Reducing Budget Deficits

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Introduction

Several OECD countries have reached levels of debt/GNP ratios which are rather extraordinary for peacetime, as Table 1.1 shows. Some countries (for instance, Denmark and Ireland) have recently responded to this development by implementing rather sharp and successful fiscal adjustments. Other countries have been much more hesitant in pursuing fiscal contractions, despite rapidly accumulating public debts, which in some cases, (Italy and Belgium) are well above 100 percent of GNP and in others (Sweden) government debt is rapidly approaching that symbolic threshold.

This paper compares the evidence concerning successful versus unsuccessful fiscal adjustments, where "success" is defined in terms of achieving a lasting debt reduction. The goal is to understand from successful adjustments, what policies can help the governments of countries which will soon have to implement vigorous fiscal retrenchments. We focus, in particular, on two questions:

1. Is the composition of fiscal adjustments different in successful versus unsuccessful cases? That is, are successful fiscal adjustments typically achieved by means of expenditure cuts or tax increases? Which components in the expenditure and revenue sides should be adjusted?

2. What are the macroeconomic consequences of fiscal adjustments, and, are they different in successful versus unsuccessful cases?

In a previous paper (Alesina and Perotti 1995a) we have begun to address, amongst many others, the first question. In that paper, we found a significant difference in the composition of successful and unsuccessful adjustments. Successful ones rely mostly on cuts in transfer programs and in government wages and employment.

Table 1.1

Public Debts in OECD Countries

	1965	1975	1990
Australia	N.A.	N.A.	25.53
Austria	19.37*	23.94	56.43
Belgium	67.49	61.06	131.18
Canada	58.79	43.09	71.91
Denmark	11.30	11.92	59.46
Finland	17.70	8.57	16.77
France	53.05*	41.08	46.64
Germany	17.34	25.08	43.58
Greece	14.15	22.43	88.73
Ireland	N.A.	64.37	101.74
Italy	35.41	60.40	100.48
Japan	.07	22.41	69.76
Netherlands	52.21	41.38	76.12
Norway	47.02*	44.75	39.12
Portugal	N.A.	N.A.	N.A.
Spain	N.A.	N.A.	N.A.
Sweden	30.48	29.52	44.23
Switzerland	N.A.	N.A.	N.A.
UK	81.77*	63.73	34.67
US	52.10	42.69	56.22

Source: OECD. Debt is gross. *:1970.

On the contrary, in unsuccessful adjustments, these two components of the expenditure side are left virtually untouched and most of the adjustment occur in the revenue side. In the present paper, after reviewing these results, we look at the macroeconomic consequences of fiscal adjustments, successful or not. Our conclusion on this point is somewhat optimistic. First of all, we do not find that "hell breaks loose" as a result of even major, multi-year fiscal adjustments. On the contrary, successful fiscal adjustments are often associated with increases in growth, crowding in of private investments and reduction in unemployment.

When anlyzing the growth effects of fiscal adjustments, difficult problems of direction of causality emerge. In fact, it is not a priori obvious whether successful adjustments have features which do not cause reductions in growth, or whether a period of sustained growth (for exogenous reasons) determines the success of the adjustment. While we argue, below, that the first line of causation (from the composition of the adjustment, to its success, to the growth effects) is not unlikely, we readily recognize that we just started to scratch the surface of this issue. In any case, we see enough in this paper to encourage even the most reluctant policymakers to engage in fiscal adjustments on the expenditure side, and specifically on transfer programs and the government wage bill.

Our "encouragement" is based upon an economic analysis of the effects of fiscal adjustments. What are the effects on the political careers of those politicians who attempt fiscal adjustments, is a very interesting topic which we leave for future research. In certain countries, such as the United States, being a budget-cutter on the expenditure side currently does not seem particularly unpopular. Our methodology in this paper is a very simple, data analysis. In the first part of the paper, we consider yearly observations and we define an "adjustment" as a year with significant deficit reduction; this part of the paper builds upon Alesina and Perotti (1995a). In the second half of the paper, we consider more closely several multi-year episodes of fiscal adjustments.

