the government is planning to increase taxes to combat the public deficit. In 2012, the VAT increased from 21 percent to 23 percent, and a bevy of new property taxes are slated to be introduced. Low taxes helped to spur the real boom during the Celtic Tiger years, and raising taxes could turn Ireland into an uncompetitive backwater again. More dangerous than a VAT increase would be a corporate income tax rate increase. This solution is likewise misguided, and even the possibility of a tax rise is already discouraging foreign investment.

Second, the debt overhang from the bank bailouts is still evident. Public debt is still near 120 percent of GDP, and the government deficit is projected to be 7.5 percent of GDP in 2013 and 5.3 percent in 2014. This is not sustainable.

The path to recovery will be painful, but the Irish have shown a willingness to make difficult decisions.

By using income to pay down existing debt instead of taking on new credit, the country can escape the grip of the bailouts. This would entail a period of decreased consumption and investment. By contrast, raising the VAT would harm Irish citizens by increasing their cost of living and by relieving pressure on the central government to put its finances in order.

Uncertainty over the future of Ireland's low corporate tax rate is jeopardizing foreign investment. Assuring investors that Ireland is still pro-business would do much to continue capital inflows from foreign investors, provide jobs to unemployed Irish workers, and allow for an export-led recovery.

258. Anthony J. Evans, "The Irish Economic 'Miracle': Celtic Tiger or Bengal Kitten?" in David Howden, ed., *Institutions in Crisis: European Perspectives on the Recession* (Cheltenham, UK: Edward Elgar, 2011), pp. 44–55.
259. Benjamin Powell, "Economic Freedom and Growth: The Case of the Celtic Tiger," *Cato Journal*, Vol. 22, No. 3 (Winter 2003), p. 448, http://www.freetheworld.com/papers/Benjamin_Powell.pdf (accessed December 26, 2013).
260. David Howden, "The Icelandic and Irish Banking Crises: Alternative Paths to a Credit-Induced Collapse," *The Independent Review*, Vol. 18, No. 3 (Winter 2013), pp. 421–439.
261. Gregory Connor, Thomas Flavin, and Brian O'Kelly, "The U.S. and Irish Credit Crises: Their Distinctive Differences and Common Features," *Journal of International Money and Finance,* Vol. 31, No. 1 (February 2012), pp. 60–79.
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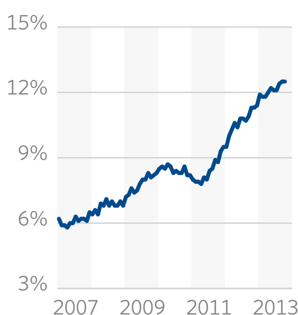
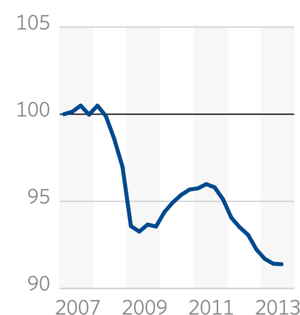
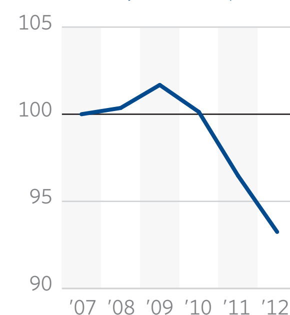
263. Gary O'Callaghan, "Did the ECB Cause a Run on Irish Banks? Evidence from Disaggregated Data," *Irish Economy Note* No. 13, February 2011, http://www.irisheconomy.ie/Notes/IrishEconomyNote13.pdf (accessed December 27, 2013).
264. Jesús Huerta de Soto, "An Austrian Defense of the Euro," Ludwig von Mises Institute, June 22, 2011, http://mises.org/daily/6069/An-Austrian-Defense-of-the-Euro (accessed December 27, 2013).
265. Organisation for Economic Co-operation and Development, Main Economic Indicators, http://dx.doi.org/10.1787/data-00052-en (accessed on January 4, 2014).

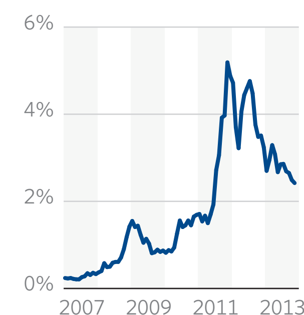
APPENDIX CHART 8

Key Metrics for Italy









Note: Interest rate spread is borrowing cost relative to Germany's.
Sources: Eurostat, OECD, and Heritage Foundation calculations.

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Italy

Matthew Melchiorre

Italy's current economic problems are the result of a decades-old web of business-stifling regulation and a sclerotic bureaucracy. Regrettably, special interests' dominance of Italian politics makes reform and fiscal consolidation extremely difficult. The three Italian prime ministers in office during the five years of the euro crisis failed to enact substantive changes. Matteo Renzi, the current prime minister, faces a steep uphill battle in doing so.

Italy's Economic Malaise Rooted in Its Past

Italy was a major manufacturer and exporter during the 1950s and 1960s. Labor markets were flexible, productivity was high, and bureaucracy was relatively small.

However, in the early 1970s, the Italian government responded to inflation and recession by introducing a slew of strict labor regulations that gave unions more power to represent workers and act as their intermediaries between employers and courts. Labor costs skyrocketed, and Italy's productivity shriveled, along with its share of the export market.[266]

Public employment became a social benefit for the unemployed and a tool for political patronage. The efficiency of Italy's bureaucracy suffered, and tax increases paid for more unemployed workers dressed as government employees.

Rigid labor rules and bureaucratic growth remain constant problems. Italy now has the second-highest public debt burden in the European Union[267] and the second-worst business climate in the developed world.[268]

Italy and the Euro Crisis

In the wake of the global recession, financial turmoil originating in Ireland and Greece soon spread to Italy as Rome's ability to fulfill its debt obligations came under the scrutiny of international financial markets.

