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## Fiscal Policies in Recessions

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Ideally, a government would like to use fiscal policy as a countercyclical tool while at the same time convincing the markets that it remains solvent and/or its government debt remains sustainable.<sup>1</sup> What it *can* do depends on the initial situation. In this chapter I consider a policymaker that has some “fiscal space.” In other words, there is room for some, perhaps temporary, increase in the deficit. In more mundane terms, the “debt vigilantes” are not active. Admittedly, these are loose terms; I will not try to define them formally, and even less to determine a threshold for when “fiscal space” is available.

I will explore three popular options; the emphasis will be on policy issues, but I will also deal with the ensuing challenges to macroeconomic thinking.

**Option 1: Ignore the availability of fiscal space, cut government spending and taxes. Then GDP, private consumption, and private investment will start growing, and this will take care of any issues with sustainability and solvency.**

This is the notion of the “expansionary effects of fiscal consolidations.” Obviously, its proponents have rarely argued that spending cuts by themselves will spur growth; accompanying structural reforms of labor, goods, and credit markets are also necessary.

What are the empirical foundations of this view? A first method to investigate the effects of a fiscal consolidation is simply to extrapolate from current estimates of tax and spending multipliers, from time-series vector autoregression studies. There are several recent surveys of existing results, mostly based on U.S. data, and estimates of fiscal multipliers were

extensively debated in the first conference on rethinking macro policy. Therefore, I will concentrate on studies that focus explicitly on episodes of fiscal consolidation.

A method that has been widely used to study the effects of fiscal consolidations consists of a simple comparison of means of variables over time. Specifically: (1) define a “fiscal consolidation,” for instance, as a country-year when the discretionary<sup>2</sup> decline in the primary deficit is more than, say, 1.5 percent of GDP, or as two consecutive country-years when it is at least 1 percent each year; then (2) take a macroeconomic variable of interest, such as private consumption, and compare the average of that variable in the two years after (or during) the consolidation with the average in the two years before the consolidation. This “mean comparison” approach would provide unbiased estimates of the average effects of consolidations if the latter were completely random events (in which case it is essentially a difference-in-difference estimator).

This is the methodology applied by Alesina and Perotti (1995) and Alesina and Ardagna (2010) with cyclically adjusted data, and by Alesina and Ardagna (2012) with the narrative IMF data of Devries and others (2011).<sup>3</sup>

The typical result is that spending-based consolidations (where the discretionary decline in the deficit consists of at least 50 percent spending cuts) tend to be longer-lasting and are associated with an increase in GDP growth or a small recession, while tax-based consolidations are short-lived and are associated with a slowdown in growth or even a recession. With some variations, all of private consumption, investment, and exports display this pattern. Also, in general, these variables are particularly responsive to cuts in social spending or spending on public wages and salaries—the two largest government spending items in all Organisation for Economic Co-operation and Development (OECD) countries.

Fiscal consolidations are typically multiyear events. In this method, a fiscal consolidation lasting four years would appear as three consecutive two-year consolidations; moreover, a given year can appear in all of the “pre,” “during,” and “post” groups at different dates. It is not clear what the mean comparison method delivers in these cases.

A second problem with this approach is that it is difficult to control for concomitant effects. For instance, one typical result is that spending-based

consolidations are associated with real depreciation of the exchange rate and improvement in relative unit labor costs. Is this a consequence of spending-based consolidations or the result of policies typically implemented together with spending-based consolidations? As always, causality is difficult to ascertain.

The accompanying policies might take several forms that might be difficult to capture with one or two variables: consider, for instance, labor market reforms, or changes in exchange rate or monetary policy regimes. Finally, the government budgets and accompanying technical documents need to be studied in depth in order to determine the discretionary measures with a minimum of confidence.

For all these reasons, it is useful to complement the existing evidence with a different approach. Perotti (2013a) presents a detailed discussion of the four largest spending-based consolidations—Denmark in 1983 to 1987, Ireland in 1987 to 1989, Finland in 1992 to 1996, and Sweden in 1993 to 1997—based on the original budget documents and on contemporary discussion, such as OECD or IMF annual reports, and country-specific sources.<sup>4</sup> I focus on two questions. First, is there evidence that large budget consolidations can have expansionary effects in the short run? Second, how useful is the experience of the past as a guide to today's euro area countries?