For a brief survey of the literature on fiscal adjustment, we refer the reader to Alesina and Perotti (1995a). Here we just mention that our results concerning the fact that fiscal

adjustments may not be contractionary, are generally consistent with Giavazzi and Pagano (1990).

This paper is organized as follows: Section 2 defines our measure of fiscal adjustment, defines "success" and illustrates our data set. Section 3 discusses the composition of successful and unsuccessful adjustments. Section 4 considers the effects of fiscal adjustments on growth and unemployment. Section 5 identifies seven cases of multi-year fiscal adjustments and discusses what we can learn from them. The last section concludes.

2. Data and Definitions

We are concerned with fiscal stabilizations, namely with discretionary fiscal policies which cut budget deficits. We define *fiscal impulse* the discretionary change in the budgetary position of the government.

Since we are interested in discretionary changes in fiscal policy we want to eliminate from the budget balance two components: i) interest payments, which cannot be directly influenced by government's policies; ii) the cyclical component of the budget. The first adjustment can be easily dealt with by considering the primary surplus (or deficit), which, in fact, excludes interest payments. The second correction is more problematic. Schematically, one can deal with this problem in three ways.[1] The first way is simply to ignore the problem and consider the change in the primary deficit as the measure of fiscal impulse. This procedure is not totally unreasonable in our context, because we will focus on very large (in absolute value) values of the fiscal impulse, that is very large reductions in deficits. Since we consider only "large" observations, most probably our results would not be unduly influenced by cyclical effects. Clearly, one can think of cases when even a large change of the fiscal balance is caused by exogenous factors, such as a supply shock, or a shock in "animal spirits" , but most cyclical fluctuations are of relatively moderate magnitude.

A second alternative would be to use the measures of cyclically adjusted budget deficits provided by the OECD or the IMF. The OECD measure defines the fiscal impulse as the difference

[1]For more details on this issue see Alesina and Perotti (1995a).

between the current primary deficit and the primary deficit that would have prevailed if expenditures of the previous years had grown with potential GDP and revenues had grown with actual GDP. The IMF measure is similar, but it assumes as the benchmark year not the previous year but a reference year when potential output was close to actual output. These measures have some obvious advantages, relative to simply using the primary deficit, and they are widely used. A drawback is, however, that they are based on somewhat arbitrary measures of "potential output" and base years.

A third solution, which we find particularly attractive is suggested by Blanchard (1993). His measure corrects the primary surplus for cyclical components without using questionable measures of potential output. In our view, this measure combines simplicity and transparency with the goal of going beyond primary deficits as a measure of fiscal balance. In plain English, this measure involves a calculation of how the budget balance would be in a certain year, if unemployment had not changed from the previous year. Thus, this cyclical adjustment is an attempt to eliminate from the budget balance changes in taxes and transfers induced by changes in unemployment with unchanged tax-transfers laws. In Alesina and Perotti (1995a), we have derived this measure as follows.

For each country in the sample, we regressed transfers as a share of GDP (TRANSF) on two time trends for 1960-75 and 1976-92 and on the unemployment rate (U):

$$TRANSF_t = \alpha_0 + \alpha_1 TREND1 + \alpha_2 TREND2 + \alpha_3 U_t + \varepsilon_t \qquad (1)$$

We then estimate what transfers would be in period t if unemployment were the same as in the previous year:

$$TRANSF_t\ (U_{t-1}) = \hat{\alpha}_0 + \hat{\alpha}_1 TREND1 + \hat{\alpha}_2 TREND2 + \hat{\alpha}_3 U_{t-1} + \varepsilon_t \qquad (2)$$

where the $\hat{\alpha}_i$'s are the estimated coefficients in regression 1 and ε_t is the estimated residual in the same regression. We follow the same procedure for total revenues T_t, to obtain $T_t(U_{t-1})$. In words, we calculate transfers in period t, using the estimated parameters, but plugging in