With the spread between Italian and German 10-year treasury bonds nearly doubling between January and July 2010, the Italian Parliament passed Italy's first "austerity" plan: a three-year pay freeze for public-sector employees, a 10 percent reduction in ministry budgets, cuts in local government budgets, and a gradual three-year increase in the male and female ages of eligibility for public and private pensions by 2050 (currently at 65 and 60, respectively).[269] For the first time, total government spending remained unchanged from the previous year instead of increasing, but this did not ease worries in bond markets, because Italy needed a spending cut, not just a freeze.

By August 2011, the European Central Bank (ECB) became so frustrated with Italy's floundering

on reform that ECB President Jean-Claude Trichet and Italian Central Bank President Mario Draghi sent Prime Minister Silvio Berlusconi an official letter sternly recommending "full liberalization" of the labor market, pension reform, and a bureaucratic overhaul to improve efficiency.[270] Berlusconi's government barely survived a vote of confidence in October, and on the parliament floor a fistfight broke out over pension reform between two deputies from the governing coalition.

When the Berlusconi government failed in November to agree on reforms aligned with the ECB's recommendations, markets had had enough. The ECB, fed up with the political infighting of Berlusconi's coalition government that was blocking reform, did not stop markets from pushing the interest rate on Italian debt higher than it had ever been as a euro member. Berlusconi resigned as prime minister, and his government collapsed.

Italian President Giorgio Napolitano appointed economics professor Mario Monti to lead a technocratic government, which would soon run into the same political paralysis as its predecessor. Monti pushed an austerity plan through parliament in December 2011 that consisted of tax increases and pension reform. While calming for financial markets, this was the first of several measures that tested Italians' patience.[271]

By January 2012, Monti had proposed liberalization of Italy's heavily cartelized professional-service sector—beset with the highest level of regulations and standards in the developed world. His plans fell flat as no meaningful legislation abolishing maximum licensing quotas or simplifying the long list of minimum standards for professions passed parliament. Lawyers and pharmacists protested while taxi and truck drivers threw up roadblocks.

The final blow to Monti's government came in spring 2012, when he attempted to reform burdensome labor laws that have remained untouched since the 1970s. Monti's government eventually passed reforms, but union power and the politicians who benefited from the older, less efficient system took the country a step backward: Temporary work became more expensive, and layoffs became legal but subject to a bureaucratic web of hurdles making them a de facto impossibility. Laws prohibiting the dismissal of workers for poor performance remained intact, as did the severe penalties for violating these rules. As Emma Marcegaglia, then president of the Italian employers' association, said, "It would be better to have nothing."[272]

Italy's tax burden as a share of GDP grew by over 4 percent during its third year of austerity. Its level of government spending decreased mildly in the second year following enactment of austerity and has remained essentially unchanged since then.

New elections in 2013 yielded even less progress on reform. The new government led by Prime Minister Enrico Letta—formed out of a shaky compromise between center-left and center-right coalitions that were deadlocked at the polls—does not have the strength to implement the reforms that would ensure Italy's fiscal sustainability and economic vitality.

Letta's 2014 successor, Matteo Renzi, has inherited the same weaknesses. Although he is a firebrand within his own center-left party and has an ambitious agenda for reform, it remains to be seen whether he can overcome Italy's entrenched interests. His success or failure depends on the extent to which he can galvanize popular support to change regulations and overhaul bureaucracies from which political elites have been extracting rents for decades. Indeed, reform in any meaningful sense is a herculean task—even for Renzi, who has established himself as a rare "anti-establishment" politician.

Despite government ministers' claims since July 2010 that Italy has embarked upon a new age of austerity, annual government spending decreased only mildly below pre-austerity levels from mid-2011 to mid-2012 and has not fallen any further since then. On the other hand, taxes have increased relative to the pre-austerity level by 57 percent more than spending has decreased.[273] Attempts to liberalize Italy's rigid labor market have been unsuccessful, and the Italian bureaucracy has not changed in any appreciable way. In Italy, austerity has meant tax increases with little change in the size of government.

266. Tiziano Treu, "Italian Labor Relations: A System in Transition," *Monthly Labor Review*, Vol. 110, No. 3 (March 1987), http://www.bls.gov/opub/mlr/1987/03/rpt1full.pdf (accessed April 4 2014).

