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Tales of Fiscal Adjustments[1]

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Tales of Fiscal Adjustments

Abstract

This paper examines the evidence on fiscal adjustments in OECD countries from the early sixties to today, in order to answer several politico-economic questions. Our main focus is to shed light on which features of fiscal adjustments are more or less likely to imply the fiscal tightening is expansionary or contractionary. In order to do so we examine both statistical evidence and we also study several cases in more detail. Finally, in order to expand our observations, we also consider the evidence on cases of loose fiscal policy and we contrast it with fiscal adjustments.

1. Introduction

Starting in the mid eighties, several OECD countries have started to tackle mounting public deficits, which in some cases had pushed government budgets along "unsustainable" paths[2]. Therefore, many recent episodes of large fiscal contractions have provided a wealth of new evidence on the effect of fiscal policy on the economy and the polity, studied by a lively recent literature. This research has raised many questions:

a) does the composition of the fiscal adjustment matter for its likelihood of being long lasting?

The answer is that fiscal adjustments concentrated on the spending side and, in particular, on public wages and welfare spending are long lasting, while those which rely primarily on tax hikes do not lead to a permanent consolidation of government finances[3].

b) Are fiscal consolidations always contractionary?

The answer is no: several fiscal adjustments have been associated with expansions even in the short run[4].

c) which fiscal adjustments are contractionary and which are expansionary?

Here the answers become more murky. Several issues are in fact not settled. For instance: does the composition of the adjustment matter? Or is the size more important? Does the initial level of debt at the moment of adjustment matter? What is the role of the policy mix? Are devaluations prior to the adjustment important? Are income policies and union cooperation important? Is the structure of the labor market important?

d) are fiscal adjustment politically costly, namely are fiscally prudent governments typically voted out of office?

Contrary to conventional wisdom it appears that the answer to this question is negative. In fact, it may even be the case that governments that aggressively tackle mounting deficits are often rewarded at the polls[5].

In this paper we examine a large body of evidence to shed more light on some of these issues. We use both data analysis, statistical evidence and then we examine in more detail ten case studies of recent large fiscal adjustments.

Our main conclusions can be summarized as follows. Two non mutually exclusive views have emerged as for an explanation of expansionary fiscal adjustments. One emphasizes the

[2]For a discussion on "sustainability" see Perotti, Strauch and von Hagen (1997).
[3] On this point see Alesina and Perotti (1995, 1996, 1997a); Mc Dermot and Wescott (1996), IMF (1996), OECD (1997) and Perotti (1997).
[4] See Giavazzi and Pagano (1990, 1996), Alesina and Perotti (1997a), Perotti (1997), Alesina Perotti and Tavares (1998).
[5] See Alesina, Perotti and Tavares (1998).

interaction of wealth effects on consumption and expectations of future tax liabilities. In addition, private demand would react to the perceived "credibility" of the adjustment[6]. According to this view initial conditions are important: fiscal adjustments are expansionary when they occur following a fiscal crisis[7]. The second view emphasizes more the composition of the adjustment (tax increases versus spending cuts, share of different cuts) and its interaction with labor market institutions affecting labor costs[8]. Our evidence is generally more consistent with the second view although in no way we can exclude a role for the first channel.

Three ingredients seem to be important for a successful, long lasting and expansionary fiscal adjustment. A composition of the adjustments which emphasizes spending cuts on transfers, welfare programs and the government wage bill. Some form of wage agreement with the unions which insures wage moderation. A devaluation immediately before the fiscal tightening. Instead, no large tax based fiscal adjustments are expansionary even if they are accompanied by a devaluation. Finally, governments that implement large fiscal adjustments typically remain in office. Interestingly, this evidence on fiscal adjustments is "confirmed" by our analysis of episodes of very loose fiscal policy. In fact, in many respects episodes of loose fiscal policy behave in a specular way to fiscal adjustments. For instance, not all cases of loose fiscal policy are expansionary.

The paper is organized as follows. Section 2 highlights some of the theoretical issues raised concerning the macroeconomic effect of large fiscal adjustments and reviews the available literature. Section 3 presents our data. Section 4 discusses the statistical evidence on fiscal adjustments. Section 5 analyzes the cases of loose fiscal policy. Section 6 presents the selection criteria for our case studies and summarizes the main general conclusion from the cases. Section 7 discusses our cases in detail. Section 8 concludes, with an emphasis of the implications for EMU.

2. Theoretical issues

It should be very clear from the outset that we are interested in the short run effects of fiscal policy. This is why we study whether or not discretionary changes in fiscal stance are expansionary or contractionary in the year of the change and immediately after. This paper is not concerned with the long run growth effects of alternative fiscal policies[9].

The standard Keynesian effect of a fiscal contraction is that, for given monetary policy, a deficit reduction should create a downturn or recession, at least in the short run. This contractionary effect should be larger with a spending cut than with a tax increase for a simple multiplier argument. The specular argument holds for fiscal expansions.

Expansionary effects of fiscal adjustments can go through both the demand and the supply side. On to demand side two mechanisms may be at work; a) wealth effects on consumption; b) credibility effects on interest rates.

[6] See Giavazzi and Pagano (1990), Bertola and Drazen (1993), Blanchard (1990) and Sutherland (1997).
[7] See Perotti (1997).
[8] See Alesina and Perotti (1997a), (1997b).
[9] On this point for an OECD sample, see De la Fuente, (1997).

Wealth effects on consumption arise most directly in the case of spending cuts perceived as permanent. In this case, the consumers would anticipate a permanent increase in their lifetime disposable income, due to the reduction in the tax burden. Thus, while in a Keynesian model consumption should go down when government spending is cut, in a forward looking model, private demand should increase. The size of the increase in private consumption would depend, however, on the presence or absence of "liquidity constrained" consumers. Therefore, the efficiency of financial markets is an important variable in this regard[10].
A tax increase should reduce private demand, and, therefore, be contractionary. In some cases, however, even tax increases can be expansionary. This may occur if tax hikes today imply a change of fiscal regime so that the consumers perceive that larger tax increases will not be necessary in the future. Blanchard (1990) provides a simple but convincing example of this point and Bertola and Drazen (1993) nicely summarize it: "A policy innovation that would be contractionary in a static model may be expansionary if it induces sufficiently strong expectations of future policy changes in the opposite direction " (page 12).

As shown by Sutherland (1997) and Perotti (1997), the positive "wealth-expectation effect" should be stronger when fiscal consolidation occurs in "bad times" namely with a high and rapidly growing debt/GDP ratio. For instance, if the distorsionary costs of taxation are convex, as it is generally assumed, a reduction in government spending has particularly positive effects on private demand at very high initial levels of taxation. A relate argument holds for an increase in taxation today. If the expected path of taxation is upward sloping, then an increase in taxes today will reduce overall distortions by flattening the path of taxes[11]. At high initial level of debt, the initial tax distortions are high, thus, the gain from "smoothing" are particularly large. It follows that "non Keynesian" expansionary effects of fiscal adjustments should occur especially at high levels of debt, which is precisely the empirical result of Perotti (1997)[12].

An additional source of expansionary effects of fiscal contractions is the "credibility" argument on interest rates. At high (or rapidly increasing) levels of debt, public debt may sell at a premium, due to the inflation risk, default or consolidation risks. A fiscal consolidation, if perceived as permanent and successful, can bring about a discrete reduction in real interest rates. This effect is particularly strong in models with two equilibria. In the "bad" equilibrium debt is high and growing, investors demand a risk premium, interest rates are high and the default risk is rational, since high interest rates make solvency more difficult. In the "good" equilibrium the risk premium disappears, interest rates are low, making investors' confidence rational. A fiscal adjustment can move the economy from the "bad" equilibrium to the "good" one with a large reduction in interest rates. Note that even for this credibility channel initial conditions are important. In fact, risk premia are likely to have "nonlinear" nature and appear only when the level of the debt to GDP ratio crosses some relatively high threshold[13]. Thus, expansionary fiscal contractions should be more likely if they occur in period of fiscal stress.

[10] See, for instance, Perotti (1997).
[11] Several political economy models of the budget deficits imply distorted, upward sloping path of taxes. For instance see Tabellini and Alesina (1990).
[12] To be precise, this author finds that the rate of growth of debt immediately before the adjustment is a good predictor of the macroeconomic effect of the adjustment itself.
[13] Empirical results by Alesina, de Broeck, Prati and Tabellini (1992) are consistent with this hypothesis.

A discussion of expansionary effects of fiscal policy, however, has to take into account what happens to monetary policy. Even in the most standard Keynesian model, a fiscal contraction can be expansionary, or neutral, if it is accompanied by a sufficiently lax monetary policy, which in a small open economy may take the form of a devaluation. Therefore, the monetary stance is critical for this discussion.

On the supply side one should distinguish between standard neoclassical effects and those emerging in unionized labor markets. In the neoclassical model income and substitution effects operate on the individual labor supply. Their relative size depends upon whether the change in fiscal policy (and the income tax in particular) is expected to be temporary or permanent. If both leisure and consumption are normal goods, the wealth effect would increase the demand for both, thus reducing the supply of labor. The substitution effect implies that higher income taxes should reduce the labor supply. Obviously, substitution effects are stronger in the case of temporary increases in taxes, while income/wealth effects are larger if the tax cuts are perceived as permanent[14]. The conventional wisdom, however, is that these neoclassical effects on labor supply are not very large empirically[15].

The supply side effects of fiscal policy may have a very different nature in unionized, imperfectly competitive labor markets, which is the norm in most OECD countries. Alesina and Perotti (1997b) empirically show that even thought the effects of tax increases on labor supply may be small at an individual level, they can be much larger in unionized markets, depending on union structure and behavior. In unionized markets a permanent increase in labor taxes leads to a reduction in after tax real wage, ceteris paribus. Thus, the unions will demand higher pre tax real wages to compensate for the tax increase. If monopolistic union can pass trough their demands, the increase in pre tax real wages will lead to higher labor costs and loss of "competitiveness" (i.e., relative unit labor costs) with trading partners. These authors document that the size of this effect depends on the structure of labor markets and unions. If the latter are larger and encompassing, they may internalize the government's fiscal maneuver and ask for moderate wage increases in response to the tax hike. However, if the unions are sufficiently strong to pass trough their wage demands, but not sufficiently encompassing for internalizing the government budget constraint, then the tax increase can have large effects on relative unit labor costs, because it would spur demand for higher pre tax wages. Alesina and Perotti (1997b) calculate that the effect of a 1 per cent increase in the income tax to GDP ratio may lead to up to an increase of 2 per cent in relative unit labor costs.
Two channels link the behavior of unit labour costs to growth. One is through profits. If the latter increase, they may lead to higher private investments. The second one is through international competitiveness, defined as unite labour costs relative to trading partners. A reduction in relative unit labour costs increases exports. An additional reason why union moderation may be important is that successful fiscal adjustments may require reduction of public wages and/or public employment. Obviously this policy is more successful with a moderate unions' response. Moreover, in presence of sharp currency devaluations, a successful income policy prevents wage inflation, which nullifies the potential benefits from the devaluation[16]. For this reason, union

[14] See Barro (1981) for an overview of the neoclassical model of fiscal policy.
[15] See Pencavel (1986) for instance.
[16] See Lane and Perotti (1996) on these issues.

behavior may be critical for the success of a fiscal adjustment. An agreement with the unions that moderate wage pressure would keep unit labor costs low, spark investment and growth. Lack of union agreement may lead to a wage push with the opposite consequences.

In summary one can identify two non mutually exclusive views about what makes a fiscal contraction expansionary. One view emphasizes expectation effects and wealth effects on consumption; the other one focuses more on the policy mix and the labour markets.

Finally, a political economy question. If it is the case that fiscal adjustments can be long lasting without producing recessions, why politicians seem to be so reluctant in pursuing them? The most common answer is that fiscal adjustments are politically costly, namely they lead to a loss of popularity and eventually to a loss of office. While this explanation seems appealing, Alesina Perotti and Tavares (1998) find no evidence in its support for OECD countries[17]. A second possibility is that even though on average fiscal consolidations do not lead to electoral defeats, they increase the variance of the popularity level of governments. That is fiscal adjustments may be perceived as politically risky, thus they may be avoided by risk adverse politicians. A third possibility is that successful fiscal adjustment may increase income inequality; some fragment of evidence in this direction is presented in Alesina and Perotti (1996 and 1997a). A fourth explanation is that two critical lobbies, the union and the retirees, have a political influence that goes beyond their voting share. Union may cause strikes and disruption; retirees have more time and money than average to devote to political action and social lobbying. Thus these two groups, sometimes part of the same organization[18], may block any fiscal adjustment that infringes on their privileges. As argued above, it may be impossible to implement fiscal adjustments with a good probability of success without cuts in public wages and pensions.

In the sections that follow we contribute to shed some empirical light on this intricate set of politico economic issues.

3. Data.

We consider almost all the OECD countries for the period 1960-1994, (excluding recent additions to this group and the very small ones). The countries included in the sample are: Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Japan, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, United Kingdom, United States. New Zealand is not included for data problems. For some years the data on Portugal are also somewhat problematic, therefore, we have always checked that our results are not driven by these country-years[19]. All our fiscal data are from OECD. The political data for the 1960-1990 period and all countries except Greece, Portugal and Spain are from Budge, Kemam and Woldendrop, (1993). Data for Greece, Portugal, Spain as well as for the 1990-1994 period for all the other countries are from Alesina, Perotti and Tavares (1998).

[17] Kraemer (1997) find similar results for Latin American countries and Peltzman (1992) for US states.
[18] In Italy, for instance, more than 50 per cent of card carrying union members are retirees.
[19] In Portugal, the cyclically adjusted primary deficit decreased by 13 per cent of GDP in 1980 and increased by more than 14 per cent in 1981. We suspect some data problems, (see also Giavazzi (1995)). We check that our results are not affected by the inclusion of Portugal. Whenever this is the case, we discuss the differences in results.

We focus on discretionary changes of fiscal policy, therefore we consider the primary balance, excluding interest payments. The cyclical correction of the primary balance is a difficult issue, which does not yield itself to an unambiguous answer. We follow a method of cyclical correction proposed in an OECD publication by Blanchard (1993)[20]. Blanchard's method differs in an important way from both the OECD and the IMF "official" methods of cyclical corrections of fiscal variables. In fact, Blanchard's method does not rely on measures of potential GDP. We find this an attractive feature, since measures of potential output are highly arbitrary. More generally, this methodology is simple, transparent and straightforward. Essentially, this approach relies on correcting various component of the government budget for year to year changes in the unemployment rate, and it is described in more details in the appendix of this paper.

Table 3.1 summarizes some basic statistics on government budgets from 1960 to 1994. It shows that on average budgets of OECD countries were positive till the early seventies, and turned into deficits afterwards. Both spending and taxes dramatically increased over the period 1960-1994. Total spending as a share of GDP doubled from about 26 per cent to almost 51 per cent of GDP. In 1960, the (unweighted) average of revenue/GDP was 26.6 in the sample, and, in 1994 it reached 44.9 per cent.

Table 3.1

	Public debt as a percent of GDP	Total balance as a percent of GDP	Total revenue as a percent of GDP	Total spending as a percent of GDP
1960	37.78	1.11	26.66	25.95
1970	34.58	1.21	34.38	32.72
1980	40.07	-2.19	40.18	42.37
1990	57.62	-2.12	43.83	45.94
1994	72.07	-5.04	44.98	50.73

Source: OECD

Figure 3.1 shows a significant change in the composition in government outlays from early sixties onward. The component of spending which has increased much more than others are transfers, followed by government wages. Non wage government consumption and, especially, public investment have fallen as a share of total spending, and, also as a share of GDP. Governments in OECD countries are becoming more and more "redistributive machines". This appears not only from the increase in transfers, but also from the increase in government wages. In fact, government employment is often used as a way of redistributing income to disadvantages, or politically powerful groups[21]. As a result of this pattern of government spending, currently about 3/4 of primary spending is for transfers and government wages, as shown in figure 3.2. This is an important fact for what follows, because it indicates that it is practically impossible to cut primary spending in OECD countries leaving transfers and wages (the key items of the "welfare state") untouched.

4. Fiscal contractions

[20] This is the same procedure used by Alesina and Perotti (1995, 1997a), Alesina, Perotti and Tavares (1998), Perotti (1997). For a discussion of alternative methods of cyclical corrections see Mckenzie (1989).