unemployment of the previous year. On the spending side, we make these cyclical corrections only on the component which is more sensitive to changes in unemployment.[2] Having constructed $TRANSF_t(U_{t-1})$ and $T_t(U_{t-1})$, we can derive the primary deficit that would have prevailed in period t had the unemployment rate reamined equal to its period $(t - 1)$ level. Our measure of the fiscal impulse is then constructed as the difference between this unemployment-adjusted measure of the primary deficit and the previous year's level of the same variable. In the remainder of this paper, we use this measure of fiscal impulse, which we label BFI, for "Blanchard Fiscal Impulse". While the choice of this cyclical adjustment (like any other choice) is imperfect and somewhat arbitrary, fortunately our results are qualitatively quite insensitive to the choice of adjustment.[3]

Our sample includes yearly observations on expenditure and revenue variables from 1960 to 1992 for 20 OECD countries: Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Japan, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, UK and USA. We have a total of 547 observations on our measure of the fiscal impulse, BFI. The sample average of BFI is -.008 percent of GDP, with a standard deviation of 1.67 percent of GDP.

We define a *"very tight"* fiscal policy, or *"strong adjustment"* every observation when:

$$BFI \leq -0.15 \qquad (3)$$

Thus, according to this definition a year with very tight fiscal policy is one where the BFI measure is less or equal than 1.5 percent of GDP. Notice that this is about equivalent to defining a very tight fiscal policy as any observation of BFI lower than one standard deviation below the mean. [4] In defining the cut off point for this definition we face a trade off. By choosing a high (in absolute value) cut off we make sure that we are really isolating policies which are *not* business as usual. On the other hand, if we choose a cut off point which is too high we are left with very few observations

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[2]Results are virtually unchanged if the procedure of (1) and (2) is applied to total spending, rather than to transfers alone.

[3]Results are available. See also Alesina and Perotti (1995a).

[4]Our results are, in fact, unchanged if we use this alternative definition.

which satisfy the definition. We feel that the definition given in (3) is a reasonable choice along this trade off.

Table 2.1 lists all the observations which satisfy our definition of *"strong adjustment"*. The average value of BFI for the observations listed in Table 2.1 is -2.61 with a standard deviation of 1.46. Table 2.1 identifies several well known episodes of multi-year fiscal adjustments in the mid-to-late eighties, such as, in particular, Denmark, Ireland and Sweden. One may argue that a sequence of several years of very tight policy, (as in Ireland 1987 to 89 for instance) constitute a single episode of fiscal adjustment, rather than several independent observations. We tackle this problem in Section 5 when we study multi-year fiscal adjustment episodes.

We will focus on a comparison between successful and unsuccessful strong adjustment using the following definitions, as in Alesina and Perotti (1995a).[5]

> **A *successful adjustment* in year *t* is defined as a 'very tight' fiscal stance in year *t* such that the gross debt/GDP ratio in year *t* + 3 is at least 5 percentage points of GDP lower than in year *t*.**

In our sample, we have 14 successful adjustments and 38 unsuccessful ones. The cases of successful adjustments are indicated with an asterisk in Table 2.1[6] In choosing this definition we faced two critical trade offs. The first one was about how "demanding" we wanted to be in our requirement for 'success'. By imposing high standards one reduces the number of degrees of freedom; by not being demanding we obfuscate the differences between successes and failures. Our definition does not seem extremely demanding, but even so we are left with "only" 14 cases of success. The second choice was on how far to look into the future to evaluate success. Again we faced a trade off. On the one hand we would have liked to choose our horizon longer than three years, to really isolate adjustments that permanently reduce debt/GDP ratios. On the other hand, since many of the most interesting episodes of fiscal adjustments occurred in the mid-late eighties,

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[5] In that paper we have experimented with several other definitions, without major changes in results.