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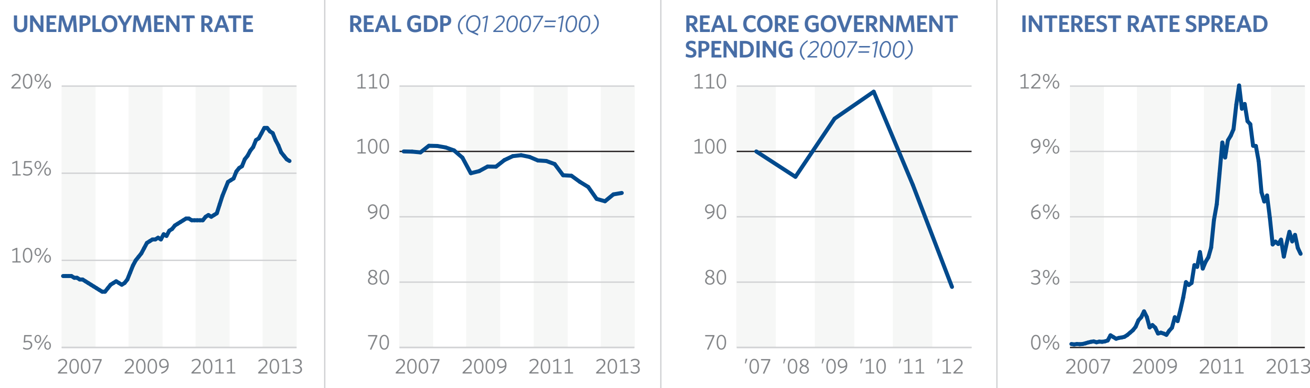
268. Terry Miller, Anthony B. Kim, and Kim R. Holmes, *2014 Index of Economic Freedom* (Washington, DC: The Heritage Foundation and Dow Jones & Company, Inc., 2014), http://www.heritage.org/index/ (accessed April 4, 2014).
269. Sofia Sanz, "Italian Government Launches Financial Intervention Package," European Industrial Relations Observatory, September 3, 2010, http://www.eurofound.europa.eu/eiro/2010/08/articles/it1008019i.htm (accessed April 4 2014).
270. Guy Dinmore and Ralph Atkins, "ECB Letter Shows Pressure on Berlusconi," *Financial Times*, September 29, 2011, http://www.ft.com/cms/s/0/3576e9c2-eaad-11e0-aeca-00144feab49a.html (accessed April 4, 2014).
271. BBC News, "Italy Crisis: Mario Monti Announces Austerity Plan," December 4, 2011, http://www.bbc.co.uk/news/world-europe-16024316 (accessed April 4, 2014).
272. Guy Dinmore, "Employers Attack Italy's Labour Reforms," *Financial Times*, April 5, 2012, http://www.ft.com/cms/s/0/2ac5daf2-7f1c-11e1-a26e-00144feab49a.html (accessed April 4, 2014).
273. Author's calculation based on quarterly data from Eurostat. European Commission, Eurostat, 2009–2012, http://epp.eurostat.ec.europa.eu/portal/page/portal/eurostat/home/ (accessed October 2013).

APPENDIX CHART 9

Key Metrics for Portugal



Note: Interest rate spread is borrowing cost relative to Germany's.
Sources: Eurostat, OECD, and Heritage Foundation calculations.

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Portugal

Salim Furth, PhD[274]

In five years, Portugal's unemployment rate doubled,[275] its debt grew substantially, and its gross domestic product (GDP) per capita advanced just $150.[276] Productivity stagnated while wage growth exceeded 2 percent every year.[277] Olivier Blanchard forecast "a period of sustained high unemployment, leading to lower nominal wage growth until relative unit labor costs have decreased … typically a long and painful process."[278]

Those five years ended in 2006. Portugal had slumped as the world boomed.

The Slump

Expanding on Blanchard's work, Ricardo Reis has investigated the curious and sad case of Portugal. While neighboring Spain grew rapidly, Portugal slumped through the 2000s. Joining the European Monetary Union in 1999 did not spur growth in Portugal, in contrast to the gains from earlier integration episodes.[279]

Integration into the euro led to large capital inflows into Southern Europe, financing a boom in consumption and sustaining investment in spite of falling domestic savings. Due to Portugal's weak financial markets, laws that favor small businesses, and labor market rigidities, those capital inflows were channeled into sectors in which productivity was falling: wholesale and retail trade and community services. Reis notes an abundance of small, low-productivity establishments and hypothesizes that they received much of the new financing, increasing wages while decreasing average productivity. Financial integration with the rest of Europe came before Portuguese financial markets were deep, and the incoming investment was misallocated.[280]

Portugal's fiscal policy was the second contributor to the slump. The government increased labor taxes repeatedly during the 2000s. The generous retirement promises of Portugal's entitlement state began to come due in the 2000s, crowding out other government spending and pushing taxes higher even as deficits increased. The "higher taxes depressed employment and ensured that in spite of the capital inflows, the economy went into a slump."[281] Reis documents that the increases in pension payments were due to the growing size of each pension, not just demographics.[282]

Pension reform finally arrived in 2007, and the economy recorded its first growth above 2 percent in the decade, but by then it was too late. When the worldwide financial crisis arrived, "earlier reforms of pensions, other cuts in spending programs, and less distortionary tax increases would have been more effective ways to deal with the old-age pensions problem, and may have prevented the slump."[283]

Bad to Worse

Like most of Europe, Portugal entered a recession in 2008. The situation did not look particularly bleak. The recession was less severe than in many other countries, and recovery came promptly in 2009 despite major problems in the banking sector. The Socialist government was reelected and increased public spending.[284] But the hangover from the slump—high public and private debt, high taxes, and high unemployment—left Portugal on the brink.

Despite the improving economy, Portugal's government did not shrink its structural deficit, which remained at 9 percent of GDP annually. Instead, government purchases and transfers rose, and government revenue rose to 44 percent of GDP, even higher than the pre-crisis level.

When Greece's sovereign debt crisis began in 2010, investors began to attach a greater risk premium to Portuguese debt. The rising interest rates increased fiscal pressure on the Portuguese government, which enacted fiscal consolidation for 2011, including spending cuts and yet more tax increases. A "diabolic loop" between banks and government, deeply indebted and hopelessly intertwined,[285] led to a "sudden stop" and "current account reversal"—phenomena most often associated with crises in emerging economies.

Portugal was shut out of international capital markets in April 2011 and received a bailout from multinational institutions in May 2011,[286] but the financial rescue did not end its economic troubles. GDP continued to fall as unemployment and interest rates continued to rise.

Recovery?

As the crisis developed, Portugal and Ireland faced the same growing pressure in the bond market, but the two countries followed different paths after receiving bailouts. Ireland's path to fiscal solvency was sufficiently convincing to investors that its 10-year bond spread fell quickly and steadily. In contrast, Portugal's fiscal and economic failure pushed interest rates higher. By January 2012, Portugal's bond spread was twice Ireland's, and it remained around 5 percent in 2013.