The main conclusions of the case studies I present are the following:

**1. Actual consolidations were smaller than previously thought, and not spending-based.**

All these consolidations have long been considered quintessential cases of large, “spending-based consolidations.” Two of these were truly enormous: As shown in table 16.1 in the column labeled “IMF,” in Finland the discretionary primary deficit fell by 11.5 percent of GDP over 5 years (all of them spending cuts), according to the IMF narrative measure of Devries and others (2011), and in Sweden by 10.6 percent of GDP over 5 years (of which almost 7 percentage points were GDP spending cuts).

But a closer look at the budget documents shows that in many cases the announced spending cuts were not implemented, or else they were undone by supplementary budgets during the fiscal years. As a result, the decline in the budget deficit in Finland was only about 5 percentage points of GDP; moreover, nearly all of it consisted of revenue increases

**Table 16.1**  
Large Fiscal Consolidations in Europe

Denmark, 1983–1987	Actual	IMF
Spending	−4.0	−4.3
Revenues	4.9	2.4
Surplus	8.9	6.7
<b>Ireland, 1987–1989</b>		
Spending	−3.0	−2.5
Revenues	−0.1	0.4
Surplus	2.9	2.9
<b>Finland, 1992–1996</b>		
Spending	−0.9	−12.1
Revenues	3.8	−0.6
Surplus	4.9	11.5
<b>Sweden, 1993–1997</b>		
Spending	−4.2	−6.8
Revenues	4.6	3.8
Surplus	8.8	10.6

*Source:* Perotti (2013a).

(see table 16.1, column labeled “Actual”). My estimate of spending cuts in Sweden is about half the IMF estimate. Only in Ireland were spending cuts larger than revenue increases.<sup>5</sup> These conclusions are corroborated by contemporary policy documents and discussions, which do not show any consciousness of living through a “budget bloodbath.”<sup>6</sup>

## 2. Depreciation and the role of the exchange rate and monetary regimes.

Tables 16.2 and 16.3 display the behavior of the multilateral nominal exchange rate and of multilateral unit labor costs in manufacturing, respectively. During the consolidations, Denmark and Ireland used the exchange rate as a nominal anchor, by committing to a hard peg within the European Exchange Rate Mechanism (ERM). Denmark had repeatedly devalued its currency before the consolidation, thus entering the consolidation with a depreciated exchange rate, but at the cost of very high interest rates (up to 23 percent). During the consolidation phase, Ireland

**Table 16.2**  
Nominal Effective Exchange Rate

	$t-1$	$t$	$t+1$	$t+2$	$t+3$	$t+4$	$t+5$
Denmark	-3.4	0.9	-2.3	2.2	5.7	3.6	-1.1
Ireland	8.0	-4	-1.9	-7	8.6		
Finland	-2.9	-12.2	-10.0	13.4	15.0	-2.4	-2.1
Sweden	2.4	-17.7	1.2	0.4	10.1	-3.3	-0.2

*Note:* Shaded area corresponds to years of consolidation.

*Source:* Perotti (2013a).

**Table 16.3**  
Relative Unit Labor Costs in Manufacturing

	$t-2$	$t-1$	$t$	$t+1$	$t+2$	$t+3$	$t+4$	$t+5$
Denmark	-4.9	-1.2	1.6	0.9	4.1	8.8	11.5	-0.2
Ireland	1.5	9.3	-6.2	-7.3	-6.8	0.3		
Finland	5.3	-0.9	-20.7	-24.2	5.2	16.0	-5.5	-5.9
Sweden	2.9	-2.7	-26.8	-6.4	-4.1	12.8	-7.2	-6.4

*Note:* Shaded area corresponds to years of consolidation.

*Source:* Perotti (2013a).

also benefited from the large appreciation of the currency of its main trading partner, the UK, which was not part of the ERM.

Finland and Sweden also devalued repeatedly, but then floated their currencies just before the consolidation, experiencing a further depreciation. Overall, their currencies depreciated by between 15 and 25 percent in multilateral terms in the first two years of the consolidation. As a nominal anchor, Finland and Sweden introduced instead inflation targeting. There is some evidence that, while almost completely new at the time, this approach was regarded as credible from the start: According to insiders' accounts at the time, it "had a profound impact on the behavior of labor market participants" (Jonung, Kiander, and Vartia 2008, 37).