[6] The sum of successful and unsuccessful adjustments, 52, is less than the total of very tight fiscal policies, 68, because 16 episodes of very tight fiscal stance occurred between 1990 and 1992, and therefore cannot be classified as successful or unsuccessful according to our criterion.

we simply could not extend the horizon much more than we do in our definition.[7] The effect of having to choose a relatively short horizon is evident if one notes that the adjustment in Sweden in the mid-eighties is considered a 'success', even though in the early nineties the debt/GDP ratio has sharply risen and currently, Sweden has one of the largest deficit debt/GDP ratio in the OECD. On the other hand, our definition clearly identifies Ireland as a major success, with three consecutive years which satisfy our definition. Also Denmark, the other "famous" fiscal adjustment of the mid-eighties, is picked as a 'success' in 1984.

Finally, we should explain why we define all our variables in shares of GDP. First, this is a simple way of correcting for inflation. Second, it assumes that the "benchmark" is the case of constant shares of GDP, an assumption which is not worse than any alternative. Also, for brevity, we sometimes indicate a "cut" in a certain variable, as a "cut" of the share of that variable over GDP. Obviously, such a "cut" can occur even if that variable is constant and GDP grows, or even if that variable grows, but less than GDP. The same considerations apply to "increases" of variables.

[7] Also, as the horizon becomes longer more and more uncontrollable shocks influence the variable of interest, making the analysis murkier.

Table 2.1

Years of "very tight" fiscal policy: "strong adjustment"

Strong Adjustments (i)
Australia: 1974, 77, 87*
Austria: 1977, 84
Belgium: 1982, 84
Canada: 1981
Denmark: 1983, 84*, 85, 86
Finland: 1964, 67, 73, 76, 84, 88
France: 1969*
Germany: 1969, 73, 76, 89
Greece: 1982, 86, 87, 90, 91, 92
Ireland: 1984, 87*, 88*, 89*
Italy: 1967, 74, 76, 80, 89, 92
Japan: 1984
Netherlands: 1985, 91
Norway: 1979*, 80*, 83, 84, 89, 90
Portugal: 1967, 77, 80, 82, 84, 89
Spain: 1986, 87
Sweden: 1971, 76, 83, 84*, 87*
UK: 1969*, 77*, 88*
US: 1969, 76*

(i) An * indicates "successful adjustment".

3. Successful Versus Unsuccessful Adjustments.[8]

First of all, as Table 3.1 shows, it is worth emphasizing that the *size* of the fiscal adjustment is not very different between successful and unsuccessful cases. The average value of BFI for unsuccessful adjustments is -2.18 and for successful ones is -2.74. This observation is important, because when we look at the difference in the composition of successful and unsuccessful adjustments we can do so essentially holding constant the size of the adjustment.

The first question which we ask is whether it makes a difference for the likelihood of success whether the adjustment is on the expenditure side or on the taxation side. Table 3.1 suggests a rather loud answer. While in unsuccessful adjustment most of the "action" is on the revenue side, in successful cases all the action is on the expenditure side. In successful adjustments expenditures are cut by almost 2.2 percent of GNP, while taxes are increased by less than half a point of GNP. On the contrary, in unsuccessful adjustments expenditures are cut by only half of a percent of GNP and the rest of the adjustment is on the revenue side. ***Successful adjustments are those which cut expenditures, with very modest increase in taxation.***

The second question which we ask is whether the composition of spending cuts influences the likelihood of success. Table 3.2 breaks down government spending in public investment (IG), transfers (TRANSF), non-wage government consumption (CGNW), government wages (CGW) and subsidies (SUB). The results are, again rather clear. In successful adjustments the largest cuts are on transfers and the government wage bill. Both components are cut of more than half a percentage point of GDP, for a total of more than 1.1 percent of GDP, quite a large figure. On the contrary, in the case of unsuccessful adjustments these two components are virtually untouched, and almost all the spending cuts occur on investment spending. Table 3.3 provides additional evidence on public employment. One can observe a significant difference between successful and unsuccessful adjustments. During the former government employment is constant. During the latter it increases at about the same rate as the sample average.