[21] Alesina, Baqir and Easterly (1998) document the use of public employment for patronage and redistributions in US cities.

4.1 Definitions

We begin by defining a fiscal adjustment as follows:

Definition 1

A period of fiscal adjustment is a year in which the cyclically adjusted primary balance improves by at least 2 per cent of GDP or a period of two consecutive years in which the cyclically adjusted primary balance improves by at least 1.5 per cent of GDP per year, in both years[22].

This is a rather demanding criterium, which rules out small, but prolonged, adjustments. We have chosen it because we are particularly interested in adjustments which are very sharp and large and clearly indicate a change in the fiscal stance.

We are interested in two outcomes of very tight fiscal policies: whether they are successful in solving fiscal unbalances and whether they are associated with an expansion during and in their immediate aftermath. Thus, a "tight episode" is defined a) successful according to definition 2 and b) expansionary according to definition 3.

Definition 2

A period of tight fiscal policy is successful if a) in the three years after the tight period, the ratio of the cyclically adjusted primary deficit to GDP is on average at least 2 per cent of GDP below its value in the year of tight policy, or b) three years after the tight period, the ratio of the debt to GDP is 5 percent of GDP below its level in the year of the tight period.

Definition 3

A period of tight fiscal policy is expansionary if the average growth rate of GDP, in difference from the G7 average (weighted by GDP weights), in the period of the tight policy and in the two years after is greater than the average value of the same variable in all episodes of tight policy.

There is of course some degree of arbitrariness in these definitions. However, our results are not "knife hedge" and very sensitive to the exact criteria used[23]. Definition 1 isolates 51 cases of tight policy, of which 19 are successful and 23 are expansionary[24]. Table 4.1 lists all these cases. Our "horizon" for the definition of "success" and "expansionary" is relatively short. Choosing a longer horizon has two problems. First, one looses many observations at the end of the sample, a particular unpleasant feature, since many fiscal adjustments are relatively recent. Second, and

[22] This definition is slightly different from the one used in Alesina and Perotti (1995). Our definition do not consider two consecutive years of "tight" policy as single episode, but as two separate ones.

[23] For different definitions of "tight" and "success" and their fiscal and macroeconomic outcomes, see Alesina and Perotti (1995), Mc Dermott and Wescott (1996), OECD (1997).

[24] Note that the episodes of tight fiscal policy occurring after 1991, (1992), cannot be defined as success, (expansions), or not, since our sample ends in 1994.

more importantly, choosing a longer horizon makes the connection between the adjustments and economic outcomes several years later more tenuous, given the extent of intervening factors[25].

Table 4.1: Episodes of fiscal adjustments

Australia	1974, 1977, 1987
Belgium	1982, 1984, 1985
Canada	1981, 1986, 1987
Denmark	1963, 1983, 1984, 1985, 1986
Spain	1986, 1987
Finland	1967, 1976, 1984, 1988
United Kingdom	1969, 1977, 1988
Greece	1986, 1987, 1990, 1991
Ireland	1976, 1983, 1984, 1987, 1988, 1989
Italy	1967, 1976, 1977, 1980, 1993
Netherlands	1991
Norway	1971, 1972, 1980
Portugal	1977, 1980, 1982, 1984
Sweden	1971, 1976, 1986, 1987
USA	1969

4.2. Successes and failures, recessions and expansions

Tables 4.2 and 4.3 summarize several fiscal and macroeconomic variables around successful and unsuccessful adjustments[26]. In these tables, the period "before" the adjustment is the two year period preceding the adjustment year(s). The period "after" is the two year period following the last year of the adjustment. The period "during" is, of course, the year(s) of the adjustment. All the variables in the table are yearly averages.

Several interesting observations emerge from these tables. First of all successful adjustments occur in periods when the fiscal situation is worse than in unsuccessful cases: the debt to GDP ratio is higher and growing faster immediately before successful episodes. Second, the size of the adjustment is similar: an improvement of the primary cyclically adjusted deficit of 2.87 during successful adjustments, versus 2.63 during unsuccessful cases. Third, the composition of the adjustment is very different. Successful adjustments are almost exclusively expenditure based, unsuccessful adjustments are almost revenue based. Particularly striking are the differences in the behavior of transfers and government wages. In successful cases these two components of the budget are cut for a total of 1.62 per cent of GDP (from after to before, cyclically unadjusted, or 1.17 cyclically adjusted). In unsuccessful cases these two components *grow* for a total of 1.28 of GDP, (1.17 cyclically adjusted).

Macroeconomic variables also behave very differently. The rate of growth relative to G7 increases during and after successful episodes. Note that growth relative to G7 was actually

[25] As for definition 3, note that the average growth, in difference from G7 for the period of tight policy is very close to zero. Thus, definition 3 is very close to defining as expansionary every tight episode in which growth was above G7 average.

[26] Similar tables are discussed in Alesina and Perotti (1997a) and Alesina, Perotti and Tavares (1998).

higher immediately before unsuccessful cases. This observation casts doubts on the argument that initial growth determines the success of the tight policy. Successful adjustments experience a "spectacular" investment boom during and immediately after, contrary to the other cases. Private consumption is stable during unsuccessful and increase in successful episodes. Both types of adjustments are accompanied by a nominal devaluation of about the same magnitude. This observation suggests that the stance of monetary policy alone is not a critical factor making the difference. However, the rate of devaluation is only one of the many possible indicator of the monetary stance, although particularly important in small open economies. The evidence on the behavior of inflation also does not indicate a particularly loose monetary stance in successful versus unsuccessful cases.

The behavior of labour markets is also quite interesting. Relative unit labour costs fall immediately before and during successful cases, while they are roughly stable in other episodes. As discussed above and in Alesina and Perotti (1997b) this different pattern may reflect the different tax policies in the two types of adjustments. Both the profit and the wage shares and the ratio of the manufacturing goods exports deflator over unit labour costs in manufacturing indicate an increase in profits during successful adjustments, which, instead, does not occur in other episodes. The trade balance improves during successful cases and deteriorates in the others. The evidence on profits and the trade balance is therefore consistent with two channels linking relative unit labor costs and growth discussed above: an investment channel (remember the investment boom pointed out above) and the external sector.

Table 4.2: Successful and unsuccessful fiscal adjustments-size and composition

	Success					Unsuccess				
	Before (a)	During (b)	After (c)	Diff (b-a)	Diff (c-a)	Before (a)	During (b)	After (c)	Diff (b-a)	Diff (c-a)
Debt	70.06 (6.36)	72.15 (6.52)	68.96 (6.92)	2.09	-1.1	47.27 (4.42)	49.37 (4.85)	53 (5.3)	2.1	5.73
Change in debt	4.41 (1.04)	0.23 (1.39)	-2.34 (1.00)			2.14 (0.60)	1.24 (0.70)	2.61 (0.73)		
Primary deficit adj.	3.84 (0.56)	0.97 (0.71)	-0.55 (0.67)	-2.87	-4.39	2.8 (0.82)	0.17 (0.86)	1.41 (0.75)	-2.63	-1.39
Primary expenditures	43.91 (1.98)	42.07 (1.97)	40.73 (1.93)	-1.84	-3.18	37.21 (1.22)	37.13 (1.23)	38.43 (1.17)	-0.08	1.22
Primary expenditures adj.	43.68 (1.92)	42.14 (1.92)	40.95 (1.94)	-1.54	-2.73	37.19 (1.22)	37.03 (1.26)	38.29 (1.18)	-0.16	1.1
Transfers	16.91 (1.21)	16.64 (1.23)	16.24 (1.24)	-0.27	-0.67	13.89 (0.87)	14.21 (0.83)	14.74 (0.84)	0.32	0.85
Transfers adj.	16.68 (1.14)	16.73 (1.18)	16.46 (1.23)	0.05	-0.22	13.86 (0.87)	14.11 (0.87)	14.6 (0.85)	0.25	0.74
Government wages	14.15 (0.78)	13.63 (0.75)	13.2 (0.69)	-0.52	-0.95	11.96 (0.35)	12.11 (0.34)	12.39 (0.40)	0.15	0.43
Non wage consumption	6.56 (0.47)	6.23 (0.45)	6.1 (0.44)	-0.33	-0.46	5.06 (0.35)	5.04 (0.34)	5.15 (0.33)	-0.02	0.09
Public investment	3.07 (0.20)	2.69 (0.19)	2.59 (0.16)	-0.38	-0.48	3.6 (0.15)	3.38 (0.13)	3.39 (0.13)	-0.22	-0.21
Total Revenues adj.	39.84 (2.04)	41.17 (2.08)	41.5 (2.28)	1.33	1.66	34.39 (1.36)	36.86 (1.46)	36.87 (1.50)	2.47	2.48

Source: OECD. Variables are in share of GDP. Primary deficit adj., Primary expenditures adj., Transfers adj., Total revenues adj., are cyclically adjusted variables. Standard deviations in parenthesis. See the appendix for detailed definitions of the variables.

Table 4.3: Successful and unsuccessful fiscal adjustments-macroeconomic performance

	Success					Unsuccess				
	Before (a)	During (b)	After (c)	Diff (b-a)	Diff (c-a)	Before (a)	During (b)	After (c)	Diff (b-a)	Diff (c-a)
Relative unit labour costs	-3.67 (1.61)	-1.81 (1.72)	3.6 (1.73)			-1.09 (1.05)	1.56 (1.24)	0 (0.96)		
Exchange rate	-3.54 (1.14)	-3.17 (1.33)	0.2 (1.34)			-3.92 (1.10)	-3.95 (1.29)	-2.46 (1.03)		
GDP growth rate (G7)	-0.15 (0.28)	0.29 (0.47)	0.2 (0.44)	0.44	0.35	0.36 (0.27)	-0.68 (0.49)	-0.54 (0.32)	-1.04	-0.9
Unemployment rate (G7)	2.58 (1.19)	2.63 (1.17)	2.14 (1.13)	0.05	-0.44	0.88 (0.59)	0.94 (0.62)	1.44 (0.64)	0.06	0.56
Business investments	2.87 (1.77)	7.93 (1.37)	8.02 (1.44)	5.06	5.15	3.95 (1.41)	4.65 (2.25)	2.34 (1.54)	0.7	-1.61
Private Consumption	2.41 (0.42)	3.31 (0.51)	3.07 (0.45)	0.9	0.66	2.88 (0.41)	2.89 (0.38)	2.89 (0.39)	0.01	0.01
Trade balance/GDP	-0.59 (1.15)	0.24 (1.40)	0.28 (1.37)	0.83	0.87	-4.3 (1.33)	-3.48 (1.09)	-2.27 (1.17)	0.82	2.03
VAULC	1.38 (1.73)	3.85 (1.78)	-1.14 (1.36)			2.46 (0.91)	-1.17 (1.05)	-0.37 (0.88)		
Wages/GDP	54.94 (1.55)	53.43 (1.36)	52.77 (1.48)	-1.51	-2.17	52.01 (1.18)	52.04 (1.34)	51.76 (1.36)	0.03	-0.25
Profits/GDP	31.53 (1.27)	32.4 (1.12)	32.85 (1.30)	0.87	1.32	31.32 (1.26)	31.16 (1.42)	32.36 (1.29)	-0.16	1.04
Long term real interest rates (G7)	0.51 (0.70)	-0.94 (0.88)	0.27 (0.55)	-1.45	-0.24	-2.29 (0.52)	-2.05 (0.47)	-0.47 (0.41)	0.24	1.82
Inflation rate (G7)	2.46 (0.94)	3.71 (1.25)	2.77 (0.96)			5.03 (0.93)	5.69 (1.00)	4.4 (0.99)		

Source: OECD. GDP growth rate (G7), Unemployment rate (G7), Long term real interest rates (G7), Inflation rate (G7) are in difference from the weighted average for the G7 countries. Relative unit labour costs, Exchange rate, Business investments, Private consumption are growth rates. VAULC is the growth rate of the ratio of manufacturing goods exports deflator to unit labour costs in manufacturing. Standard deviations in parenthesis. See the appendix for detailed definitions of the variables.

The second way of looking at the evidence is to break down the episodes of fiscal adjustments according to whether they are contractionary or expansionary. This is done in table 4.4 and table 4.5. To begin with, there does not seem to be much evidence that the expansionary episodes are those which occur when debt is high or more rapidly raising. Second, expansionary adjustments are much larger than contractionary ones: during the adjustment, the primary adjusted deficit falls by 3.11 per cent of GDP, against 2.39 in contractionary cases[27]. This is a striking anti-Keynesian result. Obviously, to be sure, one should be confident that cyclical factors are completely "taken out" of our adjusted measure. Since our cyclical correction (like any other) is not perfect, this result may be exaggerated by the imprecise cyclical correction. This observation on "size" is consistent with econometric results by Giavazzi and Pagano (1996). In their work on private consumption, they argue that a large adjustment, by inducing a permanent change of fiscal regime, can be expansionary through an effect on expectations, which would not be present in a small adjustment. Note, however, that the size of the adjustment is also correlated with its composition: larger adjustments are more expenditure based. In fact, table 4.4 shows that spending are cut more during expansionary episodes and revenues are increased less.

The labor market and distributional variables display a pattern quite consistent with table 4.3. Finally, the evidence on nominal devaluations and the inflation rate does not indicate that monetary policy was looser during expansionary cases and tighter during contractionary ones.

[27] This very large difference is unduly driven by Portugal. Excluding this country, the size of the adjustment is still large during expansionary episodes, but the difference is smaller.

Table 4.4: Expansionary and contractionary fiscal adjustments-size and composition

	Expansionary					Contractionary				
	Before (a)	During (b)	After (c)	Diff (b-a)	Diff (c-a)	Before (a)	During (b)	After (c)	Diff (b-a)	Diff (c-a)
Debt	54.75 (5.61)	55.86 (5.46)	54.75 (5.00)	1.11	0	56.93 (5.61)	59.87 (6.24)	62.74 (6.76)	2.94	5.81
Change in debt	2.9 (0.77)	0 (1.00)	-0.89 (0.74)			3.09 (0.81)	1.58 (0.92)	2.11 (1.02)		
Primary deficit adj.	3.76 (0.80)	0.65 (0.88)	0.99 (0.86)	-3.11	-2.77	2.71 (0.76)	0.32 (0.83)	0.39 (0.70)	-2.39	-2.32
Primary expenditures	38.45 (1.46)	37.12 (1.44)	37.53 (1.11)	-1.33	-0.92	40.87 (1.74)	40.6 (1.61)	40.81 (1.63)	-0.27	-0.06
Primary expenditures adj.	38.4 (1.42)	37.17 (1.44)	37.64 (1.13)	-1.23	-0.76	40.72 (1.71)	40.51 (1.63)	40.72 (1.64)	-0.21	0
Transfers	14.32 (0.65)	14.20 (0.58)	14.14 (0.50)	-0.12	-0.18	15.65 (1.23)	15.93 (1.21)	16.3 (1.21)	0.28	0.65
Transfers adj.	14.27 (0.62)	14.25 (0.58)	14.25 (0.54)	-0.02	-0.02	15.51 (1.21)	15.84 (1.23)	16.21 (1.22)	0.33	0.7
Government wages	12.38 (0.55)	12.18 (0.51)	12.14 (0.46)	-0.2	-0.24	13.14 (0.55)	13.12 (0.51)	13.18 (0.53)	-0.02	0.04
Non wage consumption	5.44 (0.35)	5.31 (0.32)	5.32 (0.30)	-0.13	-0.12	5.79 (0.46)	5.65 (0.44)	5.68 (0.43)	-0.14	-0.11
Public investment	3.33 (0.17)	3.14 (0.19)	3.15 (0.20)	-0.19	-0.18	3.46 (0.18)	3.1 (0.15)	3.03 (0.13)	-0.36	-0.43
Total Revenues adj.	34.63 (1.62)	36.52 (1.60)	36.64 (1.65)	1.89	2.01	38.02 (1.70)	40.19 (1.78)	40.33 (1.92)	2.17	2.31

Source: OECD. Variables are in share of GDP. Primary deficit adj., Primary expenditures adj., Transfers adj., Total revenues adj., are cyclically adjusted variables. Standard deviations in parenthesis. See the appendix for detailed definitions of the variables.