The underlying rigidities of Portugal's labor market, although less severe than in the past, exacerbated the unemployment problem. Even during the GDP recovery of 2009–2010, unemployment continued to rise. Labor laws prevent wages (and thus prices) from falling to allow re-employment. In the construction sector, "nominal wages in the sector are fixed by collective bargaining and still have not fallen a single cent," contributing to the destruction of one-third of all construction jobs in Portugal.[287]

Portugal's new government, elected in 2011, has made real cuts in government wages and investments, but transfer payments remain far above pre-crisis levels. In exchange for bailouts, Portugal's parliament has passed a variety of structural reforms and improved its labor market, making far more progress than Greece.[288] Regrettably, the Constitutional Court blocked the most significant spending cuts.[289]

There are some signs of hope: Exports have grown rapidly, and the current account deficit has turned to a likely 2013 surplus. However, sustained growth still eludes Portugal 14 years into its membership in the euro.

274. The author thanks Ricardo Reis for his valuable comments and revisions.

275. Olivier Blanchard, "Adjustment Within the Euro. The Difficult Case of Portugal," *Portuguese Economic Journal,* Vol. 6, No. 1 (April 2007), p. 5, http://link.springer.com/article/10.1007%2Fs10258-006-0015-4 (accessed April 2, 2014).

276. World Bank, World Development Indicators, s.v. "GDP per Capita (Constant 2005 U.S. Dollars)," 2001–2006.

277. Blanchard, "Adjustment Within the Euro," p. 5.

278. Ibid., p. 7.

279. Ricardo Reis, "The Portuguese Slump-Crash and the Euro Crisis," paper presented at Spring 2013 Brookings Institution Panel on Economic Activity, March 21, 2013, pp. 3–4, http://www.astrid-online.it/Dossier--d1/Studi--ric/Reis_Brookings_Economic-Activity-panel_21-22_03_13.pdf (accessed September 10, 2013).

280. Ibid., pp. 16–18.

281. Ibid., p. 23.

282. Ibid., p. 20.

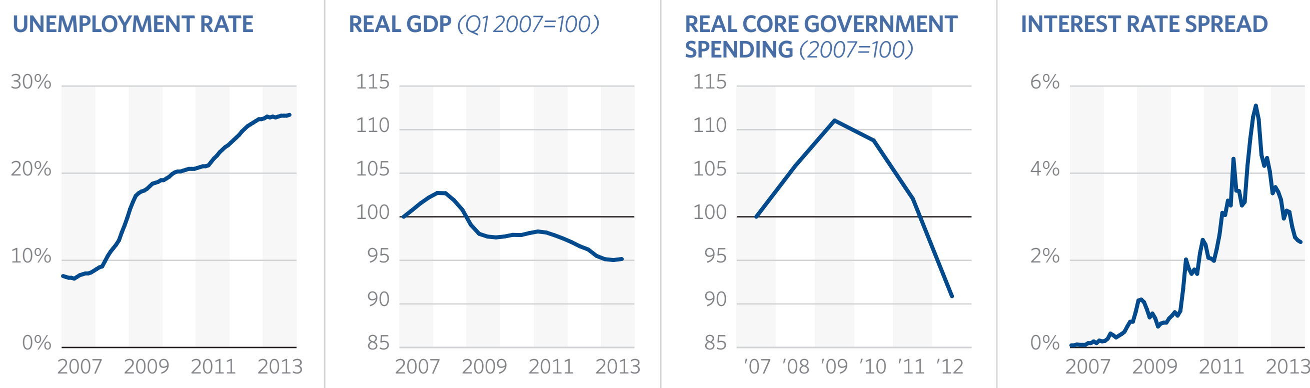
283. Ibid., p. 21.

284. Ibid., p. 36.

285. Markus K. Brunnermeier et al., "European Safe Bonds (ESBies)," September 2011, http://euro-nomics.com/wp-content/uploads/2011/10/06e-Esbies_document.pdf (accessed September 11, 2013).
286. Philip R. Lane, "The European Sovereign Debt Crisis," *Journal of Economic Perspectives*, Vol. 26, No. 3 (Summer 2012), pp. 56–57, http://pubs.aeaweb.org/doi/pdfplus/10.1257/jep.26.3.49 (accessed September 11, 2013).
287. Reis, "The Portuguese Slump-Crash and the Euro-Crisis," p. 39. Construction had not boomed in Portugal as it had in Spain, so this does not merely represent a bubble bursting.
288. Ibid., p. 38.
289. Peter Wise, "Court Delivers Blow to Portugal Bailout Programme," *Financial Times*, August 29, 2013, http://www.ft.com/intl/cms/s/0/822dfd4c-10e8-11e3-b5e4-00144feabdc0.html (accessed September 30, 2013).

APPENDIX CHART 10

Key Metrics for Spain



Note: Interest rate spread is borrowing cost relative to Germany's.
Sources: Eurostat, OECD, and Heritage Foundation calculations.

Spain

Miguel Marin[290]

Spain from 2007 to 2012 offers a dramatic case of an extreme economic crash in a short time. Never before had the Spanish economy deteriorated so thoroughly and quickly.

The double-dip recession shattered the "Spanish miracle," caused gross domestic product (GDP) to drop by 7 percent after 2008,[291] boosted the unemployment rate to 26 percent, and increased both the public deficit and debt. In only three years, public accounts went from a surplus of 1.9 percent of GDP to a deficit of 11 percent in 2009. In 2007, the Spanish central government's debt accounted for only 36 percent of GDP, just half the euro area average. As of 2013, Spain was approaching 100 percent of GDP in debt, having tripled its debt ratio since the beginning of the crisis.[292]

Origins and Specific Factors

The Spanish economic crisis was an archetype of the 2000s crisis narrative: a huge accumulation of risk fueled by a too-expansive monetary policy over an extended period of time, which distorted the behavior of investors, consumers, savers, and—most dangerously—government. In such circumstances, governments tend to believe that they can control the economic cycle, but when problems appear, they lose control.