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[8] This section is vastly based upon Section 5 of Alesina and Perotti (1995a).

Thus, successful fiscal adjustments are those that manage to cut the most politically sensitive components of the budget: transfers and government wages and employment.

These results make sense for a variety of reasons. First, transfers are the component of government spending which has grown more rapidly in the last three decades as Table 3.4 indicates. This table shows that in most countries while in the mid-sixties government consumption was a higher share of GDP than transfer payment, this ranking is reversed, often dramatically so in the nineties. Therefore, any attempt at reducing budget deficits that does not tackle the fastest growing component of public spending is likely to fail. Second, transfer programs have the nature of entitlements. Thus, if eligibility criteria and generosity of the benefits are not adjusted, they tend to keep growing, particularly with an aging population. Third, government employment tend to be rigid downward, thus putting an upward pressure on spending, if not brought under control with targeted and discretionary actions.

In summary, the message of this section can be summarized as follows: The expenditure side of the government budget can be divided in four components: i) interest payments; ii) consumption of goods and services and public investment; iii) government wages; and iv) transfer programs. The first component, interest payments, is not under the direct control of the policymaker particularly in more and more integrated world capital markets[9]. The second component (consumption of goods and services and investments) is becoming a smaller and smaller fraction of the budget, thus, it is very difficult to manage sizeable reduction of the debt/GNP ratio focusing only, or mostly on this component. Thus, almost "by default" one is left with the conclusion that the only way to achieve a more than temporary reduction in deficits one needs to tackle the last two components of spending, government wages and transfers. This is exactly what our empirical results show.

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[9] We are not considering "extraordinary" measures, such as default on interest payments, consolidation, etc.

Table 3.1

Successful and Unsuccessful Adjustments: Total Expenditure and Revenues

	BFI (st. Dev)	EXPEN (st. Dev)	REVEN (st. Dev.)
SUCCESSFUL ADJUSTMENTS	-2.74 (.282)	-2.19 (.326)	.44 (.385)
UNSUCCESSFUL ADJUSTMENTS	-2.18 (.101)	-.49 (.188)	1.28 (.181)

Note: This table displays the average of the BFI measure and of the changes in the GDP shares of total expenditure (exclusive of interest payments) and of total revenues (exclusive of interests received) during successful and unsuccessful adjustments. A very tight fiscal policy in period *t* is successful if *by* (*t* - 3) - *by* (*t*) < .05, where *by* is the debt/GDP ratio.

Table 3.2

Successful and Unsuccessful Adjustments: Composition of Expenditure

	EXP (st. Dev.)	IG (st. Dev.)	TRANSF (st.Dev.)	CGNW (st.Dev.)	CGW (st. Dev.)	SUB (st.Dev.)
SUCCESSFUL ADJUSTMENTS	-2.193 (.326)	-.41 (.089)	-.54 (.183)	-.38 (.055)	-.58 (.093)	-.29 (.211)
UNSUCCESSFUL ADJUSTMENTS	-.49 (.188)	-.29 (.046)	-.02 (.102)	-.09 (.038)	-.07 (.071)	-.08 (.047)

Definitions: See Text.

Table 3.3

Government Employment*

	EG/LF (st. Dev.)	EG/ET (st. Dev.)
ALL OBSERVATIONS	.22 (.016)	.28 (.109)
STRONG ADJUSTMENTS	.22 (.053)	.24 (.063)
SUCCESSFUL	.09 (.159)	-.007 (.177)
UNSUCCESSFUL	.25 (.059)	.30 (.074)