### 3. Income policies were key.

Fiscal consolidations were accompanied by explicit income policies, whereby the government, trade unions, and industrialists' organizations

reached an agreement to exchange wage moderation for lower income taxes and social security contributions. Ireland returned to a tripartite wage settlement in 1987 (see table 16.3), which set a maximum increase in wages of 2.5 percent in 1988, 1989, and 1990. Finland and Sweden signed tripartite wage agreements at the start of the consolidations, and then, after some wage slippage three years into the consolidation (see table 16.3), the government summoned the unions and industrialists' associations again to sign other wage agreements. These developments were regarded as very significant by contemporaries: As Jonung, Kiander, and Vartia (2008, 35) write, based on contemporary accounts, "Perhaps the biggest change in the 1990s in Finland was the adoption and wide acceptance of a policy of long term wage moderation."

Income policies were particularly explicit in Denmark. Here the government renounced any depreciation of the exchange rate and relied instead on an internal devaluation: It suspended wage indexation, capped contractual wage increases, and froze unemployment subsidies and transfers, all in exchange for lower income taxes and social security contributions.

Wage moderation, which was made possible by income policies, was instrumental in maintaining the benefits of the nominal depreciations and in reducing inflation expectations and interest rates.

#### **4. Recoveries were mostly export-driven.**

All stabilizations were associated with large increases in GDP growth, typically at about 4 percent for a few years (table 16.4).

The source of the recovery is crucial in trying to shed light on the mechanism. Most models posit that a fiscal consolidation raises consumers' and investors' confidence via a wealth effect or other channels, and therefore should cause a quick increase in private consumption and investment. However, except in Denmark (where the recovery was already under way at the time of the consolidation), private consumption typically started recovering six to eight quarters after the beginning of the consolidation; in Sweden, in the first year, domestic demand collapsed, with investment falling by 15 percent (tables 16.5 and 16.6). Initially, and again with the exception of Denmark, the recovery was export-driven (table 16.7): In Finland, Ireland, and Sweden, exports increased at rates about 10 percent per annum for several years after the consolidation.

**Table 16.4**  
GDP Growth

	$t-2$	$t-1$	$t$	$t+1$	$t+2$	$t+3$	$t+4$	$t+5$
Denmark	-0.9	3.7	2.7	4.2	4.0	4.9	0.3	-0.1
Ireland	1.9	0.4	3.6	3.0	5.6	7.7		
Finland	0.5	-6.0	-3.5	-0.8	3.6	4.0	3.6	6.2
Sweden	-1.1	-1.2	-2.1	4.0	3.9	1.6	2.7	4.2

*Note:* Shaded area corresponds to years of consolidation.

*Source:* Perotti (2013a).

**Table 16.5**  
Private Consumption Growth

	$t-2$	$t-1$	$t$	$t+1$	$t+2$	$t+3$	$t+4$	$t+5$
Denmark	-1.7	1.4	2.0	3.8	4.3	7.5	-1.9	-1.7
Ireland	2.7	2.8	2.1	3.6	3.3	3.2		
Finland	-1.1	-3.7	-3.8	-3.5	2.4	4.5	3.8	3.3
Sweden	0.9	-1.3	-3.6	2.1	1.1	1.8	2.8	3.3

*Note:* Shaded area corresponds to years of consolidation.

*Source:* Perotti (2013a).

**Table 16.6**  
Private Investment Growth

	$t-2$	$t-1$	$t$	$t+1$	$t+2$	$t+3$	$t+4$	$t+5$
Denmark	-17.6	10.3	4.3	11.2	15.3	19.3	2.3	-6.4
Ireland	-7.9	-0.5	-2.3	-0.2	13.5	13.9		
Finland	-5.7	-20.6	-17.9	-13.0	-1.6	18.5	9.3	9.2
Sweden	-8.5	-11.3	-14.6	7.0	9.9	4.7	0.6	8.8

*Note:* Shaded area corresponds to years of consolidation.

*Source:* Perotti (2013a).