Imbalances of the sort accumulated by the Spanish economy before the crisis, including a current account deficit of 10 percent of GDP[293] and huge exposure of the financial sector to real estate loans, are less likely to be financed in a country with its own currency. The entrance of Spain into the euro increased the capacity for creating a bubble. Foreign investment poured into the country despite its shallow financial institutions. When the bubble burst and financial markets refused further loans to Spanish borrowers, the Spanish government began to bail out banks and local governments, taking more of the external debt onto its own balance sheets. The real estate decline turned into a systemic financial crisis and then a sovereign debt crisis.

From an economic perspective, four main problems can explain much of the deceptive performance of the Spanish economy before the crisis:

- Rigidities in the real estate sector, mainly due to municipal and regional government intervention, prevented supply from adjusting agilely to the sharp increase in demand between 2000 and 2008. As a result, home prices rose rapidly.

- Labor market regulation created a dual system with insiders (permanent employees) and outsid-

ers (temporary employees). The duality allowed the insiders to bargain for higher wages at the expense of the outsiders, who suffered higher rates of unemployment as a result.

- The oversized administration and welfare state have become extremely expensive for citizens, choking potential economic growth and job creation and distorting the natural allocation of rights and responsibilities.
- The financial sector's exposure to loans to developers increased from €78 billion in 2003 to €324 billion in 2009.[294] The savings banks that issued many of these loans were later implicated in dishonest corporate governance.

The sluggish reaction of the eurozone in taking the necessary decisions, such as implementing a real banking union, continues to hinder the economic recovery.

The Political Response

In addition to the economic and administrative causes, Spain's Socialist government from 2004 to 2011 put off needed reforms in favor of increasing the size of government. Even as the real estate bubble sparked GDP growth of more than 3 percent per year from 2004 to 2008, government grew faster. In 2008, government spending and transfers reached 41 percent of GDP, up from 35 percent in 2004.[295]

When markets forced Spain to cut its budget deficit in 2010 and 2011, the government responded primarily with broad increases in the value-added tax, capital gains tax, and income tax. The government also made some spending cuts and even enacted a new reform that increased the standard retirement age to 67 (although it included an option for many workers to retire at 65). The structural balance barely improved from 2009 to 2011, remaining near 8 percent.

The Popular Party won a large electoral mandate in 2012, replacing the Socialists. The new government has focused on stabilizing the economy and recovering lost credibility. Its policies have been based on three main pillars.

First is a clear commitment to the sustainability of public finances, including a fiscal adjustment that reduced the structural deficit by 2 percentage points in 2012.[296] At the end of 2011, the Spanish parliament passed a constitutional reform to include a balanced budget concept in the constitution and to limit the public debt and deficit allowed at different levels of the administration. However, the composition of the fiscal adjustment remains excessively based on tax increases rather than spending reductions, further harming already depressed domestic demand.

The second pillar is cleaning up and recapitalizing banks to strengthen the financial system. The advances in the creation of a European Banking Union, although very slow, have added value to the thorough overhaul of Spain's financial sector. Restructuring the sector reduced the number of financial entities from 45 to 12, and the recapitalization process sharply reduced banks' exposure to the real estate sector. The enhanced transparency framework should restore confidence in Spanish banks.

The third pillar is structural economic reforms to boost competitiveness and productivity. The 2012 labor market reforms have triggered a sharp decline in unit labor costs and have led to increasing competitiveness and exports. Before the reform, GDP growth above 2 percent was estimated as necessary for net job creation; now the economy can create jobs net even if GDP grows as little as 1 percent.[297]

Conclusion

Spain seems to have left the worst of its crisis behind. After seven quarters of economic recession, the Spanish economy, fuelled by exports and tourism, began to expand slowly in the second half of 2013.[298] However, there is little room for optimism or complacency. The worst scenario for Spain would be for an accommodating government to postpone the reforms yet to be implemented. Overhaul of the fiscal system, the deep reductions necessary to make the welfare state sustainable, additional labor market reforms to create work incentives, and modernization of the bureaucracy are only some of the tasks that Spain urgently needs to undertake.

290. The Fundación para el Análisis y los Estudios Sociales (FAES) is a Madrid-based think tank linked to Spain's Popular Party. The author's opinions are his own and do not necessarily reflect those of The Heritage Foundation.

291. Spanish Statistical Office, National Accounts Statistics.

292. Government of Spain, Ministry of Economy and Competitiveness, "Setting the Foundations for Sustainable Growth," September 2013, p. 10, http://www.scribd.com/doc/169060434/Fijando-los-fundamentos-para-el-crecimiento-sostenible-Ingles-Investors-Presentation-September-2013-pdf (accessed April 3, 2014).
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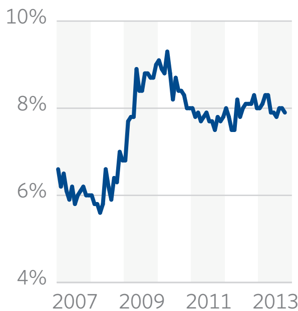
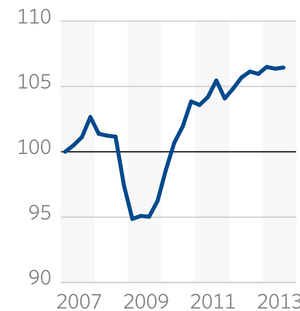
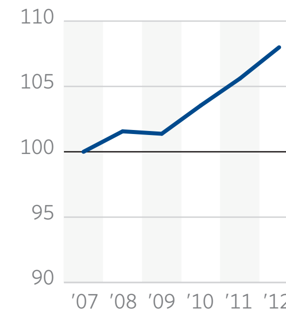
295. Organisation for Economic Co-operation and Development, Statistics OECD, 2003–2012, and Heritage Foundation calculations.
296. International Monetary Fund, World Economic Outlook database, 2011–2012.
297. Government of Spain, Ministry of Employment and Social Security, *Report Evaluating the Impact of the Labour Reform*, August 2013, pp. 14–15, http://www.empleo.gob.es/es/destacados/HOME/impacto_reforma_laboral/Report_evaluating_the_impact_of_the_Labour_Reform.pdf (accessed April 3, 2014).
298. News release, "Euro Area GDP Up by 0.3%, EU28 Up by 0.4%," European Commission, Eurostat, February 14, 2014, http://epp.eurostat.ec.europa.eu/cache/ITY_PUBLIC/2-14022014-AP/EN/2-14022014-AP-EN.PDF (accessed April 4, 2014).