EG: Government Employment
LF: Labor Force
ET: Total Employment

*** The units are changes of the variable in percentage.**

Table 3.4
Government Consumption and Transfers, as Shares of GDP

	Govt. Cons. 1965	Transf 1965	Govt. Cons. 1990	Transf. 1990
Australia	12.71	NA	17.24	10.40
Austria	13.36	14.93	17.79	20.19
Belgium	13.68*	14.61*	15.13	20.49
Canada	14.38	6.17	20.03	13.19
Denmark	16.41	6.98	25.22	20.50
Finland	13.66	7.61	21.05	12.28
France	14.36	15.70	17.92	23.30
Germany	15.20	13.71	18.38	19.53
Greece	11.72	6.89	21.08	14.59
Ireland	14.37	NA	17.20	14.31
Italy	14.54	12.65	17.41	19.16
Japan	8.18	4.93	9.14	12.03
Netherlands	15.40*	16.41*	14.47	27.85
Norway	15.05	9.13	21.03	20.61
Portugal	12.28	3.53	16.73	13.24
Spain	8.47	6.25	15.47	15.92
Sweden	17.76	9.87	27.36	21.52
Switzerland	16.68	7.70	19.97	12.10
UK	19.39	5.85	18.89	12.28
US	10.64	9.14	13.65	17.37

Source: OECD. *: 1970.

4. The Effects of Fiscal Adjustments on Growth and Unemployment.

One of the most often cited reasons why policymakers delay fiscal adjustments is because they fear their consequences on growth and unemployment, variables which are well known determinants of electoral results in western democracies[10]. A standard Keynesian argument suggests in fact, that a fiscal contraction reduces growth and increase unemployment through aggregate demand effects. On the other hand, a vigorous fiscal adjustment may have a "credibility" effect on interest rates, by reducing risk premia. Reductions in interest rates would "crowd in" private investments, which would sustain growth. Giavazzi and Pagano (1990) analyze two fiscal adjustments (Denmark and Ireland) and conclude that, fiscal contractions can be expansionary, because the credibility effect more than compensates the aggregate demand effect. In this section, we provide some further evidence on the growth and unemployment effects of fiscal adjustments using our panel data set.

Table 4.1 reports statistics on growth and unemployment before, during and after a fiscal adjustment. For example, the upper left quadrant of this table considers the rate of GDP growth in a country in the two years before (average per year) in the year of the fiscal contraction, and in the two years after (average per year). The upper right quadrant considers the same statistics, but growth is now measured as a difference from a GDP weighted average of the G-7 growth rates. The idea is, obviously, to correct for the effect of the world business cycle on domestic growth rates. The two bottom quadrants report the same information on unemployment.

The first observation, looking at the growth data is that fiscal adjustments tend to be initiated when the economy is doing relatively well. Very tight fiscal policies are implemented when growth is above the G-7 average. The second observation is that growth rates are dramatically different after successful and unsuccessful adjustments. This observation emerges both from looking at the growth in absolute levels, or in differences relative to the G-7 countries. For instance, after a successful adjustment growth is about 1 percentage points higher than in the G-7 average, and after unsuccessful adjustment is almost half a percentage lower. Even during the adjustment year, growth is higher in successful than in unsuccessful adjustments, even though the difference is smaller than in

[10] On the effects of macroeconomic conditions in OECD democracies see Lewis-Beck (1988).

the two-year period after the adjustment.

A similar picture emerges from the unemployment data, which, are perhaps, less clear cut given the well known problems of unemployment persistence. In the bottom right panel, one clearly sees that while during unsuccessful adjustments unemployment, relative to the G-7, average is increasing substantially (from .41 to 1.11 percent). in the case of successful adjustment, before the fiscal contraction unemployment relative to G-7 was higher than after (1.64 versus .98). Similar considerations, apply to the bottom left corner, although here the differences in unemployment levels are smaller.

One can draw two different conclusions from these differences between successful and unsuccessful adjustments. One is that the different compositions of successful and unsuccessful adjustments which we have identified in Section 3 of this paper, have different implications for growth. Thus, the argument is that adjustments which rely on tax increases keeping transfer programs and government employment untouched fail at stabilizing the budget *and* have a negative impact on growth. This is our favorite interpretation. However, one cannot rule out, based upon these simple statistics, the opposite causality link. That is, successful adjustments are such, because growth, for exogenous reasons, is higher during these episodes, helping the budget consolidation, thus, making the adjustment successful. In fact, this alternative interpretation will strike many readers as the most likely. However, the pattern of correlations which we document suggest further thoughts. We have highlighted a correction between composition of adjustment, their degree of lasting effects, and growth. While one can easily explain a causality direction from growth to the debt/GDP ratios, it is not so obvious why higher growth should affect so markedly the composition of adjustments. Clearly, the evidence presented in this paper thus far cannot resolve this issue, and barely begins to scratch the surface of it. Further research is in order.