Table 4.5: Expansionary and contractionary fiscal adjustments-macroeconomic performance

	Expansionary					Contractionary				
	Before (a)	During (b)	After (c)	Diff (b-a)	Diff (c-a)	Before (a)	During (b)	After (c)	Diff (b-a)	Diff (c-a)
Relative unit labour costs	-3.05 (1.39)	-0.01 (1.46)	2.7 (1.17)			-1.17 (1.16)	0.53 (1.49)	0.13 (1.35)		
Exchange rate	-3.63 (1.24)	-3.16 (1.25)	-0.18 (1.25)			-3.9 (1.05)	-4.07 (1.40)	-2.53 (1.08)		
GDP growth rate (G7)	0.23 (0.30)	1.32 (0.36)	0.94 (0.31)	1.09	0.71	0.12 (0.27)	-1.71 (0.44)	-1.28 (0.28)	-1.83	-1.4
Unemployment rate (G7)	3.04 (1.03)	3 (1.02)	2.73 (0.95)	-0.04	-0.31	0.23 (0.54)	0.38 (0.61)	0.84 (0.67)	0.15	0.61
Business investments	1.92 (1.98)	9.89 (2.14)	7.78 (1.64)	7.97	5.86	4.87 (1.11)	2.61 (1.82)	1.86 (1.45)	-2.26	-3.01
Private Consumption	2.89 (0.38)	4.09 (0.34)	3.7 (0.43)	1.2	0.81	2.54 (0.45)	2.16 (0.42)	2.32 (0.37)	-0.38	-0.22
Trade balance/GDP	-0.83 (1.20)	-0.91 (1.34)	-1.08 (1.53)	-0.08	-0.25	-4.56 (1.36)	-3 (1.18)	-1.92 (1.06)	1.56	2.64
VAULC	2.1 (1.30)	1.79 (1.56)	-0.81 (1.53)			1.99 (1.17)	-0.22 (1.30)	-0.52 (1.17)		
Wages/GDP	52.7 (0.93)	51.91 (0.84)	51.46 (0.82)	-0.79	-1.24	53.48 (1.59)	53.14 (1.67)	52.73 (1.74)	-0.34	-0.75
Profits/GDP	30.48 (1.39)	31.08 (1.36)	32.16 (1.29)	0.6	1.68	32.18 (1.19)	32.12 (1.36)	32.88 (1.34)	-0.06	0.7
Long term real interest rates (G7)	-0.85 (0.70)	-2.2 (0.84)	-0.52 (0.50)	-1.35	0.33	-1.54 (0.60)	-1.15 (0.40)	0.1 (0.44)	0.39	1.64
Inflation rate (G7)	3.17 (0.72)	4.61 (1.1)	3.06 (0.92)			4.8 (1.12)	5.22 (1.13)	4.39 (1.08)		

Source: OECD. GDP growth rate (G7), Unemployment rate (G7), Long term real interest rates (G7), Inflation rate (G7) are in difference from the weighted average for the G7 countries. Relative unit labour costs, Exchange rate, Business investments, Private consumption are growth rates. VAULC is the growth rate of the ratio of manufacturing goods exports deflator to unit labour costs in manufacturing. Standard deviations in parenthesis. See the appendix for detailed definitions of the variables.

In summary, what does one learn from these tables? First of all, some fiscal adjustments are associated with expansions, some are not. Second, one can find evidence both for the "wealth effect and expectation" argument, and for the "policy mix, labor market" story, as described above. Exhibits in favor of the former are: the fact that successful consolidations occur in periods of fiscal stress; the behavior of consumption and interest rates. Exhibits in favour of the latter are: the behavior of labor market variables, including the distributional shares, the investment boom, much more spectacular than the increase in private consumption, the pattern of the trade balance and of profits. The striking difference in the composition of successful and expansionary adjustments relative to the other is consistent with both arguments.

In the next section we explore more the interaction between the size and the composition of the adjustments.

4.3 Size versus composition

The evidence discussed above hints that both size and composition of fiscal adjustments are important determinants of their consequences.

In what follows we compare the role of composition and size of the adjustment. We run probit specifications to estimate both the probability that an episode of tight fiscal policy is successful and the probability that it is expansionary as a function of its size and composition. The criteria used to define whether or not a fiscal consolidation is successful or expansionary are the same as in definition 2 and definition 3, respectively. Our variable "size" is the change in the cyclically adjusted primary balance/GDP. To capture the composition of the adjustments, we adopt two different measures: 1) COMPA which is an indicator variable equal to one if the cut in primary expenditures/GDP is greater than the average cut for the "sample" of tight episodes, 2) COMPB which is the same as COMPA but, rather than looking at the total primary spending, we just consider the cut in transfers and government wages as a share of GDP. In defining both dummy variables, transfers as a share of GDP have been cyclically adjusted. Finally, we run our specifications both using all the countries in our sample of "tight" episodes and excluding Portugal from them, to check that our results are not sensitive to its inclusion.

Let's begin with the probability of success. Results are in table 4.6. In no specification, the coefficient of the "size" variable is statistically different from zero, and bigger cuts in the cyclically adjusted primary deficit over GDP increase the likelihood of a "success", (although in a non statistically significant manner), only when Portugal is excluded from the sample. On the contrary, the composition in which primary expenditures and, especially, transfers and public wages are more heavily cut positively influences the probability that the adjustment is successful.
In order to quantify the impact of changes in our control variables and shed some more light on the relative importance of the size versus the composition of the adjustments, we also evaluate the fitted probability of a successful consolidation both for different values of the change in the cyclically primary balance/GDP and under the assumption that the adjustment is undertaken via lower primary expenditures (lower transfers and wages) or not. Expenditure based adjustments (a), or (b) are those in which the dummy variables, (COMPA and COMPB), have the value of one. Episodes in which these dummy variables have the value of zero are called revenue based

adjustments (a) or (b). Results for all countries, excluding Portugal, are reported in table 4.7. This table can be read as follows. Reading the columns from top to bottom one sees the increase in the probability of success as the size increases, keeping the composition fixed. Reading the rows one reads the effects of changes in the composition keeping the size fixed. In general, the probability that the adjustment is successful doubles if primary expenditures and, even more, if transfers and wages are cut. For example, if the cyclically adjusted primary deficit decreases by 2.5 per cent of GDP, (the average reduction over all the episodes of tight fiscal policy), and transfers and wages are cut more than average, (i.e.: expenditure based adjustments (b)), the probability that the episode is successful is 0.53. This probability decreases to 0.26 if the adjustment is a "revenue based" one.

Table 4.6: Probit specification for successful fiscal contraction

	All sample (1)	Portugal excluded (2)	All sample (3)	Portugal excluded (4)
constant	-0.32	-1.04	-0.63	-1.1
	(-0.79)	(-1.53)	(-1.39)	(-1.6)
size	10.8	-17.5	3.97	-18.44
	(0.79)	(-0.64)	(0.3)	(-0.68)
	4.11	-6.73	1.5	-7.03
COMPA	0.68	0.6		
	(1.74)	(1.44)		
	0.26	0.22		
COMPB			0.84	0.71
			(2.25)	(1.74)
			0.31	0.26
LOGL	-31.6	-28.9	-30.5	-28.4
Obs	50	46	50	46

The three numbers reported are the coefficient, the t-statistic in parenthesis, and the marginal change in probability. Successful episodes are defined as in definition 2. Size= change in the cyclically adjusted primary balance/GDP. COMPA =dummy variable that takes the value of 1 if cyclically adjusted primary expenditures in share of GDP decrease more than average during the adjustments. COMPB=dummy variable that takes the value of 1 if cyclically adjusted transfers and public wages, both in share of GDP, decrease more than average during the adjustments.

Table 4.7: Successful fiscal contractions. Fitted probabilities from probit specification

	Expenditure based adjustments (a)	Revenue based adjustments (a)	Expenditure based adjustments (b)	Revenue based adjustments (b)
Size improvement of the cyclically adjusted primary balance as a share of GDP by:				
1.5 per cent	0.43	0.22	0.45	0.2
2.5 per cent	0.5	0.27	0.53	0.26
4.7 per cent	0.65	0.42	0.68	0.41

Expenditure based adjustments (a), or (b) are those in which the dummy variables COMPA, COMPB have the value of one. Episodes in which these dummy variables have the value of zero will be called revenue based adjustments (a) or (b). Portugal is excluded from the sample.

Thus, the composition of the adjustment appears as a stronger predictor of success than its size.

Let's consider, now, the probability that an adjustment is expansionary. Results are in tables 4.8 and 4.9, (which are organized in the analogue way to 4.6 and 4.7), and are very similar to those discussed above. As far as the "size" of the adjustment is concerned, the coefficient is never significant but in three specifications out of four the sign is negative, indicating that larger adjustments are more expansionary. However, the probability that the adjustment is expansionary does not change very much if the primary adjusted deficit is more heavily cut. For example, excluding Portugal from the sample, an improvement of the cyclically adjusted primary balance from 1.5 per cent of GDP to 2.5 per cent increases the probability that the episode is expansionary only from 0.49 to 0.51, when the adjustment is "expenditure based" and from 0.38 to 0.4 when it is "revenue based". Once again, the composition of the adjustment matters much more than the size for its macroeconomic outcome. The probability that the episode is expansionary is significantly and highly positively correlated with cuts in transfers and government wages. For a reduction in the cyclically adjusted primary deficit by 2.5 per cent of GDP, the probability that the consolidation is expansionary is 0.24 if it is "revenue (b) based" and 0.69 if the adjustment is "expenditure (b) based". As shown in table 4.8, these effects are highly statistically significant. Cuts in total primary spending have a much smaller effect on the likelihood of having an expansionary fiscal contraction.

Table 4.8: Probit specification for expansionary fiscal contractions

	All sample (1)	Portugal excluded (2)	All sample (3)	Portugal excluded (4)
constant	-0.47	-0.40	-0.96	-0.38
	(-1.15)	(-0.61)	(-2.29)	(-0.57)
size	-12.6	-5.48	-12.05	13.28
	(-0.87)	(-0.20)	(-1.03)	(0.49)
	-4.99	-2.17	-4.77	5.25
COMPA	0.045	0.30		
	(0.12)	(0.73)		
	0.02	0.12		
COMPB			1.06	1.22
			(2.81)	(2.89)
			0.4	0.45
LOGL	-33.9	-31.3	-29.8	-27.1
Obs	50	46	50	46

The three numbers reported are the coefficient, the t-statistic in parenthesis, and the marginal change in probability. Successful episodes are defined as in definition 2. Size= change in the cyclically adjusted primary balance/GDP. COMPA =dummy variable that takes the value of 1 if cyclically adjusted primary expenditures in share of GDP decrease more than average during the adjustments. COMPB=dummy variable that takes the value of 1 if cyclically adjusted transfers and public wages, both in share of GDP, decrease more than average during the adjustments.

Table 4.9: Expansionary fiscal contractions. Fitted probabilities from probit specification

	Expenditure based adjustments (a)	Revenue based adjustments (a)	Expenditure based adjustments (b)	Revenue based adjustments (b)
Size improvement of the cyclically adjusted primary balance as a share of GDP by:				
1.5 per cent	0.49	0.38	0.74	0.28
2.5 per cent	0.51	0.4	0.69	0.24
4.7 per cent	0.56	0.55	0.58	0.16

Expenditure based adjustments (a), or (b) are those in which the dummy variables COMPA COMPB, have the value of one. Episodes in which these dummy variables have the value of zero will be called revenue based adjustments (a) or (b). Portugal is excluded from the sample.

Results are not in any way driven by the fact that our composition variables take the discrete form of dummy variables. Tables 4.10 and 4.11 display regressions in which the composition variables are described in a continuos manner: DEXP is the change in the cyclically adjusted primary expenditure/GDP and DTRCGW is the change in transfers, (cyclically adjusted), and government wages as a share of GDP. A part from the different definitions of the composition variables, table 4.10 is exactly as table 4.6 and table 4.11 is the same as table 4.8. These regressions confirm that our results on the effects of size and composition are generally robust to

alternative definitions of the composition variables.
Figures 4.1 and 4.2, (figures 4.3 and 4.4), show the probability that episodes of tight fiscal policy are successful, (expansionary), as a function of the composition variables DEXP, and DTRCGW respectively. Figures are drawn considering an improvement of 2.5 per cent in the cyclically adjusted primary balance/GDP. In all cases, the probability that an episode is successful/expansionary increases if primary expenditures and transfers and government wages are more heavily cut[28].

Table 4.10: Probit specification for successful fiscal contraction

	All sample (1)	Portugal excluded (2)	All Sample (3)	Portugal excluded (4)
Constant	0.26	-0.91	-0.51	-0.82
	(0.61)	(-1.26)	(-1.03)	(-1.17)
Size	36.31	1.13	0.87	-13.39
	(1.95)	(0.039)	(0.052)	(-0.5)
	13.68	0.42	0.32	-5.04
DEXP	-37.49	-67.59		
	(-2.23)	(-2.61)		
	-14.12	-25.14		
DTRCGW			-83.32	-74.46
			(-2.90)	(-2.51)
			-30.9	-28.09
LOGL	-30.11	-24.27	-27.48	-25.96
Obs	50	46	50	46

The three numbers reported are the coefficient, the t-statistic in parenthesis, and the marginal change in probability. Successful episodes are defined as in definition 2. Size= change in the cyclically adjusted primary balance/GDP. DEXP=change in the cyclically adjusted primary expenditure/GD. DTRCGW= change in transfers (cyclically adjusted) and government wages as a share of GDP.

[28] The same graphs plotted for different values of the change in the cyclically adjusted primary balance/GDP are available upon request. They clearly show that the probability of successful, (expansionary), stabilizations is hardly influenced by the size of the adjustments.

Table 4.11: Probit specification for expansionary fiscal contractions

	All sample (1)	Portugal excluded (2)	All Sample (3)	Portugal excluded (4)
constant	-0.42	-0.37	-0.55	-0.21
	(-0.93)	(-0.56)	(-1.44)	(-0.32)
size	-10.18	-7.46	-13.68	-0.99
	(-0.56)	(-0.28)	(-1.15)	(-0.039)
	-4.04	-2.96	-5.43	-0.39
DEXP	-3.29	-8.78		
	(-0.25)	(-0.63)		
	-1.31	-3.48		
DTRCGW			-34.14	-37.67
			(-1.61)	(-1.61)
			-13.5	-14.94
LOGL	-33.87	-31.36	-32.55	-30.18
Obs	50	46	50	46

The three numbers reported are the coefficient, the t-statistic in parenthesis, and the marginal change in probability. Successful episodes are defined as in definition 2. Size= change in the cyclically adjusted primary balance/GDP. DEXP=change in the cyclically adjusted primary expenditure/GDP. DTRCGW= change in transfers (cyclically adjusted) and government wages as a share of GDP.

In summary, although the relatively small number of observations in our sample of tight episodes, our results help in shedding light on the relative importance of the composition versus the size of the adjustment. We conclude that the likelihood that an adjustment is successful and expansionary is much more influenced by the composition than by the size.

How can we relate these results with those of Giavazzi and Pagano (1996)? Their evidence is on consumption, while we consider GDP growth. Our interpretation is that other components of aggregate demand, such as investments and exports may be particularly responsive to the composition. This hypothesis is quite consistent with the arguments discussed above concerning supply side and labour market effects on relative unit labour costs. Remember, in fact, the particularly different response of private investment in successful/expansionary and unsuccessful/recessionary adjustments.

5. Fiscal expansions

Further evidence on the effects of large discretionary fiscal changes can be gathered by studying episodes of very "loose" fiscal policies.

5.1. Definitions

An episode of loose fiscal policy is defined as follows:

Definition 4:

A period of loose fiscal policy is a year in which the cyclically adjusted primary balance deteriorates by at least 2 per cent of GDP or a period of two consecutive years in which the cyclically adjusted primary balance deteriorates by at least 1.5 per cent of GDP per year, in both years.

This definition is the analog with the opposite sign of our definition of tight policy. While in the case of a fiscal adjustment there is an obvious criterium to define a "success", the same does not apply to episodes of loose fiscal policies. We are, however, interested in what features of loose fiscal policies make the latter more or less expansionary. Therefore, we adopt the definition for an "expansionary" loose policy, exactly as above. Definition 4 isolates 87 cases of loose policy, of which 35 are expansionary[29]. Table 5.1 highlights all the cases of loose policy.