**Table 16.7**  
Export Growth

	$t - 2$	$t - 1$	$t$	$t + 1$	$t + 2$	$t + 3$	$t + 4$	$t + 5$
Denmark	8.5	3.2	4.6	3.5	6.0	1.3	4.9	8.8
Ireland	6.6	2.7	13.9	8.1	11.4	9.2		
Finland	1.7	-7.2	10	16.3	13.5	8.5	5.9	13.9
Sweden	-1.9	2.0	8.3	13.5	11.3	4.4	13.8	9.0

*Note:* Shaded area corresponds to years of consolidation.

*Source:* Perotti (2013a).

**Table 16.8**  
Long-Term Interest Rates

	$t - 1$	$t$	$t + 1$	$t + 2$	$t + 3$	$t + 4$	$t + 5$
Denmark	21.2	15.0	14.4	11.6	10.1	11.3	9.9
Ireland	11.2	11.3	9.4	9.2	10.3		
Finland	11.7	12.0	8.8	9.0	8.8	7.1	6.0
Sweden	10.0	8.6	9.7	10.3	8.1	6.7	5.0

*Note:* Shaded area corresponds to years of consolidation.

*Source:* Perotti (2013a).

This was made possible by the combination of nominal depreciation and wage moderation: Between 1992 and 1995, multilateral unit labor costs in Sweden fell by almost 40 percent (see table 16.3).

Denmark, which alone pursued a hard peg policy, experienced all the hallmarks of the “exchange rate based stabilizations” studied in a large literature in the eighties and nineties (see, e.g., Ades, Kiguel, and Livitan 1993): domestic demand initially boomed as inflation and interest rates fell fast, but as income policies by themselves proved untenable after about two years, competitiveness and the current account worsened; eventually, growth ground to a halt and consumption declined for three years. The slump lasted for several years (see table 16.4).

### 5. High and declining interest rates.

In all countries the consolidations were accompanied by large and fast declines in nominal interest rates from very high levels. In Denmark the 10-year interest rate fell from 21 percent in 1982 to 11 percent in 1987,



in Finland it fell from 12 percent in 1992 to 7 percent in 1996, and the rate fell by similar amounts in the other two countries (table 16.8). This was made possible by wage moderation, which in turn made the nominal anchors credible.

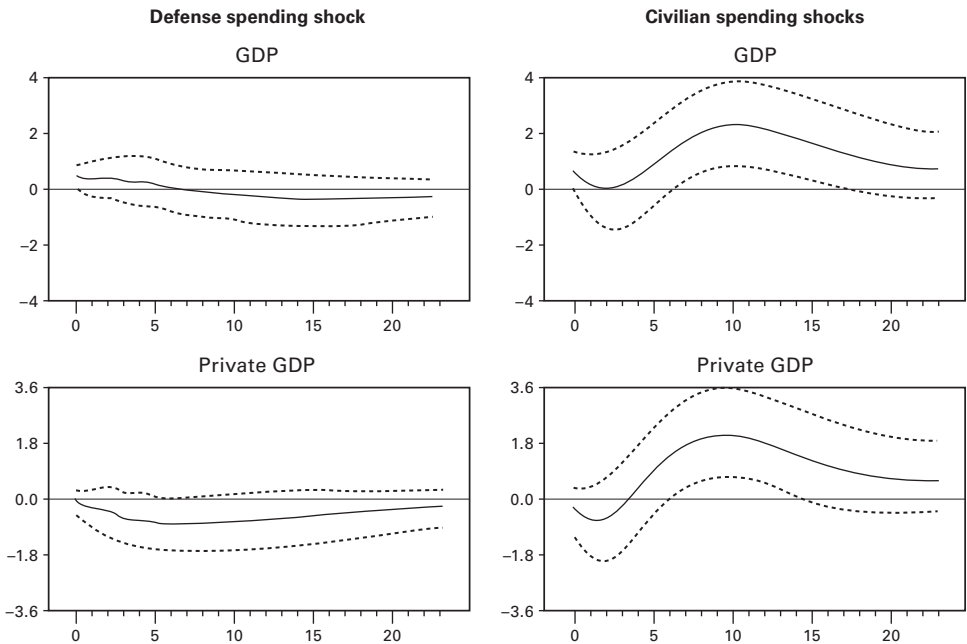
In Denmark and Ireland, the declines in interest rates led to large increases in house prices and possibly a large wealth effect on households. According to Giavazzi and Pagano (1990), this was largely responsible for the spur in private consumption.