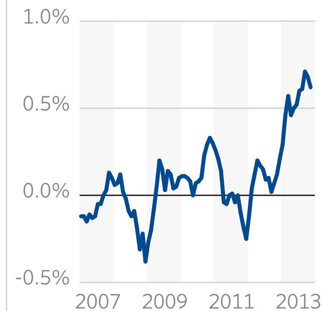
APPENDIX CHART 11

Key Metrics for Sweden









Notes: Sweden does not use the euro, so its spread can move for reasons other than fiscal risk. Interest rate spread is borrowing cost relative to Germany's.

Sources: Eurostat, OECD, and Heritage Foundation calculations.

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Sweden

Malin Sahlén

Sweden's GDP fell by 5 percent during 2009, and employment fell by almost 3 percent. Demand decreased dramatically, partially due to falling exports. This primarily affected manufacturing, although the downturn eventually spread to other sectors as well. Yet a year later, Sweden already had positive growth, having survived the financial crisis much better than many other countries did.

In order to understand why Sweden coped relatively well despite this extraordinary crisis—the country's national debt did not even increase by 1 percentage point of GDP—we need to look at the crisis during the beginning of the 1990s, a period that radically changed Sweden.

The 1990s Crisis

The early 1990s crisis was severe. Sweden had negative growth for three consecutive years, from 1991 to 1993. Employment fell during large parts of the 1990s. The national debt grew from 41 percent of GDP in 1991 to 75 percent of GDP five years later, all of which necessitated fundamental changes. The following are some of the important reforms that Sweden carried out at that time.

- "The tax reform of the century" simplified taxes. Marginal tax rates, which previously approached 90 percent of the highest incomes, were reduced to around 50 percent, and total taxation was reduced below 50 percent of national income.
- The Swedish central bank was made independent of political influence and was given the mandate of keeping inflation at around 2 percent.
- Sweden's krona was released from its peg to the ECU (European Currency Unit), so the krona's value no longer had to be defended, for example, with costly devaluation measures.
- Sweden imposed an expenditure ceiling and tightened the budget financing process. The new ceiling limited the size of the budget.
- Sweden joined the European Union, enabling businesses to compete in a wider market and maintain a high degree of competitiveness.
- Pension reform moved to a fee-based rather than premium-based system. The pension system now has long-term stability and consequently does not erode the country's public finances.

Thanks to these and other reforms, Sweden found itself in a much more stable situation when the financial crisis struck at the end of 2008. During this period, Sweden's finance minister was rated Europe's best finance minister by the *Financial Times*.[299]

Naturally, the financial crisis has affected Sweden. Looking back, a number of new measures now appear to have been particularly important.

- Industry and union representatives reached a crisis agreement whereby employees took a pay cut and a reduction in their working hours to 80 percent of the normal level during a transitory period. This was not a measure initiated by the state and mirrored privately initiated reforms in Germany.

- In October 2008, the Swedish government acted quickly to adopt a stability plan aimed at supporting the banks. This plan included (1) a government-backed, voluntary guarantee program for banks and credit institutes to strengthen the banks' financing activities by guaranteeing borrowing (only one major commercial bank actually joined this program); (2) a government-backed financial stability fund of 15 billion krona, funded by fees from financial companies, that has not been used yet; and (3) a support bill that provides for the right to intervene with support for credit institutes and banks if there is a risk of serious disruptions to the financial system, a power that has not been exercised yet.[300]

- One bank, Carnegie Investment Bank, was taken over by the Swedish National Debt Office.

- The government enhanced business borrowing opportunities.

- Sweden increased the level of deposit guarantee for savers from 250,000 krona to 500,000 krona.

- Parts of the stability plan were both enhanced and extended retrospectively when the need arose. The greater part of the plan was terminated in June 2011.

In summary, Sweden coped with the financial crisis relatively well, primarily because of structural reforms in the 1990s. Nonetheless, a number of concerns remain that Sweden needs to address.

Structural Problems

First, economists are concerned by the rapidly increasing level of household debt due to significantly rising house prices. In order to reduce borrowing, the Swedish Financial Supervisory Authority has limited how much of a property's value a house buyer is allowed to borrow. In addition, the introduction of amortization requirements is being discussed. The question of whether rising house prices in Sweden are a sign of a housing bubble is as yet unanswered. There are reasonable explanations for increases in house prices, but the issue is under debate.

Most analysts agree that Sweden has a job creation problem. Before the crisis in the early 1990s, around 80 percent of the population between the ages of 16 and 64 was employed. In 2012, that figure was only 75 percent.[301] The lack of jobs is creating substantial exclusion among large sections of the country's population, including immigrants, young people, and the disabled. The inability of these outsiders to benefit from the Swedish economy's growth along with labor market insiders could lead to long-run social problems and segregation.

Sweden's housing and labor markets are two areas that remain more or less unreformed, with old and outdated regulations still in place, favoring those who already have houses and jobs. This is particularly serious because housing and employment are two factors that are crucial to people's standard of living. If these markets remain rigid and unable to react and change as quickly as they need to, the next upswing in the economy will be delayed.

299. Ralph Atkins et al., "2011 FT Ranking of European Finance Ministers," *Financial Times*, November 22, 2011, http://www.ft.com/intl/cms/s/0/39941158-1512-11e1-a2a6-00144feabdc0.html#axzz2jrFAyPPx (accessed December 5, 2013).