Table 5.1: Episodes of loose fiscal policies

Australia	1962, 1975, 1976, 1983, 1991, 1992
Austria	1967, 1975
Belgium	1975, 1981
Canada	1975, 1982, 1983
Switzerland	1994
Germany	1974, 1975, 1990
Denmark	1964, 1969, 1975, 1976, 1979, 1982
Spain	1981, 1982, 1993
Finland	1963, 1968, 1977, 1978, 1979, 1982, 1983, 1987, 1991, 1992
France	1975, 1981, 1992, 1993
United Kingdom	1963, 1971, 1972, 1990, 1991, 1992
Greece	1981, 1985, 1989
Ireland	1974, 1975, 1978, 1979
Italy	1965, 1971, 1972, 1975, 1981, 1994
Japan	1975, 1993, 1994
Netherlands	1975
Norway	1973, 1976, 1986, 1990, 1991
Portugal	1974, 1975, 1976, 1981, 1983, 1990, 1993
Sweden	1972, 1973, 1974, 1977, 1978, 1979, 1991, 1992, 1993, 1994
USA	1975, 1983

5.2 Loose fiscal policy and the economy

[29] As for all the other definitions, there is some degree of arbitrariness in this choice, but small changes in the definition do not lead to large changes in the results. Therefore, the qualitative nature of the results is robust.

Tables 5.2 and 5.3 display several fiscal and macroeconomic variables before, during and after loose episodes. The definitions of the three periods (before, during, and after) and of the variables is exactly as in tables 4.2 and 4.3. The first interesting observation is that in contractionary episodes the increase in deficit is actually substantially larger than in expansionary ones. The difference is, however, largely driven by Portugal. Excluding this country, the size of the two types of episodes is virtually identical. However, even if the size were the same, this result would still have striking anti-Keynesian features. Second, the composition of spending versus revenues is very consistent with the evidence on fiscal adjustments. In contractionary cases the entire increase in deficits is due to expenditure hikes; revenues, in fact, increase during these episodes. In expansionary cases, instead, a good portion of the deficit increase during the episode is a tax cut. During these episodes taxes are cut by more than 1 per cent of GDP. This result on composition is, again, anti-Keynesian because a simple multiplier argument implies that tax cuts should be less expansionary than spending increases.

Looking at the component of aggregate demand, one notes dramatically different behavior of the investment share. Private investments experience a boom immediately after an expansionary episode, while collapse after a contractionary one. Consumption remains stable after an expansionary case, while it significantly falls after a contractionary episode. This result is the exact analog with the reverse sign of what we found for fiscal contractions.

As for the case of fiscal contraction, it is hard to "explain away" these effects with monetary policy. If anything, the exchange rate devalued more during contractionary episodes than in the others, and one cannot find much difference in interest rates too. The evidence on labour market related variables is somewhat murky, less clear cut than in cases of fiscal adjustments.

Table 5.2: Expansionary and contractionary fiscal expansions-size and composition

	Expansionary					Contractionary				
	Before (a)	During (b)	After (c)	Diff (b-a)	Diff (c-a)	Before (a)	During (b)	After (c)	Diff (b-a)	Diff (c-a)
Debt	33.97 (2.98)	36.38 (2.96)	39.08 (3.14)	2.41	5.11	35 (3.21)	39.27 (3.25)	44.76 (3.46)	4.27	9.76
Change in debt	0.07 (0.41)	2.09 (0.54)	1.77 (0.43)			0.38 (0.48)	3.68 (0.72)	3.65 (0.68)		
Primary deficit adj.	-0.5 (0.60)	2.37 (0.66)	2.34 (0.64)	2.87	2.84	-0.22 (0.48)	2.82 (0.53)	3.16 (0.44)	3.04	3.38
Primary expenditures	35.55 (1.33)	37.75 (1.24)	38.4 (1.32)	2.2	2.85	38.03 (1.29)	41.57 (1.38)	42.64 (1.43)	3.54	4.61
Primary expenditures adj.	35.75 (1.27)	37.49 (1.26)	38.47 (1.30)	1.74	2.72	37.86 (1.28)	41.04 (1.33)	42.26 (1.38)	3.18	4.4
Transfers	12.59 (0.67)	13.84 (0.64)	14.19 (0.66)	1.25	1.6	14.2 (0.73)	15.77 (0.86)	16.8 (0.88)	1.57	2.6
Transfers adj.	12.52 (0.65)	13.58 (0.65)	14.26 (0.65)	1.06	1.74	14.03 (0.73)	15.25 (0.81)	16.42 (0.82)	1.22	2.39
Government wages	11.95 (0.39)	12.45 (0.39)	12.48 (0.40)	0.5	0.53	12.58 (0.45)	13.44 (0.48)	13.57 (0.49)	0.86	0.99
Non wage consumption	5.66 (0.30)	5.85 (0.31)	5.89 (0.34)	0.19	0.23	5.46 (0.32)	5.77 (0.32)	5.87 (0.35)	0.31	0.41
Public investment	3.43 (0.17)	3.49 (0.18)	3.41 (0.18)	0.06	-0.02	3.35 (0.12)	3.52 (0.11)	3.36 (0.10)	0.17	0.01
Total Revenues adj.	36.26 (1.47)	35.12 (1.36)	36.13 (1.39)	-1.14	-0.13	38.08 (1.41)	38.22 (1.42)	39.1 (1.34)	0.14	1.02

Source: OECD. Variables are in share of GDP. Primary deficit adj., Primary expenditures adj., Transfers adj., Total revenues adj., are cyclically adjusted variables. Standard deviations in parenthesis. See the appendix for detailed definitions of the variables.

Table 5.3: Expansionary and contractionary fiscal expansions-macroeconomic performance

	Expansionary					Contractionary				
	Before (a)	During (b)	After (c)	Diff (b-a)	Diff (c-a)	Before (a)	During (b)	After (c)	Diff (b-a)	Diff (c-a)
Relative unit labour costs	1.73 (1.09)	-1.1 (1.11)	-1.07 (1.05)			2.03 (0.68)	-0.11 (1.14)	-3.61 (0.90)		
Exchange rate	-0.47 (0.59)	-1.61 (0.83)	-1.98 (1.02)			-1.01 (0.73)	-2.63 (0.85)	-4.56 (0.89)		
GDP growth rate (G7)	-0.37 (0.38)	0.6 (0.44)	1.34 (0.27)	0.97	1.71	-0.37 (0.32)	-1.36 (0.36)	-1.07 (0.18)	-0.99	-0.7
Unemployment rate (G7)	-0.06 (0.31)	0.24 (0.38)	-0.04 (0.42)	0.3	0.02	-0.72 (0.39)	-0.2 (0.44)	0.75 (0.55)	0.52	1.47
Business investments	1.78 (1.49)	0.16 (2.42)	7.28 (1.17)	-1.62	5.5	2.49 (1.09)	-3.72 (1.71)	0.23 (1.22)	-6.21	-2.26
Private Consumption	3.06 (0.49)	3.43 (0.39)	3.8 (0.37)	0.37	0.74	2.78 (0.34)	1.92 (0.47)	1.6 (0.37)	-0.86	-1.18
Trade balance/GDP	-1.82 (0.86)	-2.31 (1.05)	-2.4 (0.93)	-0.49	-0.58	-2.16 (0.90)	-2.24 (0.94)	-1.9 (0.78)	-0.08	0.26
VAULC	-0.51 (0.93)	-1.36 (1.42)	1.36 (1.03)			-1.02 (0.76)	-1.95 (1.06)	2.46 (0.88)		
Wages/GDP	54.05 (0.74)	54.84 (0.75)	54.5 (0.71)	0.79	0.45	53.99 (1.13)	55.14 (1.08)	54.78 (1.09)	1.15	0.79
Profits/GDP	28.97 (0.87)	29.55 (0.92)	29.92 (0.97)	0.58	0.95	31.21 (0.77)	30.39 (0.73)	31.46 (0.72)	-0.82	0.25
Long term real interest rates (G7)	-0.65 (0.51)	0.31 (0.57)	-0.99 (0.57)	0.96	-0.34	-0.7 (0.49)	-0.08 (0.61)	0.02 (0.52)	0.62	0.72
Inflation rate (G7)	2.11 (0.48)	1.03 (0.62)	2.49 (0.81)			3.03 (0.61)	2.68 (0.76)	3.22 (0.86)		

Source: OECD. GDP growth rate (G7), Unemployment rate (G7), Long term real interest rates (G7), Inflation rate (G7) are in difference from the weighted average for the G7 countries. Relative unit labour costs, Exchange rate, Business investments, Private consumption are growth rates. VAULC is the growth rate of the ratio of manufacturing goods exports deflator to unit labour costs in manufacturing. Standard deviations in parenthesis. See the appendix for detailed definitions of the variables.

5.3 Size and composition

As for tight episodes, we now consider the probability that a loose episode is expansionary or contractionary depending upon its size and composition. As above, we estimate with a probit model the probability that an episode of loose fiscal policy is expansionary, where "expansionary" is as in definition 3. The variable "size" is the same as defined in 4.3, while COMPC, (COMPD), is a dummy variable equal to one if the increase in primary expenditures/GDP, (transfers and wages as a share of GDP), is lower than the average increase in the same variable for the sample of loose episodes. As before, transfers as a share of GDP are cyclically adjusted and our specifications are run both using all the countries in the sample and excluding Portugal.

Table 5.4 shows the coefficients and the marginal change in the probability that a loose episode is expansionary. Table 5.5 shows the values for the probability that a loose episode is expansionary for different values of the change in the cyclically primary balance/GDP and under the assumption that the loose policy is implemented mainly increasing primary spending or transfers and wages or lowering taxes[30]. A looser fiscal policy decreases the probability of an expansion only if Portugal is excluded from the sample. When all countries are included, we get the usual Keynesian result. However, the coefficient of the "size" variable is not statistically different from zero in this case too. Both dummy variables capturing the composition of the loose fiscal policy reinforce the evidence from table 5.1. An increase in primary spending or transfers and public wages greater than the average increase in all the loose episodes lowers the probability that the loose fiscal policy is associated with an expansion. For example, if the cyclically adjusted primary balance deteriorates by 2.7 per cent of GDP, (the average change over all the episodes of loose policy), the probability of an expansion drops from 0.55 to 0.3 if the loose fiscal policy is implemented heavily increasing spending (expenditure based episode (c)).
As for the case of tight fiscal policies, we checked that none of our results is driven by the discrete specification of the dummy variable on composition. In fact, our results are very robust to this sensitivity analysis.

[30]In 5.3, we will now refer to those episodes in which the dummy variables COMPC, COMPD have the value of one as revenue based episodes (c) or (d). Episodes in which these dummies have the value of zero will be called expenditure based episodes (c) or expenditure based episodes (d).

Table 5.4: Probit specification for expansionary loose episodes of fiscal policy

	All sample (1)	Portugal excluded (2)	All sample (3)	Portugal excluded (4)
constant	-0.44	-0.64	0.062	-0.48
	(-0.92)	(-0.95)	(0.14)	(-0.76)
size	-5.3	4.84	-12.35	0.78
	(-0.43)	(0.24)	(-0.98)	(0.04)
	-2.09	1.91	-4.88	0.31
COMPC	0.73	0.65		
	(2.27)	(1.93)		
	0.28	0.25		
COMPD			0.30	0.59
			(1.03)	(1.85)
			0.12	0.23
LOGL	-50.2	-47.4	-52.3	-47.3
Obs	78	72	78	72

The three numbers reported are the coefficient, the t-statistic in parenthesis, and the marginal change in probability. Successful episodes are defined as in definition 2. Size= change in the cyclically adjusted primary balance/GDP. COMPC =dummy variable that takes the value of 1 if cyclically adjusted primary expenditures in share of GDP increase less than average during the adjustments. COMPD=dummy variable that takes the value of 1 if cyclically adjusted transfers and public wages, both in share of GDP, increase less than average during the adjustments.

Table 5.5: Expansionary episodes of loose policy Fitted probabilities from probit specification

	Revenue based episode (c)	Expenditure based episode (c)	Revenue based episode (d)	Expenditure based episode (d)
Size deterioration of the cyclically adjusted primary balance as a share of GDP by:				
1.5 per cent	0.53	0.28	0.55	0.32
2.7 per cent	0.55	0.30	0.55	0.32
5.4 per cent	0.61	0.35	0.56	0.33

Revenue based episodes (c), or (d) are those in which the dummy variables COMPC, COMPD have the value of zero. Episodes in which these dummy variables have the value of one will be called expenditure based episodes (c) or (d). Portugal is excluded from the sample.

In summary, once again, the composition of the loose episodes influences their macroeconomic effects quite substantially, more than their size.

6. Fiscal adjustments: case studies

The statistical evidence discussed so far has uncovered a complex web of interactions between fiscal variables and macroeconomy. Given the richness of the variables involved, case studies can shed more light on these issues.

6.1 Case selection

By adopting the same definition of the adjustment used above in section 4, we isolate several multi-year episodes. The only difference here is that if two or more tight years follow each other directly we consider them part of the same episode. In order to keep the number of episodes to a manageable size, we restrict our sample to the eighties and nineties.

Using these criteria we isolate the cases listed in table 6.1. Some of the cases are by now "famous" and widely cited like the Irish and Danish adjustments which attracted much attention since Giavazzi and Pagano (1990). Others are less studied in academic work, like Australia 1987, Belgium 1984-1985, Canada 1986-1987, Sweden 1986-1987, Greece in the late eighties, Italy in the early nineties.

Table 6.1: Episodes of fiscal adjustments

Australia	1987
Belgium	1984, 1985
Canada	1986, 1987
Denmark	1983, 1984, 1985, 1986
Spain	1986, 1987
Finland	1984, 1988
United Kingdom	1988
Greece	1986, 1987, 1990, 1991
Ireland	1983, 1984, 1987, 1988, 1989
Italy	1993
Netherlands	1991
Portugal	1984
Sweden	1986, 1987

Starting from this list we eliminate the following cases, using some judgment calls: Spain 1986-1987; Finland 1984 and 1988; United Kingdom 1988; Greece 1990-1991; Portugal 1984. We excluded: Portugal because of the data problems discussed above; Greece 1990-1991 because the fiscal consolidation process was still ongoing in the 1994, the last year in our dataset; Finland 1984 and 1988 because we want to concentrate on countries with more or less serious fiscal problems, while in Finland during the 1980s, the average value of the debt to GDP ratio was 15.6 per cent and the budget was always in surplus. Finally, we eliminated United Kingdom 1988 and Spain 1986-1987 because, according to OECD reports, the improvement in the budget balance was exclusively due to high growth rates and not to discretionary fiscal policy measures. While it is true that we use a cyclical correction which should eliminate all the purely cyclically induced adjustment, no correction is air-tight perfect. Our reading of OECD reports for these two countries convinced us that no significant discretionary fiscal contraction was adopted in those years. We are then left with ten episodes.

6.2. Ten fiscal adjustments: an overview

We focus, in particular, on four major characteristics of fiscal adjustments, which may determine whether they are contractionary or not: their composition, the initial level of debt/GDP or the growth rate of the debt to GDP ratio, the wage-income policy which accompanies the adjustment and whether or not a devaluation occurs at the outset of the adjustment.
Table 6.2 summarizes the evidence.

INSERT TABLE 6.2

Column (1) identifies with a "+" cases in which the adjustment was mostly on the spending side, and with a "-" cases in which the adjustment was mostly on the revenue side. Generally, the two groups are clearly distinct. Only Denmark is a case in which the adjustment is about half/half. The second column identifies with a "+" cases in which the fiscal adjustment was accompanied by a broad wage agreement with the unions. All cases are clear cut except for Greece, where there was an agreement, but with a loose implementation. In Denmark the agreement was abandoned in the immediate aftermath of the adjustment. Column (3) identifies with a "+" cases in which a devaluation of the nominal exchange rate occurred immediately before the adjustment. In column (4) a "+" refers to countries with a debt over GDP ratio above 70 per cent at the beginning of the adjustment. Column (5) classifies with a "+" countries where the growth rate of the debt/GDP ratio was higher than 5 per cent in the year before the adjustment[31]. Column (6) identifies with a "+" countries where the rate of GDP growth during (column "d") and after (column "a") the adjustment period was higher than in the two years before. Column (7) has the same interpretation as (6) except that GDP growth is here defined in differences from the G7 average (weighted by GDP weights). In other words, in columns (6) and (7) a "+" means "expansionary". Column (8) reports whether the adjustments are expansionary according to definition 3 above and column (9) whether they are successful according to definition 2. A "+-" sign means that the first year(s) was expansionary or successful, but, then, looking at the latest year(s) of the adjustment, the episodes are defined as contractions or unsuccesses. Column (10) considers the distributional consequences of the consolidation and identifies with a "+" countries where profits as a share of GDP increased during and after the adjustment. Finally, the last column identifies with a "+" cases in which the government which performed the adjustment remained in office afterward and with a "-" cases in which the government fell immediately thereafter. There is only an unclear case: Italy, where the fiscal adjustment lasted several years with many governments coming and going.