What are the key policy conclusions we can derive from these episodes? Causality is difficult to establish in economics, all the more so from a few case studies. But a few patterns can be detected that could provide useful insights—and caveats—for the current situation, particularly of euro area countries.

1. The oft-cited expansionary consolidations of Europe in the 1980s and 1990s were smaller and less spending-based than previously thought.
2. All started at very high levels of nominal and real interest rates, which then declined quickly. Interest rates are at historical lows today except in those countries on the periphery, where they include a default risk premium.
3. Wage moderation was the key to a credible peg in Denmark and Ireland, and to maintaining the benefits of devaluations in Finland and Sweden. But wage inflation is hardly a problem in today's low-inflation scenario. In addition, income policies were in turn instrumental in achieving wage moderation. But for political and perhaps cultural reasons, income policies are not on the agenda today.
4. Except in Denmark, exports were the prime factor of the recovery for several quarters, and thereafter kept growing at a sustained pace for several years; domestic demand initially stalled or even fell. All countries (including Denmark and Ireland, which pegged the exchange rate during the consolidation—the more relevant case for today's euro area members) devalued repeatedly before the consolidations. This option is obviously not available to euro area members except *vis-à-vis* non-euro-area members. Ireland also benefited from the appreciation of the currency of its main trading partner, the UK. On the other hand, the Danish expansion was short-lived, as it quickly ran into a loss of competitiveness that hampered growth for several years.

The observations above suggest that the notion of “expansionary fiscal austerity” *in the short run* is probably an illusion: A trade-off does seem to exist between fiscal austerity and short-run growth.

How does this evidence compare with the econometric evidence from time-series studies? Contrary to widespread opinion, there is very little disagreement on the fact that a positive shock to government spending causes total GDP to rise. The disagreement concerns the effect on private consumption and private investment, and on private GDP. I do not want to revisit this debate here but would like to point out that the evidence that government spending crowds out private GDP comes from shocks to defense spending or to total government spending when defense spending shocks dominate (e.g., during World War II). The response of private GDP and its components to civilian spending shocks is positive and large (figure 16.1).



**Figure 16.1**

Effects of Different Government Spending Shocks, Government Spending versus Private GDP

Source: Perotti (2013b).

There is one important caveat to all this, however: We know very little, indeed next to nothing, about multipliers on government transfers, as opposed to government spending on goods and services.

### **Option 2: Expand government spending temporarily.**

The second option for a government with some fiscal space wishing to use fiscal policy as an antirecessionary tool is to increase government spending, and convince markets that it will cut back on spending later. The advantages of this policy are clear. It reconciles solvency and sustainability with the use of countercyclical fiscal policy; and it takes advantage of the higher spending multipliers at the zero lower bound (ZLB) or, more generally, in a recession (more on this later).

This option has often been proposed as particularly suited for the current situation. But one has to be careful. Multiyear budget plans are dangerous objects: For politicians, there is an obvious incentive to announce spending cuts for the future, and when the future comes, to postpone them. This can be seen clearly in the Clinton budgets (eventually the problem was solved by the economic recovery); and also in the experience of Finland and especially Sweden in the early 1990s, described above, when, at the beginning, a new government would announce plans for large spending cuts in the following five years, which cuts, however, materialized only in a very small part.<sup>7</sup>

Two important stipulations often accompany this proposal: budget targets and commitments should be set in cyclically adjusted terms, and a “fiscal council” should be set up to monitor the implementation of the plans. In theory, both make a lot of sense. In practice, however, we should not forget that cyclical adjustment is an art more than a science; the dispersion of cyclically adjusted numbers on the same aggregate by different institutions at a given point in time and by the same institution at different points in time should be an important warning. Because of this uncertainty, cyclically adjusted figures will be prone to political manipulation and to endless bickering, and in the end may be more confusing to markets than the raw figures.