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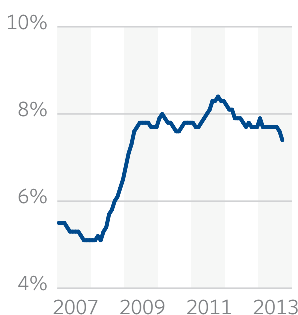
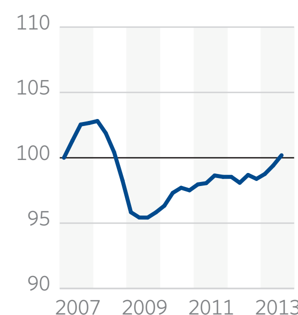
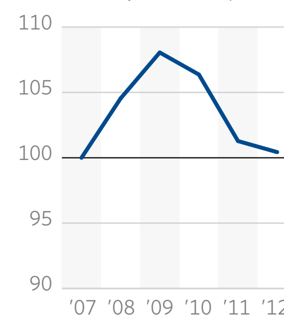
301. Statistics Sweden, Labour Force Survey, 1990–2012.

APPENDIX CHART 12

Key Metrics for United Kingdom







Notes: The U.K. does not use the euro, so its spread can move for reasons other than fiscal risk. Interest rate spread is borrowing cost relative to Germany's.

Sources: Eurostat, OECD, and Heritage Foundation calculations.

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United Kingdom

Ryan Bourne

The U.K. economy grew strongly at an average rate of 3.2 percent per annum between 2000 and 2007, but this period saw a huge buildup of private-sector debt.[302] Rather than use this period of growth to put public finances into surplus and reduce the size of government relative to the economy, the Labour government increased spending faster than the economy grew. General government total outlays increased from 34.1 percent of gross domestic product (GDP) in 2000 to 43.4 percent by 2007, leaving the U.K. with a structural deficit of 5.0 percent of GDP going into the crisis.[303]

Consolidation: Context, Why, and How

Due to its high indebtedness and large financial sector, the U.K. was hit hard by the credit crunch and financial crisis, with real GDP suffering a 7.2 percent fall between the first quarter of 2008 and third quarter of 2009.[304] The Labour government allowed borrowing to expand immensely in response to the crisis by increasing spending and temporarily cutting the main rate of the value-added tax (VAT) from 17.5 percent to 15 percent. These discretionary measures, combined with the effects of the recession and the loss of financial-sector tax revenues, increased the actual deficit to 11.2 percent of GDP in 2009.[305] Recognizing that this level of borrowing was unsustainable, the government raised the top marginal income tax rate to 50 percent, reversed the temporary VAT cut, and pledged to take steps to halve the budget deficit by April 2014.[306]

A new Conservative–Liberal Democrat coalition government was formed in 2010, and its emergency budget in June set out plans to accelerate deficit reduction while supporting "monetary activism" from the Bank of England.[307] Against the backdrop of huge uncertainty in the eurozone owing to the Greek crisis, the parties adopted a rules-based plan to reduce the deficit. The principal fiscal rules were a nominal commitment to eliminate the cyclically adjusted budget deficit within five years and a hard rule to put net debt on a downward path by 2015. This deficit reduction plan entailed front-loaded tax rate increases, including raising the VAT from 17.5 percent to 20 percent, raising the capital gains tax to 28 percent in the higher income tax brackets, and increasing National Insurance contributions. The plan also called for cutting government investment expenditures planned by the previous government. Cuts in current expenditures were initially smaller and offset by rising interest costs on government debt and welfare spending, although the Chancellor of the Exchequer did take early measures to restrain the growth of public-sector pay. Despite

the small size of the overall planned cuts in real spending, ring-fencing of large areas of the budget—such as health, the state pension, and large areas of schooling—meant that defense, local government, and other, smaller departments have seen substantial restraint.

The front-loading of overall tax hikes along with the eurozone crisis, rising oil costs, and the impaired financial sector dampened U.K. growth prospects between 2010 and early 2013, leading to very slow real GDP growth. Even now, GDP is 2.5 percent below its pre-crisis peak in the first quarter of 2008.

In November 2011, the independent Office for Budget Responsibility revised upward the size of the U.K.'s structural deficit. However, the chancellor decided not to adjust his fiscal plans in response. Under the revised estimates, he is not expected to meet his structural current deficit and debt targets until 2018 and 2016, respectively. As a result, more recent forecasts suggest that even the original Labour government's aim of halving the deficit by 2014 will now be missed.

After two years of flat-lining, economic growth has picked up significantly since the second quarter of 2013 and finished 2013 at a growth rate above 3 percent. That this growth has come with largely unchanged nominal spending or tax policies from the government is a big problem for those who blamed previous slow growth on government spending restraint.

Tax increases and investment spending cuts have now been made. The bulk of the remaining planned fiscal restraint will be cuts in departmental and benefit expenditures, and the chancellor has essentially pledged that no more tax increases will be necessary.[308] For now, both government spending and the deficit remain stubbornly high, with the OECD forecasting general government borrowing of 6.9 percent of GDP for 2013. Retrenchment to reduce the deficit will likely continue over the next five years.

Structural Reforms

The government has accompanied its deficit reduction plan with supply-side reforms in several areas, with mixed success.

Taxes. The government has cut the main corporation tax rate from 28 percent to 20 percent, cut the top marginal income tax rate from 50 percent to 45 percent, and significantly raised the starting threshold for paying income tax. However, it has raised the VAT, capital gains tax, national insurance contributions, and a range of duties, so the overall tax burden has increased.