Several observations are in order. First of all, two cases appear unambiguously expansionary: Ireland 1987-1989 and Australia. Both cases are expenditure based, have a wage agreement and a devaluation. Interestingly, Australia had a low debt to GDP ratio, which was growing at a rate lower than 5 per cent. We then have the case of Denmark which is a "mixed one". During the adjustment the economy was clearly expanding, but in the immediate aftermath of the adjustment Denmark experienced a severe downturn. Canada, Netherlands, Sweden, Ireland and Greece show no sign of an expansionary fiscal advantage[32]. None of these cases was expenditure based, just in one out of five there was a wage agreement, but not broadly applied to all the sectors of the economy, and just in two cases there was a devaluation. In three out of five cases debt was high and it was increasing at a rate grater than 5 per cent. Belgium is a somewhat unclear case. Except for a devaluation preceding the adjustment, it has features similar to the successful cases of Australia and Ireland. While domestic growth sharply picked up after the adjustment, it did not grow faster than the G7 average.

Finally, a few words on Italy. According to our rule, Italy had a fiscal adjustment in 1993. This adjustment was totally tax based. In 1994 and 1995 the adjustment continued and even currently the adjustment is ongoing. For this reason it is somewhat unclear how to define the "after"

[31] Using the same rule as in Perotti (1997) does not change our countries' classification.

[32] Greece recovery in the immediate aftermath of the adjustment was strongly influenced by the expansionary policy stance in 1988-1989.

period in the Italian adjustment. In addition, the policies in 1992-1993 and 1994-1995 are quite different, so we have chosen to separate 1993 and the following two years as two distinct adjustments.

What tentative conclusions can be drawn from all the above case studies?

1) One implication of the "expectation" view is that fiscal adjustments which occur when the debt is high or rapidly growing should be expansionary, and the other should not. The evidence is weak on this point.

2) The policy mix appears to be, instead, much more important. In particular:

3) The composition of the adjustment appears as the strongest predictor of the growth effect: all the non expansionary adjustments were tax based and all the expansionary ones were expenditure based.

4) Wage agreements seem also important, although a couple of cases shows that they are not sufficient alone.

5) We have six cases of devaluations: three were expansionary and three were contractionary. In all the expansionary cases, governments and unions agreed on wage moderation policies.

Finally:

6) Profits as a share of GDP increased in all the "expansionary fiscal contraction" episodes.

In other words, regardless of the initial level of debt, a large fiscal adjustment which is expenditure based and is accompanied by wage moderation and devaluation is expansionary. However, no large tax based fiscal adjustments can be expansionary even if it is accompanied by a devaluation. Finally, the last column of the table shows that it is not the case that governments which engage in large fiscal adjustments are systematically kicked out of office. Just the opposite: in a vast majority of cases, the government that implemented the adjustment was reappointed. This result is consistent with the statistical results by Alesina, Perotti and Tavares (1998).

We now turn to a case by case illustration of the evidence which underlies table 6.2. The reader interested only in a quick overview of our paper can turn to section 8, skimming section 7. Also, each case is self contained, so each reader can choose which one to read.

7. Case studies of ten fiscal adjustments

7.1 Australia 1987

In 1985, a single-party left wing government took office and launched a stabilization plan to correct the internal and external imbalances, (the current account deficit was 4.13 of GDP and the total deficit to GDP ratio was above 3 per cent in 1984).

7.1a) size and composition of the adjustment

The cyclically adjusted primary balance improved by 4 per cent of GDP, from a deficit of 2.5 per cent in 1985-1986 to a surplus of 1.3 per cent in the two years after the adjustment period. Almost all the adjustment was on the spending side. The government wage bill and transfer programs accounted for the biggest share of the adjustment. In particular, government wages fell by 1.3 per cent of GDP. The cuts in transfer programs were mainly concentrated on the unemployment insurance. Tax revenue as a share of GDP remained almost unchanged in the period 1985-1989. Revenue from direct tax increased by 0.4 per cent of GDP and was due to an increase in the tax base. Marginal tax rates were progressively reduced, (the top marginal rate was lowered from 60 per cent to 55 per cent on December 1986, and from 55 per cent to 49 per cent on July 1987). Capital taxation was rationalized.

Table 7.1a: Fiscal adjustment in Australia-size and composition

	bef.(85-86) (a)	dur.(87) (b)	aft.(88-89) (c)	Diff (b-a)	Diff (c-a)
Debt	24.7	24	17.9	-0.7	-6.8
Primary adj.deficit	2.5	-0.4	-1.3	-2.9	-4
Total Primary Expenditures	34.6	32.9	30.6	-1.7	-4
Transfers	11.2	10.8	10.1	-0.4	-1.1
Government wages	12.6	11.9	11.3	-0.7	-1.3
Non wage government consumption	6	5.9	5.5	-0.1	-0.5
Public investment	3	2.8	2.3	-0.2	-0.7
Sum of the above expenditure items	32.8	31.4	29.2	-1.4	-3.6
Total Revenues	30.7	31.7	31.3	1	0.6
Taxes on households	14.1	15	14.5	0.8	0.4
Taxes on business	2.5	2.5	3.1	0	0.6
Indirect taxes	13.7	13.9	13.4	0.2	-0.3
Sum of the above revenue items	30.3	31.4	31	1.1	0.7

Source: OECD
All variables are in share of GDP

7.1b) wage policy

From 1983 to 1986, wages were bargained at a centralized level. The system was based on full indexation with twice yearly adjustment, but there was a departure from full indexation in 1984 and 1986. In the negotiation process, government used tax reductions previously described to induce the union movement to accept reductions and delays in wages' increments. In March 1987, a new mechanism which allowed for two separate categories of wage increases, (a "first tier" flat rate increase not tied to the cost of living and a "second tier" wage increase up to a maximum of 4 percent, linked to the productivity performance) was introduced to move the wage bargaining system away from formal indexation toward moderation in wage increases.

7.1c) devaluation and relative unit labour costs

Between 1985 and 1986, the nominal effective exchange rate decreased by about 19 per cent. The combination of the devaluation and the wage moderation policy lead to a significant improvement in competitiveness. Relative unit labour costs decreased by 11 per cent during the adjustment period.

7.1d) macroeconomic consequences of the adjustment

Australia is a clear case of an "expansionary fiscal contraction". GDP grew faster during and in the aftermath of the adjustment both in absolute terms and relative to the average growth rate in the G7 countries. Private investment boom was associated to lower interest rates, firms' higher profits and easier access to credit following the financial deregulation process that took place in the years 1985-1986. Marginal tax rate reduction prevented a fall in real disposable income and sustained private consumption growth. Employment in the private sector increased and the unemployment rate decreased from before to after the adjustment period. Both nominal and real interest rate decreased with respect to the interest rates' average values in the G7 countries.

7.1e) distributional consequences of the adjustment

Table 7.1b shows that the wage share of GDP fell from 50.9 before the adjustment to 48.7 after. The increase in the profit share was even greater, from 35.1 to 38.4.

Table7.1b:Fiscal adjustment in Australia-macroeconomic performance

	bef.(85-86) (a)	dur.(87) (b)	aft.(88-89) (c)	Diff (b-a)	Diff (c-a)
GDP growth rate	3.4	4.6	4.23	1.2	0.83
GDP growth rate (G7)	0.31	1.37	0.41	1.06	0.1
Unemployment rate	8.1	8.03	6.6	-0.07	-1.5
Unemployment rate (G7)	0.68	1.09	0.46	0.41	-0.22
Business investments	5.9	5.87	9.05	-0.03	3.15
Private Consumption	3.17	2.51	4.75	-0.66	1.58
Long term nominal interest rates (G7)	4.31	4.63	4.08	0.32	-0.23
Long term real interest rates (G7)	1.29	0.26	-0.08	-1.03	-1.37
RULC	94.5	84	98	-10.5	3.5
Exchange rate	-18.9	-5.72	6.52		
Trade balance/GDP	-0.85	0.14	-0.73	0.99	0.12
Wages/GDP	50.9	49.5	48.7	-1.4	-2.2
Profits/GDP	35.1	36.9	38.4	1.8	3.3

Source: OECD
For variables' definitions see appendix

7.1f) political consequences of the adjustment

In July 1987, the same government and the same Prime Minister in office were reelected by popular vote. In the April 1990 elections, neither the winning government nor the Prime Minister changed.

7.2 Belgium 1984-1985

In 1983, the ratio of the total deficit over GDP was 11.2 per cent and the debt to GDP ratio reached 115.6 per cent.

7.2a) size and composition of the adjustment

The size of the adjustment was remarkable. But, it was not sufficient to stabilize the debt over GDP ratio which continued to increase, (see table 7.2a), partly because of the long and increasing maturity of the debt which did not allow to take full advantage of the fall in interest rates occurred during the adjustment period.

The primary adjusted balance improved by more than 5 per cent points of GDP, from before to after the years 1984-1985. Most of the adjustment was from the spending side of the budget. Transfers and public investment were cut almost in equal amount, (they fell by 1.3 and 1.2 of GDP respectively from before to after the two-year period of adjustment). Transfers were also cut particularly on employment assistance and in early retirement programs. Government wages fell in real terms. The growth rate of public employment as a proportion of total employment decreased from before to after the adjustment. Government revenue increase was very modest and mostly due to the increase in social security contributions.

Table 7.2a: Fiscal adjustment in Belgium-size and composition

	bef(82-83) (a)	dur(84-85) (b)	aft(86-87) (c)	Diff (b-a)	Diff (c-a)
Debt	110.27	122.49	131.49	12.22	21.22
Primary adj. deficit	3.98	0.12	-1.65	-3.86	-5.63
Total Primary Expenditures	53.48	51.26	49.19	-2.22	-4.29
Transfers	28.42	27.69	27.09	-0.73	-1.33
Government wages	13.79	13.22	12.72	-0.57	-1.07
Non wage government consumption	4.04	3.94	3.93	-0.1	-0.11
Public investment	3.05	2.29	1.82	-0.76	-1.23
Sum of the above expenditure items	49.3	47.14	45.56	-2.16	-3.74
Total Revenues	50.55	51.63	51.05	1.08	0.5
Taxes on households	17.18	17.22	16.37	0.04	-0.81
Taxes on business	2.47	2.59	2.78	0.12	0.31
Indirect taxes	12.79	12.38	12.14	-0.41	-0.65
Social security contributions	14.2	15.55	16.03	1.35	1.83
Sum of the above revenue items	46.64	47.74	47.32	1.1	0.68

Source: OECD
All variables are in share of GDP

7.2b) wage policy

After a period of wage freezing in the years 1982-1983, full indexation was reintroduced in 1984. This measure was supplemented with "an external competitiveness norm", stating that nominal wage growth should not exceeded that of Belgian main trading partners. Free wage bargaining at sector level was restored in late 1986.

7.2c) devaluation and relative unit labour costs

In February 1982, the Belgian franc devalued by 8.5 per cent against all EMS currencies except the Luxembourg franc and the Danish kroner. From then on, monetary policy was designed to maintain stable exchange rates. In January 1987, the Belgian franc's central rate was revalued by 2 per cent. Relative unit labour costs decreased in the two years during the adjustment period, but slightly increased in the immediate aftermath.

7.2d) macroeconomic consequences of the adjustment

Both during and in the two-years after the adjustment period, GDP growth rate increased, but at a rate lower than the average rate in the G7 countries. Both private consumption and private investment growth rates turned to be positive during and after the adjustment period. Private investment increase reflected the increase in corporate profits, due to the wage and tax policy started in 1982. The unemployment rate decreased by about 1 per cent from before to after the adjustment. Both nominal and real interest rate differentials with the corresponding average rates

in the G7 countries decreased from before to after the 1984-1985 period.

7.2e) distributional consequences of the adjustment

The wage share of GDP fell from 58.3 before the adjustment to 55.8 after. The profit share shows the opposite pattern: it increased by about 2.6 points of GDP.

Table7.2b:Fiscal adjustment in Belgium- macroeconomic performance

	bef(82-83) (a)	dur(84-85) (b)	aft(86-87) (c)	Diff (b-a)	Diff (c-a)
GDP growth rate	0.99	1.51	1.68	0.52	0.69
GDP growth rate (G7)	-0.32	-2.45	-1.38	-2.13	-1.06
Unemployment rate	12.53	12.76	11.48	0.23	-1.05
Unemployment rate (G7)	4.32	5.29	4.32	0.97	0
Business investments	-0.87	4.3	6.47	5.17	7.34
Private Consumption	-0.13	1.57	2.67	1.7	2.8
Long term nominal interest rates (G7)	0.35	0.66	-0.074	0.31	-0.424
Long term real interest rates (G7)	-0.031	-0.75	-0.072	-0.719	-0.041
RULC	98	92	99.5	-6	1.5
Exchange rate	-5.17	0.46	5.53		
Trade balance/GDP	-2.46	-0.66	0.79	1.8	3.25
Wages/GDP	58.31	56.95	55.81	-1.36	-2.5
Profits/GDP	30.02	31.62	32.65	1.6	2.63

Source: OECD
For variables' definitions see appendix

7.2f) political consequences of the adjustment

In November 1985, after a resignation due to conflicts within the government itself, the same Prime Minister and government which started the adjustment program were reappointed. In October 1987, the government collapsed, once again because of conflicts within itself, and a caretaker government with centre-right ideology was appointed till June 1988, when elections took place.

7.3 Canada 1986-1987

In November 1984, the newly elected federal government announced a fiscal stabilization plan to solve fiscal imbalances. In 1985, the deficit over GDP ratio was still increasing and reached 6.8 percent and the debt reached 64.6 per cent of GDP.

7.3a) size and composition of the adjustment

The primary cyclically adjusted balance improved by more than 5 per cent of GDP from before to after the adjustment, but this was not sufficient to stabilize the debt to GDP ratio, which continued to increase. The increase in government revenue contributed more than the cut in

public expenditure to the improvement of the balance.

On the spending side, the largest fraction of cut occurred in government wage bill, reflecting a decrease in real wages paid to public employees. The welfare cut were virtually nil. Government revenue from direct taxes increased because of the fiscal drag and the broadening of the tax base. In January 1988, the marginal tax rates were cut, (the top rate was cut from 34 per cent to 29 per cent). Corporate tax rates were reduced too, but part of the decrease in revenue from tax on business was due to the effect of oil price decline on energy firms' balance sheets.

Table 7.3a: Fiscal adjustment in Canada-size and composition

	bef (84-85) (a)	dur (86-87) (b)	aft(88-89) (c)	Diff (b-a)	Diff (c-a)
Debt	61.92	68.87	69.43	6.95	7.51
Primary adj. deficit	5.14	2.11	-0.09	-3.03	-5.23
Total Primary Expenditures	37.66	36.47	35.2	-1.19	-2.46
Transfers	12.43	12.47	12.17	0.04	-0.26
Government wages	13.16	12.76	12.21	-0.4	-0.95
Non wage government consumption	6.85	6.74	6.78	-0.11	-0.07
Public investment	2.63	2.41	2.3	-0.22	-0.33
Sum of the above expenditure items	35.07	34.38	33.46	-0.69	-1.61
Total Revenues	32.21	33.95	34.63	1.74	2.42
Taxes on households	11.25	12.54	13.01	1.29	1.76
Taxes on business	3.31	2.98	2.88	-0.33	-0.43
Indirect taxes	12.33	12.83	13.2	0.5	0.87
Social security contributions	4.27	4.53	4.51	0.26	0.24
Sum of the above revenue items	31.16	32.88	33.6	1.72	2.44

Source: OECD
All variables are in share of GDP

7.3b) wage policy

After a period of decline, in 1986 real wages started to increase. The increase was moderate till 1989 when unit labour costs rose by more than 5 per cent. No centralized income policy was implemented.