Table 4.1

Growth and Unemployment

	gr			*gr-G7gr*		
	Before	**During**	**After**	**Before**	**During**	**After**
VERY TIGHT	2.25 (.205)	3.11 (.284)	2.55 (.251)	.11 (.186)	.36 (.295)	.05 (.233)
SUCCESSFUL	2.46 (.465)	4.11 (.404)	3.23 (.561)	.06 (.342)	.81 (.537	.99 (.233)
UNSUCCESSFUL	2.28 (.254)	3.10 (.370)	2.31 (.280)	.28 (.253)	.09 (.373)	-.36 (.234)
	U			*U-G7U*		
	Before	**During**	**After**	**Before**	**During**	**After**
VERY TIGHT	6.27 (.594)	6.63 (.582)	6.62 (.596)	.73 (.534)	.90 (.558)	.89 (.558)
SUCCESSFUL	7.54 (1.64)	7.29 (1.54)	6.55 (1.37)	1.64 (1.50)	1.73 (1.45)	.98 (1.37)
UNSUCCESSFUL	6.13 (.822)	6.52 (.838)	6.84 (.830)	.41 (.734)	.70 (.748)	1.11 (.753)

Note: gr: rate of growth. G7 gr: weighted average of rates of growth of G-7 countries. U; unemployment rate. G7U: weighted average of unemployment rates of G-7 countries. "Before": average of the variable over the two years preceding the fiscal policy stance that appears on the column. "During": average value of the variable in the year of the fiscal stance on the column. "After": average of the average of the variable over the two years following the fiscal stance on the column.

5. Macroeconomic Effects of Major Fiscal Adjustments.

Thus far we have focused upon yearly observations of loose and tight fiscal policy and, in particular, yearly observations of fiscal adjustments. This procedure, which proved quite useful for a variety of issues which we have examined, has, however, two shortcomings.

First, as Table 2.1 clearly indicates several episodes of *"very tight"* fiscal policy, are part of the same multi-year major fiscal adjustment plan. Second, in order to uncover broad macroeconomic effects of major fiscal adjustments, it is probably a good idea to focus on very large and multi-year fiscal adjustments, leaving aside cases of stop-and-go policies. Therefore, we need a definition of a multi-year "major fiscal adjustment". We have chosen the following definition:

A "major fiscal adjustment" is a period of at least three consecutive years where the following conditions are satisfied in every year, except, at most one in one year:

a) BFI in period *t* minus the average of the same variable in the previous three years is less or equal to -1.5 percent of GDP;

b) BFI in period *t* is less than BFI in period *t* - 1.

The rationale of this definition is that we want to isolate periods of no less than three years with a progressive reduction of the adjusted primary deficit. This definition isolates 7 episodes of major fiscal adjustments in our sample : Belgium (1984-87); Canada (1986-88); Denmark (1983-86); Ireland (1987-89); Italy (1989-92); Portugal (1984-86); and Sweden (1983-89).

We can distinguish two groups. The first one includes which are rather well known and have often been identified and studied: Belgium, Sweden and, in particular, Denmark and Ireland[11]. The second group of Canada, Italy and Portugal, is composed of episodes that just "squeeze in" in our definition. In fact, when we experimented with other reasonable definitions of adjustments the

[11] See Giavazzi and Pagano (1990) and Dornbusch (1989).

episodes of the first group were always "in", while episodes in the second group were in or out depending upon the specisic definition used. Thus, in some respect, the first four episodes provide more reliable observations.