Pensions. The coalition government introduced changes in the state pension, with a flat-rate state pension from April 2016 and the retirement age rising to 67 by 2028 and to 68 in the mid-2030s.[309] However, it has also made the state pension more generous by introducing a guarantee to increase the state pension every year by the highest of inflation, average earnings growth, or 2.5 percent.[310] Public-sector pensions have also been reformed to grow according to a more accurate measure of inflation. Other changes have reduced the potential costs of public-sector pensions, but demographic trends have offset many of these changes.

Welfare. The government's flagship welfare reform is the introduction of a "Universal Credit" with a single taper rate that will gradually replace myriad means-tested benefits.[311] This will create more certainty, transparency, and simplicity in the benefits system, but it does not actually improve the marginal tax rates faced by most recipients. The government has also tightened eligibility criteria for several other cash benefits as part of its deficit reduction program.

Regulation and Employment Law. Labor market flexibility has helped to prevent much higher unemployment in the wake of the downturn. The government has extended flexibility in some areas by reforming employment tribunals and extending the qualifying period for unfair dismissal claims from one year to two years.[312] Yet proposals for pension auto-enrollment and flexible working legislation threaten the viability of small businesses. The government has undertaken measures such as a "Red Tape Challenge" and a "One-in, Two-out" rule for new regulation, but many doubt the effectiveness of these measures in actually reducing the regulatory burden, not least because much regulation comes from the European Union.[313]

Challenges

There are three key known unknowns. First, U.K. economists disagree over the degree of spare capacity in the economy and whether a sustained period of above-trend growth is possible without rising inflation. A second key unknown is how difficult it will be for the Bank of England to reverse its extraordinary monetary policy in the post-crisis period. Third,

an election reversal in 2015 could scupper the current government's plans and lead to higher taxes and spending.

In the long term, the U.K. faces a population challenge in terms of future demands for health, state pension provision, and other old age provisions. Yet so far, there has been little political discussion of the broader reforms to prevent government provision for an aging population from necessitating crippling taxes. Much more significant reform in old-age entitlements will be necessary in future.

U.K. productivity performance has been exceptionally poor since the crisis. The country is also running a large current account deficit of 5.1 percent of GDP, perhaps reflecting the low level of private-sector saving and high government borrowing. Much more needs to be done to boost the productive potential of the economy. To that end, the economy urgently requires tax reform that lowers marginal tax rates and broadens the tax base. A radical streamlining of the planning and development process, including for new London airport capacity,[314] housing, and shale gas, is also long overdue. Regulation and planning laws are overburdening child care, housing, and energy markets, inflating the cost of living. Abolishing national pay bargaining in the public sector, which crowds out private-sector jobs in the poorest regions, would yield a big long-term payoff.[315]

Overall Rebound

The U.K.'s growth performance was poor between 2010 and 2012, which coincided with tax increases, investment cuts, and other factors, such as high oil prices and the eurozone crisis. Real GDP growth picked up in 2013, but GDP per capita was still 7.1 percent below its peak in the second quarter of 2013. Flexible labor markets prevented unemployment from exceeding 8.4 percent, and there are signs that a substantial recovery may be under way, with unemployment falling quickly. A sustained recovery will require growing business investment. Further reforms to boost the productive potential of the economy could make this recovery more sustainable.

302. For example, see McKinsey Global Institute, "Debt and Deleveraging: Uneven Progress on the Path to Growth," January 2013, http://www.bruegel.org/fileadmin/bruegel_files/Events/Presentations/130121_AEEF/Session_4/Charles_Roxburgh_20130122_Debt___deleveraging_AEEF_Bruegel.pdf (accessed August 28, 2013).

303. Organisation for Economic Co-operation and Development, Economic Outlook Annex Tables, Annex Tables 25–33, http://www.oecd.org/eco/outlook/economicoutlookannextables.htm (accessed August 28, 2013).

304. Office for National Statistics, "Second Estimate of GDP, Q2 2013," August 23, 2013, http://www.ons.gov.uk/ons/rel/naa2/second-estimate-of-gdp/q2-2013/index.html (accessed August 28, 2013).

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306. Labour Party, "The Labour Party Manifesto 2010: A Future for All," http://www2.labour.org.uk/uploads/TheLabourPartyManifesto-2010.pdf (accessed August 28, 2013).

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308. Patrick Wintour, "George Osborne Says Deficit Can Be Eradicated Without Further Tax Rises," *The Guardian*, July 11, 2013, http://www.theguardian.com/politics/2013/jul/11/george-osborne-deficit-tax-rises (accessed August 28, 2013).

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312. Acas, "New Qualifying Period for Unfair Dismissals," March 2012, http://www.acas.org.uk/index.aspx?articleid=3733 (accessed August 28, 2013).

313. Centre for Policy Studies, "Simplified Planning, the Need for Sunset Clauses," http://www.cps.org.uk/publications/reports/simplified-planning-the-need-for-sunset-clauses/ (accessed August 28, 2013), and Institute of Economic Affairs, "Redefining the Poverty Debate: Why a War on Markets Is No Substitute for a War on Poverty," http://www.iea.org.uk/publications/research/redefining-the-poverty-debate-why-a-war-on-markets-is-no-substitute-for-a-war- (accessed April 3, 2014).

314. Jock Lowe and Mark Bostock, "Double Up on Heathrow," Centre for Policy Studies, 2012, http://www.cps.org.uk/publications/reports/double-up-on-heathrow/ (accessed August 28, 2013), and Kristian Niemietz, "De-politicising Airport Expansion," Institute of Economic Affairs, December 2013, http://www.iea.org.uk/publications/research/de-politicising-airport-expansion (accessed April 3, 2014).
315. Alison Wolf, "More Than We Bargained for: The Social and Economic Costs of National Wage Bargaining," CentreForum, 2010, http://www.centreforum.org/assets/pubs/more-than-we-bargained-for.pdf (accessed August 28, 2013).

214 Massachusetts Avenue, NE
Washington, DC 20002
(202) 546-4400
heritage.org