7.3c) devaluation and relative unit labour costs

Although the Canadian Central Bank had no target for the exchange rate, they intervened in the market to smooth its movements. The nominal exchange rate appreciated from before to after the adjustment period and Canadian competitiveness, measured by the relative unit labour costs, decreased.

7.3d) macroeconomic consequences of the adjustment

Since the end of 1982, the Canadian economy enters in an expansion period characterized by an average growth rate of GDP of 5 per cent. In the adjustment period and in the two years after, GDP grew at an average rate of about 3.7 per cent. Compared with the average growth rate in the G7 countries, Canadian growth rate became lower in the aftermath of the adjustment, as shown in table 7.3b. Among domestic demand components, private consumption declined during and after the adjustment period, although its growth rate was about 4 per cent on average. Private investment continued to increase both during and after the adjustment. Canada-USA Free Trade Agreement operative since January 1989 lead to a very abundant capital inflow, which pumped investment. Unemployment rates decreased both in absolute terms and relative to the average value in the G7 countries.

7.3e) distributional consequences of the adjustment

The wage share of GDP slightly increased from about 53.8 before the adjustment to 54.2 in the two years after. The profit share shows the opposite trend. Profits as a share of GDP fell by 38.9 before the two year period 1986-1987 to 36.8 in the years 1988-1989.

Table 7.3b Fiscal adjustment in Canada-macroeconomic performance

	bef (84-85) (a)	dur (86-87) (b)	aft(88-89) (c)	Diff (b-a)	Diff (c-a)
GDP growth rate	5.54	3.74	3.71	-1.8	-1.83
GDP growth rate (G7)	1.57	0.68	-0.1	-0.89	-1.67
Unemployment rate	10.91	9.21	7.65	-1.7	-3.26
Unemployment rate (G7)	3.45	2.06	1.53	-1.39	-1.92
Business investments	5.44	7.13	11.01	1.69	5.57
Private Consumption	4.9	4.38	3.92	-0.52	-0.98
Long term nominal interest rates (G7)	0.98	1.25	1.4	0.27	0.42
Long term real interest rates (G7)	2.36	0.77	0.38	-1.59	-1.98
RULC	85	82	92.5	-3	7.5
Exchange rate	-3.02	-2.42	6.41		
Trade balance/GDP	4.13	2.13	1.36	-2	-2.77
Wages/GDP	53.79	54.26	54.22	0.47	0.43
Profits/GDP	38.97	37.61	36.86	-1.36	-2.11

Source: OECD
For variables' definitions see appendix

7.3f) political consequences of the adjustment

In January 1989, the same government and the same Prime Minister, who initiated the adjustment, were reelected by popular vote.

7.4 Denmark 1983-86[33]

In 1982 the ratio of the deficit over GDP reached 8.9 per cent and the debt to GDP ratio was 53

[33] This section is loosely based on Alesina and Perotti (1997a).

percent. In October 1982 a decisive electoral victory established in office a cohesive right wing coalition which immediately launched a fiscal stabilization program.

7.4a) size and composition of the adjustment

The size of the fiscal adjustment in Denmark is remarkable, as shown by table 7.4a. The cyclically adjusted primary deficit over GDP ratio improved by almost 10 per cent of GDP in about five years. The adjustment was divided about equally between spending cuts and tax increases. On the spending side the largest fraction of cuts occurred in transfer programs and the government wage bill. These welfare cuts were broad ranging and applied to unemployment insurance and the pension system. Public employment that was rising rapidly until 1982 was frozen, and wage indexation suspended until 1987. On the revenue side the largest share of tax increases was on direct taxes on households and business. Also, several social security contributions were raised. As a result, the total tax burden increased by almost seven points of GDP: the total revenue over GDP ratio increased from 47.5 before the adjustment to 54.4 after the adjustment.

Table 7.4a: Fiscal adjustment in Denmark-size and composition

	bef(81-82) (a)	dur(83-86) (b)	aft(87-88) (c)	Diff (b-a)	Diff (c-a)
Debt	48.33	62.49	56.94	14.16	8.61
Primary adj. deficit	5.42	-0.2	-4.16	-5.62	-9.58
Total Primary Expenditures	53.65	49.57	50.13	-4.08	-3.52
Transfers	19.74	18.65	19.07	-1.09	-0.67
Government wages	19.91	18.35	18.3	-1.56	-1.61
Non wage government consumption	8.09	7.27	7.16	-0.82	-0.93
Public investment	2.77	2.16	2.29	-0.61	-0.48
Sum of the above expenditure items	50.51	46.43	46.82	-4.08	-3.69
Total Revenues	47.54	51.15	54.42	3.61	6.88
Taxes on households	24.39	25.64	28.1	1.25	3.71
Taxes on business	1.2	2.35	2.28	1.15	1.08
Indirect taxes	18.04	18.48	19.25	0.44	1.21
Social security contributions	2.23	2.8	2.71	0.57	0.48
Sum of the above revenue items	45.86	49.27	52.34	3.41	6.48

Source: OECD
All variables are in share of GDP

7.4b) wage policy

An explicit wage moderation policy was imposed on the unions in 1982. The unions' concession consisted in a five month period freezing on wages, suspension of wage indexation till 1985, and application of a four per cent ceiling on public sector wage increases in 1983 and 1984.

Consequently to the 1985 negotiations, wage increases were limited to 2 and 2.5 per cent in the two settlement years ending in March 1987, and non-wage labour costs were reduced by 1.5 per cent of the wage bill during the period October 1985-March 1987. In 1987-88 the unions asked and obtained large wage increases.

7.4c) devaluation and relative unit labor costs

The adjustment started in 1983 followed a series of devaluations in 1981-82. In this period the nominal exchange rate was devaluated of 4.5 per cent, leading to a fall in unit labor costs and an increase in competitiveness, immediately before the adjustment. A rapidly falling inflation, the fixity of the nominal exchange rate and the wage increases in 1987-88 lead to an appreciation of the real exchange rate (i.e., increase in relative unit labor costs) during and in the aftermath of the adjustment. Competitiveness was also adversely affected by shortening of the working week by one hour with full compensation since the end of 1986.

7.4d) macroeconomic consequences of the adjustment

On this point one needs to make a distinction during the adjustment and the immediate aftermath. During the adjustment GDP growth remained above G7 average and unemployment fell (see Table 7.4b). Both private investment and consumption sharply increased as a result of falling interest rates and the increase in competitiveness. Real interest rates fell by almost three points and relative unit labor costs had fallen by almost 15 per cent in 1981-82[34].

The macroeconomic outlook sharply deteriorated in the immediate aftermath of the adjustment. In 1988-89 the rate of growth of GDP in Denmark was more than 3 per cent below G7 average. Unemployment increased by 1 per cent in the same period from 7.9 to about 9 per cent. The origin of this recession lies in the end of wage moderation which lead to an increase in relative unit labor costs. This change in unions' attitude can be explained by their attempt to regain the after tax wage income lost because of the tax increases documented above.

7.4e) distributional consequences of the adjustment

The wage share fell by more than two points of GDP during the adjustment, but then increased by more than one point immediately afterward. The profit share shows an analogous and opposite pattern. It increases by about 3.5 points of GDP in 1983-87, and than falls in 1987-88. This pattern of the distributional share reflects the pattern of union policy and wage agreements described above.

Table 7.4b: Fiscal adjustment in Denmark-macroeconomic performance

	bef(81-82) (a)	dur(83-86) (b)	aft(87-88) (c)	Diff (b-a)	Diff (c-a)

[34] These macroeconomic developments are those that attracted the attention of Giavazzi and Pagano (1990), the very first ones to identify the Danish adjustment as expansionary.

GDP growth rate	1.06	3.71	0.73	2.65	-0.33
GDP growth rate (G7)	0.4	0.25	-3.1	-0.15	-3.5
Unemployment rate	9.48	9.34	8.18	-0.14	-1.3
Unemployment rate (G7)	2.18	1.68	1.55	-0.5	-0.63
Business investments	1.7	13.15	-6.36	11.45	-8.06
Private Consumption	-0.43	4.17	-1.26	4.6	-0.83
Long term nominal interest rates (G7)	7.44	2.36	1.87	-5.08	-5.57
Long term real interest rates (G7)	5.25	0.98	0.97	-4.27	-4.28
RULC	81.5	85.5	101.5	4	20
Exchange rate	-4.53	1.17	0.92		
Trade balance/GDP	-1.51	-0.63	1.26	0.88	2.77
Wages/GDP	56.2	54.17	55.59	-2.03	-0.61
Profits/GDP	31.57	35.14	33.1	3.57	1.53

Source: OECD
For variables' definitions see appendix

7.4f) political consequences of the adjustment

The same Prime minister and government coalition, which was elected in 1982 and had initiated the adjustment, was reappointed in January 1984, after a resignation due to conflicts in Parliament; reelected in September 1987, by popular vote; and reappointed in June 1988 after conflicts in Parliament.

7.5 Greece 1986-1987

In 1985 the ratio of the total deficit over GDP reached 11.5 per cent, the external current account deficit was 10 per cent of GDP and the inflation rate reached 25 per cent. In June 1985, a left wing government was elected and launched a two year stabilization plan to reduce the fiscal imbalance and the inflation rate. In the years 1988-1989, policy stance was sharply relaxed, creating a stop and go cycle.

7.5a) size and composition of the adjustment

During the adjustment period, the primary adjusted deficit decreased by 2 per cent of GDP, but, in the two years after, it increased by 1 per cent of GDP. Most of the improvement was due to an increase in fiscal revenues.
On the spending side, public investment (which fell by about 1.1 per cent of GDP from before to after the adjustment) was the only item of the budget heavily cut. On the revenue side, the largest share of tax increases was on indirect taxes. Taxes on business rose due to the introduction in 1986 of a once and for all levy on enterprises' profits.

Table7.5a Fiscal adjustment in Greece- size and composition

	bef.(84-85) (a)	dur.(86-87) (b)	aft.(88-89) (c)	Diff (b-a)	Diff (c-a)
Debt	44.74	51.28	68.06	6.54	23.32
Primary adj. Deficit	7.3	5.27	6.29	-2.03	-1.01

Total Primary Expenditures	36.54	35.62	34.66	-0.92	-1.88
Transfers	15.1	15.06	15.12	-0.04	0.02
Government wages	11.49	11.21	11.94	-0.28	0.45
Non wage government consumption	2.68	2.59	2.82	-0.09	0.14
Public investment	4.06	3.41	2.98	-0.65	-1.08
Sum of the above expenditure items	33.33	32.27	32.86	-1.06	-0.47
Total Revenues	29.25	30.4	28.36	1.15	-0.89
Taxes on households	4.27	4.13	3.82	-0.14	-0.45
Taxes on business	1.03	1.42	1.21	0.39	0.18
Indirect taxes	12	13.35	12.09	1.35	0.09
Social security contributions	11.95	11.5	11.23	-0.45	-0.72
Sum of the above revenue items	29.25	30.4	28.35	1.15	-0.9

Source: OECD
All variables are in share of GDP

7.5b) wage policy

There was no coherent attempt to promote wage moderation and a successful income policy.

7.5c) devaluation and relative unit labour costs

Following the October 1985 devaluation of the drachma by 15 per cent, official exchange policy was set to broadly keep the level of competitiveness reached, with relative unit labour costs being the authorities' competitiveness indicator. Based on this indicator, the drachma depreciated in real term both in 1986 and in 1987. But, the two following years are characterized by a sharp real appreciation of the currency, which, together with the end of the wage moderation policy, eroded the gains in competitiveness from the 1985 devaluation.

7.5d) macroeconomic consequences of the adjustment

We need to make a distinction between the years 1986-1987 and 1988-1989. In the latter period fiscal policy turned sharply expansionary. During the adjustment period, Greece growth rate of GDP decreased with respect to the average growth rate in the G7 countries. Private investment sharply decreased, while the positive growth rate in private consumption was due to a strong reduction in the saving rate. Both nominal and real interest rates increased with respect to the average values in the G7 countries.

7.5e) distributional consequences of the adjustment

The wage share fell by almost two points of GDP during the adjustment, but then increased by almost one point in the period 1988-1989, reflecting the end of the wage moderation agreement. The profit share increased by about 3.5 points of GDP in the two-year period 1986-1987.

Table 7.5b: Fiscal adjustment in Greece-macroeconomic performance

	bef.(84-85) (a)	dur.(86-87) (b)	aft.(88-89) (c)	Diff (b-a)	Diff (c-a)
GDP growth rate	2.94	0.58	4.24	-2.36	1.3
GDP growth rate (G7)	-1.03	-2.48	0.42	-1.45	1.45
Unemployment rate	7.98	7.37	7.56	-0.61	-0.42
Unemployment rate (G7)	0.51	0.22	1.45	-0.29	0.94
Business investments	3.64	-12.13	14.1	-15.77	10.46
Private Consumption	2.8	0.94	4.6	-1.86	1.8
Long term nominal interest rates (G7)	7.06	9.54	10.88	2.48	3.82
Long term real interest rates (G7)	-7.68	-3.29	-0.43	4.39	7.25
Exchange rate	-13.65	-16.47	-4.38		
Trade balance/GDP	-11.5	-9.6	-10.26	1.9	1.24
Wages/GDP	35.69	33.83	34.74	-1.86	-0.95
Profits/GDP	40.7	44.23	44.26	3.53	3.56

Source: OECD
For variables' definitions see appendix

7.5f) political consequences of the adjustment

The government elected in June 1985 was in office till June 1989. Afterward, there was a period of political instability. A caretaker government was appointed in June 1989.

7.6 Ireland 1983-1984

In 1982, Irish public debt over GDP reached almost 82 per cent and the deficit was above 16 per cent of GDP. In December 1982, a new right wing government implemented restrictive fiscal policies.

7.6a) size and composition of the adjustment

The primary cyclically adjusted deficit improved by 3.6 per cent of GDP from before to after the adjustment period, but the debt to GDP ratio increased by more than 30 per cent in the same years. The reduction in the primary deficit occurred almost entirely through revenue increases. On the spending side, the largest cut was on public investment. Government wage bill slightly declined, because the average pay growth rate was lower than that in the previous years. Transfers kept on increasing. Government revenues increased by 2.6 per cent from before to after 1983-1984 and the largest increase regarded the revenue from direct taxes on households. In 1983, income tax brackets were not adjusted for the inflation rate, a temporary 1 per cent levy on income was imposed, and the top marginal rate was increased from 60 per cent to 65 per cent. The average rate of income tax for a typical worker rose by about 3 per cent during the adjustment period. VAT rates were increased from 23 per cent to 35 per cent. Business tax revenue reduction was due to a decline in domestic firms' profits.

Table 7.6a: Fiscal adjustment in Ireland- size and composition

	bef(81-82) (a)	dur(83-84) (b)	aft(85-86) (c)	Diff (b-a)	Diff (c-a)
Debt	78.74	97.5	109.52	18.76	30.78
Primary adj. deficit	9.41	6.18	5.79	-3.23	-3.62
Total Primary Expenditures	42.82	42.82	42.86	0	0.04
Transfers	14.94	16.55	17.35	1.61	2.41
Government wages	12.62	12.32	12.15	-0.3	-0.47
Non wage government consumption	7.33	7.23	7.38	-0.1	0.05
Public investment	5.21	4.13	3.69	-1.08	-1.52
Sum of the above expenditure items	40.1	40.23	40.57	0.13	0.47
Total Revenues	33.21	35.6	35.82	2.39	2.61
Taxes on households	10.75	12.2	12.9	1.45	2.15
Taxes on business	1.7	1.34	1.28	-0.36	-0.42
Indirect taxes	15.79	16.63	16.28	0.84	0.49
Social security contributions	4.98	5.43	5.37	0.45	0.39
Sum of the above revenue items	33.22	35.6	35.83	2.38	2.61

Source: OECD
All variables are in share of GDP

7.6b) wage policy

No broad wage agreements or income policies were introduced. Wage inflation has been significantly higher in Ireland than in trading partners. From 1978 to 1982, hourly earnings rose by 86 per cent. From 1983, wage inflation decreased, but less than in the competitors countries. In 1986, hourly earnings in manufacturing increased at higher rates.