Fiscal councils, too, make a lot of sense in theory. The parallel is often drawn with the move to make central banks independent in the past three decades. But there is one fundamental difference. Central banks control

very few instruments (and just one until a few years ago, the policy interest rate), with limited distributional effects—or at least with distributional effects that are not immediately apparent. Fiscal policy consists of a myriad of instruments, with enormous distributional implications. No government and no parliament will ever relinquish it completely. This is not to say that fiscal councils might not have a role, but it is hard to escape the conclusion that they will work in countries where the cultural and political environment is already well disposed to a responsible fiscal policy.

The policy of increasing government spending to take advantage of the extra kick from the ZLB is gaining momentum in Europe, as a backlash against “German austerity” also gains strength everywhere. Academically, it is supported by some empirical evidence to the effect that government spending might have a higher multiplier during recessions (see, e.g., Eggertsson 2010). However, this is only indirect evidence concerning the ZLB itself, as not all recessions coincided with interest rates close to zero. In addition, the mechanism at work is not clear. Theoretically, fiscal policy is more powerful at the ZLB because, in a sticky price model, a persistent increase in government spending causes a rise in expected inflation and therefore a decline in the real interest rate if the nominal interest rate is fixed at zero; from the Euler equation, this causes private consumption to increase today. However, at first sight, the experience of those countries that did increase government spending with very low interest rates at the beginning of the crisis, or of Japan in the 1990s, seems hard to square with this mechanism.

In addition, a higher multiplier does not mean necessarily higher welfare. In a representative agent model, it is easy to see that welfare could decline even if the multiplier at the ZLB is large, and in a nonrepresentative agent model in general savers will be harmed by this policy (see Bilbiie, Monacelli, and Perotti 2013).

### **Option 3: Cut taxes temporarily.**

The results based on tax data from Romer and Romer suggest that the tax multiplier can be very large (Romer and Romer 2010; Mertens and Ravn 2013), although probably not as large as in the original Romer and Romer study (Perotti 2012). Another advantage is that this policy might

be Pareto improving, whereas a policy of increasing government spending is not. Although savers are hurt by an increase in government spending, even at the ZLB, they might still benefit from a temporary tax cut. When there are liquidity constrained individuals, a tax cut is like a transfer from savers to borrowers today, offset by a transfer in the opposite direction tomorrow. Both borrowers and savers can benefit from this operation (see Bilbiie, Monacelli, and Perotti 2013).

However, in the real world, a tax cut has one disadvantage: it might have bad distributional effects, as it does not benefit the low end of the distribution of income. This suggests two areas that we need to learn more about. The first is the general equilibrium effect of alternative types of tax changes, with different distributional effects. The empirical evidence we have from the Romer and Romer data concerns aggregate changes in taxes (Mertens and Ravn [2013] do study the different effects of personal and corporate income taxes). More generally, we need to understand better how to design economically and politically feasible policies to protect the low end of the distribution during periods of fiscal adjustments.

## Notes

1. A government is solvent when future taxes are enough to cover future spending plus the existing debt. A government that is not currently perceived as solvent must therefore reduce deficits now or later (or use inflation to reduce the current value of debt). The current level of debt is sustainable if, at the current primary deficit, GDP growth is sufficient to keep the current debt/GDP ratio constant. A government whose debt is not perceived as sustainable must engineer higher growth or a lower interest rate if it does not want to reduce the primary deficit.
2. The “discretionary” change in the deficit is the part of the change in the deficit that is not due to the automatic response of the deficit to the economic cycle. In this sense, it can be interpreted as the part of the change in the deficit due to intentional actions by policymakers, such as changes in tax rates, in replacement rate for unemployment benefits, in defense spending, etc. The same definition applies to each individual budget component.
3. There are two methods to obtain “discretionary” measures of a change in a budget variable. First, the “cyclical adjustment” method: Estimate the elasticities of that budget variable to, say, output and inflation, and subtract from the actual change in the budget variable the change in output multiplied by the output elasticity and the change in inflation multiplied by the inflation elasticity. Second, the “narrative” method, pioneered by Romer and Romer (2010) for revenue changes: Use budget documents to infer the discretionary change in tax revenues or spending enacted by any law that has consequences for the budget. Devries and others

(2011) compute yearly discretionary changes in government spending and revenues during periods of deficit reductions in 15 countries.

4. The pros and cons of case studies vs. an econometric approach are well-known. Hence, I will not revisit this debate here.

5. All this still excludes bank support measures. For instance, in Finland the government spent about 10 percent of GDP to support the banking sector.