7.6c) devaluation and relative unit labour costs

Until March 1983, Ireland adopted a middle course policy in the various realignments in the EMS. The currency depreciated against some currencies and appreciated against others. On March 1983, the realignment of the currencies in the EMS resulted in a devaluation of the Irish pound by 3.5 percent. Because inflation in Ireland still exceeded that of the other EMS countries, except Italy, and because of the depreciation of the sterlin, there was a real exchange rate appreciation of the pound vis-a'-vis the currencies of the EMS and a loss in Irish's competitiveness.

7.6d) macroeconomic consequences of the adjustment

This stabilization is contractionary. Growth rate of GDP decreased in absolute terms and its differential with respect to the G7 countries' average became negative. Private investment sharply declined, while private consumption growth rate was only slightly positive. The strong expansion in exports owed much to the operation of the foreign subsidiaries. Total employment steadily declined in the traditional and domestic labour intensive sectors, while the new foreign owned industries did not employ many people. Unemployment rate jumped from an average rate of 10.6 per cent in the two years before the adjustment to 17.3 per cent, notwithstanding a sharp

increase in the number of emigrants. Long term real interest rates increased with respect to the average rate in the G7 countries.

7.6e) distributional consequences of the adjustment

The wage share of GDP declined both during and after the adjustment period. It changed from 54.6 before to 51.9 after the years 1983-1984. The profit share show the opposite trend. Profits as a share of GDP increased from 23.4 in the two years before the adjustment to 25.4 in the two following years. This trend is the result of a sharp decrease in profits of the Irish firms and the increase in profits of the foreign subsidiaries, which were mostly repatriated.

Table 7.6b: Fiscal adjustment in Ireland-macroeconomic performance

	bef(81-82) (a)	dur(83-84) (b)	aft(85-86) (c)	Diff (b-a)	Diff (c-a)
GDP growth rate	2.8	2.06	0.82	-0.74	-1.98
GDP growth rate (G7)	2.15	-1.7	-2.26	-3.85	-4.41
Unemployment rate	10.66	14.77	17.36	4.11	6.7
Unemployment rate (G7)	3.37	6.82	9.97	3.45	6.6
Business investments	6.05	-6.99	-7.71	-13.04	-13.76
Private Consumption	-2.68	1.43	2.47	4.11	5.15
Long term nominal interest rates (G7)	3.86	2.69	2.48	-1.17	-1.38
Long term real interest rates (G7)	-4.33	-1.02	0.47	3.31	4.8
Exchange rate	-5.2	-4.88	3.3		
Trade balance/GDP	-8.62	0.13	3.75	8.75	12.37
Wages/GDP	54.58	52.56	51.97	-2.02	-2.61
Profits/GDP	23.45	24.31	25.4	0.86	1.95

Source: OECD
For variables' definitions see appendix

7.6f) political consequences of the adjustment

The government and the Prime Minister who attempt the first Irish stabilization were in office till March 1987.

7.7 Ireland 1987-89[35]

In 1987 the debt to GDP ratio in Ireland reached 116 per cent of GDP. In February of 1987 a right wing government was elected and launched a broad fiscal consolidation program.

7.7a) size and composition of the adjustment.

Table 7.7a summarizes the main features of the fiscal changes. The cyclically adjusted primary

[35] The discussion of this case borrows from Alesina and Perotti (1997a).

budget balance improved by almost 8 per cent. All of the adjustment was on the spending side[36]. The largest spending cuts occurred in the category of transfer (which fell by 2.6 of GDP from before to after this three year period) and the government wage bill (which fell by 1.5 of GDP from before to after the adjustment). The cut in the government wage bill resulted from wage moderation and from a major cut in public employment. From 1987 to 1989 public employment was cut by almost 7 per cent, from 205,800 public employees to 191,700. Government revenues actually decreased (-1.3 of GDP) during the adjustment, a figure which underlies the total reliance on spending cuts during this adjustment. The only component of fiscal revenues which increased was tax on business, but this category is particularly sensitive to the cycle, and this increase may simply be the result of a less than perfect correction for the cycle, since the tax rate was not increased, in fact it was reduced from 47 to 43 per cent.

Table 7.7a: Fiscal adjustment in Ireland-size and composition

	bef(85-86) (a)	dur(87-89) (b)	aft(90-91) (c)	Diff (b-a)	Diff (c-a)
Debt	109.52	110.23	95.63	0.71	-13.89
Primary adj. deficit	5.79	0.07	-2.07	-5.72	-7.86
Total Primary Expenditures	42.86	37.63	34.89	-5.23	-7.97
Transfers	17.35	16.09	14.77	-1.26	-2.58
Government wages	12.15	11.07	10.7	-1.08	-1.45
Non wage government consumption	7.38	6.22	6.25	-1.16	-1.13
Public investment	3.69	2.09	2.12	-1.6	-1.57
Sum of the above expenditure items	40.57	35.47	33.84	-5.1	-6.73
Total Revenues	35.82	35.99	34.53	0.17	-1.29
Taxes on households	12.9	13.41	12.18	0.51	-0.72
Taxes on business	1.28	1.31	1.96	0.03	0.68
Indirect taxes	16.28	16.02	15.06	-0.26	-1.22
Social security contributions	5.37	5.25	5.33	-0.12	-0.04
Sum of the above revenue items	35.83	35.99	34.53	0.16	-1.3

Source: OECD
All variables are in share of GDP

7.7b) wage policy

In 1987 the government exchanged a broad ranging tax cut in exchange for a centralized policy of wage moderation. The top marginal tax rate was cut from 65 to 56 per cent. The average tax rate was cut from 35 to 32 per cent. Note that since the Irish tax system is very progressive, these cuts reached fairly low in the income ladder. This tax reform was clearly linked with a wage agreement which insured wage moderation in both the private and the public sector. Virtually all the wage agreements reached in this period were in line with the aggregate policy of wage moderation.

[36] The only short term increase in tax revenues occurred in 1988 as a result of a tax amnesty law.

7.7c) devaluation and relative unit labor costs

In August 1986, the central rate of the Irish pound within the EMS was adjusted downward by 8 percent. The combination of the devaluation and the wage moderation lead to a fall of about 12 - 15 percent in relative unit labor costs, generating a boost in competitiveness.

7.7d) macroeconomic consequences of the adjustment

The year of 1987 signs a major turnaround in the macroeconomic scenario of the Irish economy. From 1960 to the mid eighties growth has been sluggish. After the fiscal adjustment Ireland is often nicknamed as the "tiger" of Europe. From a rate of growth almost 2 per cent below the G7 average, Irish growth turned to a whopping 3.6 above G7 average (see table 7.7b). Unemployment started to fall reversing a trend which had lasted a quarter of a century. A boom in investment and exports is the main leading force underlying the expansion that accompanied the adjustment and its aftermath.
In a recent study of the sources of Irish growth, De la Fuente and Vives (1997) conclude that the dramatic turnaround of the Irish economy in the mid eighties is "its commitment to sustainable fiscal policy . . . fiscal consolidation may have acted as a catalyst, helping to change foreign investors' perception of Ireland." In fact foreign investment soared after the adjustment, and risk premiums on lending rates dramatically fell.

7.7e) distributional consequences of the adjustment

Table 7.7b shows that the wage share of GDP fell from almost 52 before the adjustment to 49.5 after. Correspondingly the profit share increased from 25.4 to 28.5. Given how sluggish are distributional variables, these changes are quite remarkable.

Table 7.7b: Fiscal adjustment in Ireland-macroeconomic performance

	bef(85-86) (a)	dur(87-89) (b)	aft(90-91) (c)	Diff (b-a)	Diff (c-a)
GDP growth rate	0.82	5.81	5.72	4.99	4.9
GDP growth rate (G7)	-2.26	2.18	3.6	4.44	5.86
Unemployment rate	17.36	16.12	14.04	-1.24	-3.32
Unemployment rate (G7)	9.97	9.73	7.78	-0.24	-2.19
Business investments	-7.71	8.31	1.3	16.02	9.01
Private Consumption	2.47	5.78	1.93	3.31	-0.54
Long term nominal interest rates (G7)	2.48	1.27	0.46	-1.21	-2.02
Long term real interest rates (G7)	0.47	1.54	4.75	1.07	4.28
Exchange rate	3.3	-1.37	3.31		
Trade balance/GDP	3.75	10.19	9.07	6.44	5.32
Wages/GDP	51.97	50.06	49.55	-1.91	-2.42
Profits/GDP	25.4	27.51	28.49	2.11	3.09

Source: OECD
For variables' definitions see appendix

7.7f) political consequences of the adjustment

The same government and Prime Minister which from February 1987 conducted the fiscal adjustment was reappointed in general elections which took place in July 1989.

7.8 Italy 1993

Italy's public deficit over GDP ratio started to fall in 1989, which marks the beginning of a gradual but large fiscal adjustment which is currently still under way. Our rule for "adjustment" captures Italy in 1993 only. However, it would be quite misleading to define 1994-1995 as the "post adjustment" period, since in these two years the fiscal tightening continued and is still occurring. What is quite interesting is that the policy mix until 1993 and in 1994-1996 is different.

7.8a) size and composition of the adjustment

The total deficit over GDP ratio in 1990 was almost 11 per cent. In 1995 it was 6.8 per cent. Until 1993, a very large fraction of the adjustment was on the revenue side. Afterward, expenditures cuts accounted for a larger share of the improvement in the balance. Between 1991 and 1993 tax revenues over GDP increased more than 3 percentage points of GDP. In the same period primary spending actually increased and total spending reached 55.4 per cent of GDP, from 52.4 in 1991. After 1993, tax revenues have decreased, and primary spending has been cut by almost 2.5 per cent of GDP. Most of the cuts have been on public investment, and on public wages. Transfers to families as a percentage of GDP decreased after 1993, but, during the period 1994-1995, their average value was still higher than the one in 1991-1992.

Table 7.8a: Fiscal adjustment in Italy-size and composition

	1991-1992 (a)	1993 (b)	1994-1995 (c)	Diff (b-a)	Diff (c-a)	Diff (c-b)
Debt	107.65	120.20	122.81	12.55	15.16	2.61
Primary deficit	0.18	-1.28	-1.59	-1.46	-1.77	-0.31
Total Primary Expenditures	42.72	44.51	42.05	1.79	-0.67	-2.46
Transfers	19.93	20.86	20.28	0.94	0.35	-0.59
Government wages	12.69	12.64	11.67	-0.05	-1.03	-0.98
Non wage government consumption	4.82	5.16	4.97	0.34	0.15	-0.19
Public investment	3.13	2.66	2.29	-0.47	-0.84	-0.37
Sum of the above expenditure items	40.57	41.32	39.20	0.75	-1.37	-2.13
Total Revenues	42.54	45.79	43.64	3.26	1.11	-2.15
Taxes on households	11.56	12.65	11.36	1.09	-0.20	-1.29
Taxes on business	3.04	3.50	3.41	0.47	0.37	-0.09
Indirect taxes	11.11	12.00	11.74	0.89	0.63	-0.27
Social security contributions	14.87	15.41	14.95	0.55	0.08	-0.47
Sum of the above revenue items	40.57	43.56	41.45	2.99	0.88	-2.12

Source: OECD
All variables are in share of GDP

7.8b) wage policy

In 1992 the automatic indexation system was abolished. In 1993 the government reached a complex agreement with the unions to limit the growth of wages and labor costs. Wage increases were set according to an official target for the inflation rate, and wage adjustments for the actual inflation rate exceeding the target were allowed only from 1996. During the period 1994-1995, the actual inflation rate was greater than the target, leading to a decline in real wages.

7.8c) devaluation and relative unit labor costs

In September 1992, Italy left the European Monetary system and in the next few months the Italian lira was devaluated by 11 per cent relative to Deutschemark. As a result of the combined effect of the devaluation and unions' moderation, relative unit labor costs fell quite substantially.

7.8d) macroeconomic consequences of the adjustment

The first phase of the fiscal adjustment was clearly contractionary. GDP growth rate decreased both in absolute terms and with respect to the G7 average. Private investment fell sharply and private consumption decreased in 1993. Real interest rate differential with the average G7 values increased.
The macroeconomic scenario changed substantially after 1993. In the period 1994-1995, GDP grew at the average rate of the G7 countries. Both a favorable tax policy and the increase in firms' profits lead to an increase in business investments after 1994. But, the strongest

component of aggregate demand which supported the Italian economy in 1994-95 were exports. In 1994 and 1995 export volume increased by 10.7 per cent and 13.6 per cent respectively. The trade balance surplus reached 4 per cent of GDP in 1995. Clearly, the export surge is the result of the decreasing relative unit labor cost, (i.e.: increase in competitiveness), coming from the sharp depreciation of the Italian lira after 1992 and from the wage agreement signed with the unions in 1993.

7.8e) distributional consequences of the adjustment

The wage share of GDP slightly decreased in the first phase of the fiscal consolidation. Then, as result of the wage moderation policy, wages declined by 2.4 per cent of GDP during 1994-1995. Profits show the opposite pattern almost unchanging during 1991-1993 and increasing afterward. From 1993 to 1995 profits increased from 36.9 per cent of GDP to 42.2.

Table 7.8b: Fiscal adjustment in Italy-macroeconomic performance

	1991-1992 (a)	1993 (b)	1994-1995 (c)	Diff (b-a)	Diff (c-a)	Diff (c-b)
GDP growth rate	0.97	-1.18	2.54	-2.15	1.57	3.72
GDP growth rate (G7)	-0.77	-2.49	0	-1.73	0.77	2.49
Unemployment rate	11.31	10.65	11.63	-0.66	0.32	0.98
Unemployment rate (G7)	4.30	3.32	4.66	-0.98	0.36	1.34
Business investments	-0.68	-18.60	6.90	-17.93	7.57	25.50
Private Consumption	1.92	-2.55	1.70	-4.47	-0.22	4.25
Long term nominal interest rates (G7)	4.93	4.36	4.46	-0.57	-0.47	0.1
Long term real interest rates (G7)	2.30	2.41	1.45	0.11	-0.86	-0.97
RULC	97.5	80	72	-17.5	-25.5	-8
Exchange rate	-1.84	-15.94	-6.30			
Trade balance/GDP	0.12	3.35	3.79	3.23	3.66	0.44
Wages/GDP	45.25	44.35	41.96	-0.90	-3.29	-2.39
Profits/GDP	36.64	36.99	40.97	0.36	4.33	3.98

Source: OECD
For variables' definitions see appendix

7.8f) political consequences of the adjustment

As always, the political development in Italy is quite complex. A centre right coalition government was in office in 1989, the first year in which the deficit to GDP ratio declined after many years of loose fiscal policy. Then, different government were appointed till spring 1996, when a left government was elected by popular vote.

7.9 Netherlands 1991

In 1990, the debt over GDP ratio was higher than 76 per cent and the total deficit over GDP ratio reached 5.6 per cent. Moreover, Netherlands suffered from a very high collective burden (i.e.: share of taxes, social security contributions and part of gas revenues to Net National Income) and

an extremely high dependency ratio (i.e.: ratio to social benefits recipients to employed persons).

7.9a) size and composition of the adjustment

The primary cyclically adjusted deficit improved by 2.2 per cent of GDP from before to after the adjustment period, but the debt to GDP ratio continued to increase. The adjustment occurred completely from the revenue side of the budget. Primary expenditure as a share of GDP increased. The only item of the budget that decreased among the expenditures was the government wage bill, due to a decrease in military force. Expenditures for unemployment benefits and for people on disability and sickness program continued to increase due to the increase in number of beneficiaries. Government revenue increased by 2.9 per cent as a share of GDP from before to after the adjustment. Tax brackets not corrected for the effect of the inflation rate contributed to the increase in revenue from direct taxes.

Table 7.9a: Fiscal adjustment in Netherlands-size and composition

	bef.(89-90) (a)	dur.(91) (b)	aft.(92-93) (c)	Diff (b-a)	Diff (c-a)
Debt	76.37	76.37	77.81	0	1.44
Primary adj. deficit	3.65	1.67	1.42	-1.98	-2.23
Total Primary Expenditures	47.65	48.5	49.34	0.85	1.69
Transfers	27.13	28.22	29.04	1.09	1.91
Government wages	10.05	9.81	9.99	-0.24	-0.06
Non wage government consumption	4.6	4.62	4.55	0.02	-0.05
Public investment	2.62	2.65	2.69	0.03	0.07
Sum of the above expenditure items	44.4	45.3	46.27	0.9	1.87
Total Revenues	45.06	47.33	47.97	2.27	2.91
Taxes on households	11.42	13.5	13.2	2.08	1.78
Taxes on business	3.3	3.42	3.21	0.12	-0.09
Indirect taxes	12.4	12.43	12.92	0.03	0.52
Social security contributions	17.94	17.98	18.63	0.04	0.69
Sum of the above revenue items	45.06	47.33	47.96	2.27	2.9

Source: OECD
All variables are in share of GDP

7.9b) wage policy

Nominal wage rate in the business sector grew more than 4.5 per cent both in 1991 and in 1992. The increase in productivity was around 1 per cent, so unit labour costs increased. A period of wage freezing was introduced from November 1992 to March 1993.

7.9c) devaluation and relative unit labour costs

Monetary policy was tied to the commitment of a stable exchange rate vis-a'-vis the Deutschemark. The guilder-DM rate was remarkable stable, but as a result of the developments in the EMS, the real exchange rate of the currency appreciated. Netherlands' international

competitiveness position deteriorated because of the real appreciation of the guilder and the positive wage drift.

7.9d) macroeconomic consequences of the adjustment

The adjustment episode was contractionary. Among domestic demand components, both private consumption and private investment decreased during and after 1991. Private investment fall reflected the decrease in business' profitability, high real interest rates and demand factors. Growth rate of GDP decreased too and in the two years after the adjustment the differential between Netherlands' growth rate and the average GDP growth in the G7's countries became negative. Unemployment rate decreased and it was lower than its average value in the G7 countries both in 1991 and in the two following years. However, OECD estimates of the broad unemployment rate (i.e.: in addition to narrow unemployment, the broad unemployment rate includes all inactive persons of working age receiving a social security benefit or enrolled in special job creation program), fixed it around 25 per cent in 1990.

7.9e) distributional consequences of the adjustment

The wage share of GDP slightly increased from before to after the adjustment period. The profit share decreased from 40.7 of GDP before the adjustment to 37.9 in the aftermath.

Table 7.9b: Fiscal adjustment in Netherlands-macroeconomic performance

	bef.(89-90) (a)	dur.(91) (b)	aft.(92-93) (c)	Diff (b-a)	Diff (c-a)
GDP growth rate	4.4	2.26	0.81	-2.14	-3.59
GDP growth rate (G7)	1.65	0.42	-0.66	-1.23	-2.31
Unemployment rate	6.44	5.47	5.97	-0.97	-0.47
Unemployment rate (G7)	0.57	-1.21	-1.37	-1.78	-1.94
Business investments	5.08	1.99	-1.74	-3.09	-6.82
Private Consumption	3.85	3.1	1.63	-0.75	-2.22
Long term nominal interest rates (G7)	-1.01	-0.04	-0.39	0.97	0.62
Long term real interest rates (G7)	1.31	1.15	0.16	-0.16	-1.15
RULC	101.5	100	105	-1.5	3.5
Exchange rate	3.6	-0.66	2.42		
Trade balance/GDP	3.57	3.67	3.86	0.1	0.29
Wages/GDP	52.01	52.35	53.48	0.34	1.47
Profits/GDP	40.76	40.08	37.91	-0.68	-2.85

Source: OECD
For variables' definitions see appendix

7.9f) political consequences of the adjustment

A minimal winning coalition government with centre ideology was in office from November 1989 till May 1994, when election took place. A government with the same ideology and composition was appointed, but the Prime Minister changed.

7.10 Sweden 1986-1987[37]

A comprehensive stabilization plan, was launched after September 1982 elections, when a new socialist government came in office. The primary deficit as a share of GDP gradually decreased since 1983, but in 1985 the debt over GDP ratio was still 74.3 per cent and the total deficit to GDP ratio was about 3.3. per cent. The same government and Prime Minister reelected by popular vote in October 1985 were in office during the two-year period 1986-1987.

7.10a) size and composition of the adjustment

Table 7.10a shows that the primary cyclically adjusted balance improved by more than 5 per cent of GDP from before to after the adjustment and the debt over GDP ratio decreased by about 17.4 percent in the same period. The increase in government revenue contributed more than the cut in public expenditure to the improvement of the balance. On the expenditure side, transfers as a share of GDP kept increasing both during and in the aftermath of the adjustment, due to higher expenditures in pensions, unemployment and health benefits. Government wage bill were cut. Public sector employment growth rate was negative in the years 1986, 1987. In 1988, a ceiling was applied to central government wage bill in order to put further control in public expenditure for wages. Public investment decreased too. On the revenue side, total tax revenue as a share of GDP increased by 4.26 per cent in the period 1984-1989. Direct tax pressure increased as result of fiscal drag. In 1987, a once and for all capital tax was levied on life insurance companies and pension funds and the revenue collected was estimated by the OECD in the magnitude of 1.5 per cent of GDP.

[37] For a longer run analysis of the Swedish fiscal adjustment, see Perotti, Strauch, and von Hagen (1997).

Table 7.10a: Fiscal adjustment in Sweden-size and composition

	bef.(84-85) (a)	dur.(86-87) (b)	aft.(88-89) (c)	Diff (b-a)	Diff (c-a)
Debt	73.68	69.07	56.33	-4.61	-17.35
Primary adj. deficit	2.41	-1.54	-3.15	-3.95	-5.56
Total Primary Expenditures	55.89	55.05	54.49	-0.84	-1.4
Transfers	20.35	20.84	21.45	0.49	1.1
Government wages	19.07	18.41	17.83	-0.66	-1.24
Non wage government consumption	8.9	8.68	8.28	-0.22	-0.62
Public investment	2.6	2.32	2.48	-0.28	-0.12
Sum of the above expenditure items	50.92	50.25	50.04	-0.67	-0.88
Total Revenues	52.14	54.45	56.4	2.31	4.26
Taxes on households	19.42	20.58	22.06	1.16	2.64
Taxes on business	1.68	2.2	2.68	0.52	1
Indirect taxes	16.11	17.03	16.3	0.92	0.19
Social security contributions	14.16	13.98	14.61	-0.18	0.45
Sum of the above revenue items	51.37	53.79	55.65	2.42	4.28

Source: OECD
All variables are in share of GDP

7.10b) wage policy

There was no agreement between union movement and the government to insure some form of wage moderation. Wages continued to raise and their increase exceeded that of the competitors countries.

c) devaluation and relative unit labour costs

After the 1982 devaluation, monetary authorities aimed to insure exchange rate stability. The absence of a strong devaluation immediately before the adjustment period and of any form of wage moderation agreement lead to an increase in the relative unit labour costs and to a loss of competitiveness in the period 1984-1989.

7.10d) macroeconomic consequences of the adjustment

Sweden macroeconomic performance indicators show different directions. During the adjustment period, GDP growth rate decreased but the differential with the average growth rate in the G7 countries decreased too. In the two years after the adjustment, both in absolute term and relative to the G7 countries, GDP growth rate decreased. Private consumption growth rate increased during the adjustment period, sustained by the increase in real disposable income, but it decreased in the two following years. Private investment growth rate shows the opposite pattern. Nominal and real interest rate differentials with the average rates in the G7 countries increased.

7.10e) distributional consequences of the adjustment

The absence of a wage moderation agreement contributed to the increase of the wage share of GDP, (which increased from 59.65 before the adjustment to 60.7 per cent after) and to the decrease of profits as a share of GDP, (which fell by 32.7 per cent of GDP before the adjustment to 30.5 per cent in the aftermath).

Table 7.10b: Fiscal Adjustment in Sweden-macroeconomic performance

	bef.(84-85) (a)	dur.(86-87) (b)	aft.(88-89) (c)	Diff (b-a)	Diff (c-a)
GDP growth rate	2.99	2.72	2.31	-0.27	-0.68
GDP growth rate (G7)	-0.97	-0.34	-1.5	0.63	-0.53
Unemployment rate	2.5	2.07	1.48	-0.43	-1.02
Unemployment rate (G7)	-4.97	-5.08	-4.63	-0.11	0.34
Business investments	9.95	5.8	10.39	-4.15	0.44
Private Consumption	2.08	4.49	1.8	2.41	-0.28
Long term nominal interest rates (G7)	1.69	2.37	2.58	0.68	0.89
Long term real interest rates (G7)	-1.2	-0.36	-0.96	0.84	0.24
RULC	83.5	85	91.5	1.5	8
Exchange rate	1.08	-1.85	0.7		
Trade balance/GDP	2.92	3.28	2.38	0.36	-0.54
Wages/GDP	59.65	59.89	60.7	0.24	1.05
Profits/GDP	32.72	31.51	30.53	-1.21	-2.19

Source: OECD
For variables' definitions see appendix

7.10f) political consequences of the adjustment

The government which implemented the adjustment was reelected in October 1988 and remained in office till the 1990 elections.

8. What does this all mean for EMU?

The countries which will join the EMU not only have to reduce their budget deficit to less than 3 per cent of GDP, but will have to adhere to the stability pact, which, in short, implies maintaining a cyclically adjusted budget balance. Therefore the countries which qualify will have to continue to tighten their fiscal belt to achieve the goal set forth by the stability pact.

As pointed out by Eichengreen and Wyplosz (1997), the stability pact is much more than "a little nuisance". This is especially the case for countries which may enter the monetary union with very high debt levels, like Italy and Belgium. For instance, according to recent projection of the Italian Treasury, Italy will have to maintain primary surpluses of the order of 5-6 per cent for more than a decade even with optimistic forecasts on growth to maintain the stability pact. Only well into the second decade of next century, the Italian primary surplus could fall around 3 per cent of GDP. Currently the Italian primary surplus is above 6 per cent of GDP, quite a

remarkable achievement. However, this surplus follows several "one shot" measures, a so called temporary "European tax" and various problems associated with the relationship between local authorities and central government, the so called "residui passivi".

Eichengreen and Wyplosz are correct in pointing out that extreme fiscal tightening may be costly. Their argument is that elected officials will have to spend their political capital to maintain these tight fiscal policies and, as a result, they will have less capital to do what is even more important, namely labor market and welfare reforms, privatizations and deregulation. The econometric results on the effects of fiscal policy on elections by Alesina, Perotti and Tavares (1998) and our case studies in this paper, suggests that the voters are willing to tolerate and even reward successful fiscal adjustments. However, a brief, even sharp fiscal adjustment may be viewed by the voters as the necessary medicine. A prolonged period of fiscal tightening, perhaps leading to low growth, may be regarded differently. A vast literature on developing countries highlights the issue of "reform fatigue". While even drastic reforms are often accepted, prolonged period of "economic pain" leads to the resurgence of populist tendencies and relaxation of the reforming efforts.

The results of the present paper also suggest that exchange rate devaluations helped in achieving fiscal rigor and sustain growth, especially when they are implemented with income policies that lead to moderate wage increases. As pointed out above, the Italian adjustment, which has lead this country to being admitted to the monetary union, was greatly helped by the devaluation of 1992. Obviously, this channel and policy package will not be available in the monetary union for anyone. This consideration suggests that: 1) on average tight fiscal polices may be more contractionary after the monetary union materialize, making the political economy of tight fiscal policy even more difficult; 2) fiscal and income policies that moderate wage pressure and keep unit labour costs low will be even more relevant to increase firms' competitiveness and boost investment and growth.

The silver line is that European governments will have only one alternative to follow: significant cuts in spending to maintain the stability pact without increasing the tax burden, or even cutting it. The only way to cut spending which is not "window dressing", is to attack the overextend welfare state (especially, pension and unemployment insurance systems) and public bureaucracies. Therefore, the hope is that the stability pact will force serious welfare reforms. The fear is that some countries will insist on increasing taxes even more, which is a loosing battle. First, this policy is politically a loser: there is a limit to the patience of European tax payers. The evidence by Alesina, Perotti and Tavares (1998) suggests that European electorates prefer spending cuts to tax increases to solve fiscal problems. Second, tax increases, being more recessionary than spending cuts, will make the maintenance of the stability pact even more difficult, leading to a vicious circle.

In summary the only solution is a sharp reduction of the spending to GDP ratios of several points of GDP. The next decade has to witness a strong reversal of the growth of government into a shrinking of government. The alternative is an even worse case of Eurosclerosis.

Appendix

I) Data

This appendix describes the data used in the analysis. Data are from OECD.

Debt = government gross debt.
Primary expenditure = transfers+government consumption+public investment+subsidies
Transfers = the sum of social security benefits, social assistance grants, unfounded employee pension and welfare benefits, transfers to the rest of the world, transfers to private nonprofit institutions serving households, net casualty insurance premiums, and other transfers.
Government consumption = the sum of wage and non wage component.
Public Investment = government gross fixed capital formation.
Subsidies = subsidies to private industries and public corporations.
Revenue = direct taxes on households+direct taxes on business+indirect taxes+social security contributions received by the government+other current transfers received by the government.
Primary cyclically adjusted deficit/GDP = (Tran*)+((government consumption+public investment+subsidies-government consumption of fixed capital-net capital transfers received by the government[38])/GDP)-(Rev*).
Tran* = cyclically adjusted transfer as a share of GDP.
Rev* = cyclically adjusted revenue as a share of GDP.
Exchange rate = rate of change of the nominal effective exchange rate, (a minus sign corresponds to a devaluation of the currency).
RULC = relative unit labour costs in manufacturing
Relative unit labour costs = rate of growth of relative unit labour costs in manufacturing.
GDP growth rate (G7) = yearly growth rate of real GDP of each country -average growth rate of real GDP of the seven major industrial countries, with GDP weights.
GDP growth rate = yearly growth rate of real GDP of each country
Unemployment rate (G7) = unemployment rate of each country-average unemployment rate of seven major industrial countries, with GDP weights.
Unemployment rate = unemployment rate of each country
Business investments = rate of growth of private business investment.
Private consumption = rate of growth of private consumption.
Trade balance = ratio of (exports-imports) over GDP.
VAULC = rate of growth of the ratio of the manufacturing goods exports deflator to unit labour cost in manufacturing.
Long term nominal interest rates (G7) = nominal interest rate on ten-year government bonds - average nominal interest rate on ten-year government bonds in the seven major industrial countries, with GDP weights.
Long term real interest rates (G7) = real interest rate on ten-year government bonds-average real interest rate on ten-year government bonds in the seven major industrial countries, with GDP weights. The real interest rate is obtained as the nominal minus the inflation rate.

[38] In each year, the following data are missing: a) government consumption of fixed capital (Cfgk) for France, United Kingdom and Portugal; b) net capital transfer received by the government (Ktrrg) for Norway; c) government consumption of fixed capital and net capital transfer received by the government for Switzerland and Greece. For these countries, the variables corresponding to the missing data are not included in the equation for the primary cyclically adjusted deficit.

Inflation rate (G7) = inflation rate in each country - average inflation rate in the seven major industrial countries, with GDP weights.

II) Cyclical Adjustment

The procedure used to adjust the primary balance for the effect of the cycle is the one proposed by Blanchard (1993) and used by Alesina and Perotti, (1995). The measure is implemented as follows. For each country in the sample, we regress social transfers as a share of GDP, (*Tran*), on two time trends for 1960-1975 and 1976-1994 and on the unemployment rate, (*u*):

$$Tran_t = a + \beta_1 \text{ trend}(60-75) + \beta_2 \text{ trend}(76-94) + \gamma \ u_t + e_t$$

Then, we calculated what the value of the transfers as a share of GDP in period *t* would have been if the unemployment rate were the same as in the previous year.

$$Tran^*_t = \hat{a} + \hat{\beta}_1 \text{ trend}(60-75) + \hat{\beta}_2 \text{ trend}(76-94) + \hat{\gamma} \ u_{t-1} + \hat{e}_t \qquad (1)$$

where $\hat{a}, \hat{\beta}_1, \hat{\beta}_2, \hat{\gamma}, \hat{e}_t$ are the coefficients and the residuals estimated in *(1)*.

The same procedure is used to adjust the government revenue. For each country in the sample, we regress tax revenues as a share of GDP, (*Rev*), on two time trends for 1960-1975 and 1976-1994 and on the unemployment rate, (*u*) and, then, we estimated, in the same way we valued *Tran**, what the value of the revenue as a share of GDP in period *t* would have been if the unemployment rate were the same as in the previous year.

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