6. For instance, an official in the Irish administration at the time later wrote:

Briefly, there was no significant reduction in the real volume of current spending as a result of [the expenditure review set up by the new government in 1987]. There was a further squeeze on capital spending, a mistake in retrospect, but most of the adjustment came on the revenue side. The “slash and burn” stories about 1987, references to the finance minister as “Mac the Knife,” decimation of public services and so forth are just journalistic invention. It never happened. (McCarthy 2010, 45)

7. Mauro (2011) attributes this undoing of the original plans mostly to shocks. I believe that in many cases, it is just a simple issue of time inconsistency.

## References

Ades, A., M. Kiguel, and N. Liviatan. 1993. “Exchange-Rate-Based Stabilization: Tales from Europe and Latin America.” Policy Research Working Paper 1087, World Bank, Washington, DC.

Alesina, A., and S. Ardagna. 2010. Large Changes in Fiscal Policy: Taxes versus Spending. In *Tax Policy and the Economy*, vol. 24, ed. Jeffrey R. Brown. Cambridge, MA: National Bureau of Economic Research.

Alesina, A., and S. Ardagna. 2012. “The Design of Fiscal Adjustments.” Faculty paper, Bocconi University, Milan.

Alesina, A., and R. Perotti. 1995. “Fiscal Expansions and Adjustments in OECD Economies.” *Economic Policy* 21:207–247.

Bilbiie, F., T. Monacelli, and R. Perotti. 2013. “Tax Cuts vs. Government Spending: Welfare at the Zero Lower Bound.” Faculty paper, Bocconi University, Milan.

Devries, P., J. Guajardo, D. Leigh, and A. Pescatori. 2011. “A New Action-Based Dataset of Fiscal Consolidation.” IMF Working Paper 11/128, International Monetary Fund, Washington, DC. Data set available at [www.imf.org/external/pubs/cat/longres.aspx?sk=24892.0](http://www.imf.org/external/pubs/cat/longres.aspx?sk=24892.0).

Eggertsson, G. 2010. “What Fiscal Policy Is Effective at Zero Interest Rates?” In *NBER Macroeconomics Annual 2010*, vol. 25, 59–112. Cambridge, MA: MIT Press.

Giavazzi, F., and M. Pagano. 1990. “Can Severe Fiscal Contractions Be Expansionary? Tales of Two Small European Countries.” In *NBER Macroeconomics Annual 1990*, vol. 5, 75–122. Cambridge, MA: MIT Press.

- Jonung, L., J. Kiander, and P. Vartia. 2008. "The Great Financial Crisis in Finland and Sweden: The Dynamics of Boom, Bust, and Recovery, 1985–2000." *Economic Papers* 350, Directorate-General, Economic and Financial Affairs, European Commission, Brussels, December. [http://ec.europa.eu/economy\\_finance/publications/publication13551\\_en.pdf](http://ec.europa.eu/economy_finance/publications/publication13551_en.pdf).
- Mauro, P., ed. 2011. *Chipping Away at Public Debt*. New York: Wiley.
- McCarthy, C. 2010. "Ireland's Second Round of Cuts: A Comparison with the Last Time." In *Dealing with Debt: Lessons from Abroad*, ed. J. Springford, 41–54. CentreForum (Centre for Reform) Canada, Ernst & Young.
- Mertens, K., and M. Ravn. 2013. "The Dynamic Effects of Personal and Corporate Income Tax changes in the United States." *American Economic Review* 103 (4): 1212–1247.
- Perotti, R. 2012. "The Effects of Tax Shocks on Output: Not So Large, but Not Small Either." *American Economic Journal: Economic Policy* 42:214–237.
- Perotti, R. 2013a. "The Austerity Myth: Growth without Pain?" In *Fiscal Policy after the Great Recession*, ed. A. Alesina and F. Giavazzi. Chicago: University of Chicago Press.
- Perotti, R. 2013b. "Defense Government Spending Is Contractionary; Civilian Government Spending Is Expansionary." Faculty paper, Bocconi University, Milan.
- Romer, C., and D. Romer. 2010. "The Macroeconomic Effects of Tax Changes: Estimates Based on a New Measure of Fiscal Shocks." *American Economic Review* 100 (3): 763–801.