Table 5.1 provides some information on the size of the adjustment. The first column shows the average primary surplus (BFI) in the three years before the adjustment, the second column the average during the adjustment, and the third column the average in the three years following the adjustment. Denmark and Ireland show the largest turnaround of their budget balance. The change in their fiscal adjustment in a few years is quite remarkable: more than 11 points of GDP for Denmark and almost 8 for Ireland. On the contrary, Italy shows by far the smallest adjustment, despite a very high initial level of the debt/GDP ratio. The Italian adjustment is too recent to have information on the period after it.

The first question that we ask is whether these major fiscal adjustments have been associated with recessions. Table 5.2 shows the average growth in three years before, during and in the three after the fiscal adjustment. We report growth of GDP in difference from the average of G-7 countries, for obvious reasons discussed above. Three interesting observation emerge from this table. First, Ireland clearly is the success story: growth sharply increased during and after the adjustment relative to the G-7 average. Second, the table suggests a murky picture concerning the questions of whether major fiscal adjustments are contractionary or expansionary. In three cases out of seven growth is below G-7 average during the adjustment, in three cases is above and in one case growth is at the G-7 average. In their study on whether fiscal contractions can be expansionary, Giavazzi and Pagano focus on Denmark and Ireland, two of the three cases in which growth increased during the adjustment, and indeed, was above the G-7 average. These authors suggested that fiscal contractions can be expansionary. Looking at more cases, one has to be more cautious on this point. However, Table 5.2 certainly does not suggest that even major fiscal adjustments always create large recessions.

Table 5.3 shows the same statistics for unemployment. Interestingly, in five out of seven cases unemployment (relative to G-7) is lower after the adjustment than before. In three out of seven cases unemployment is lower even during the fiscal adjustment, and in two cases is only marginally higher (Belgium and Sweden). Thus, there is no indication that major fiscal adjustments are

associated with major increases in unemployment; if anything; there is some evidence of the contrary. Furthermore, there is no evidence that the toughest fiscal adjustments, in terms of changes in the primary surplus, have been the most costly in terms of growth and unemployment. For instance, Ireland according to Table 5.1 had the second toughest adjustment, and one of the least costly according to Table 5.2 and 5.3.

In summary, these data suggest that fear of major recessions should not stop policymakers from implementing major fiscal adjustments.

As argued above, the main theoretical reasons which suggest that fiscal adjustments may not be contradictory is the "crowding in" argument. A reduction in the government borrowing requirement, by reducing interest rates may "crowd in" private investments.
An increase in investors' confidence and improvement of expectations concerning macroeconomic stability would work in the same direction. Table 5.4 reports the share of business investment over GDP before (three years average), during and after (three years average) the fiscal adjustments[12]. These figures are quite striking: in all the six cases for which data are available business investment as a share of GDP increased during and after the adjustment. In four of the five cases for which a complete set of data are available the share of business investment increased about 3 points of GDP, quite a large value.

Finally, one of the main politico-economic issues for major fiscal adjustments concerns their distributional consequences. Given our previous results on cuts in transfer programs, government wages and employment etc., one may wonder about the extent to which the income distribution becomes more or less unequal during and after fiscal reforms. This is a topic which would require an entire paper on its own. Table 5.5 provides a fragment of evidence which indeed suggests that fiscal adjustment may increase income inequality. In five out of seven cases, (five out of six if we leave out Italy with incomplete data) the wage share falls during the adjustment and remain lower after, relative to before. The share of profits in the business sector increases in four out of the five cases for which a complete set of figures are available. The only exception to this pattern on wages

[12] These are absolute figures, not in difference from G-7 as the previous Table. Analogous results are obtained by looking at differences from G-7.

and profits is Canada, and a question mark surrounds Italy, where the fiscal adjustment is still unfolding. The increase in the profit share of the business sector is the counterpart of what we highlighted in Table 5.5, namely the increase in business investment during and after fiscal adjustments.

An important issue which we leave for future research, is the "policy package" which accompanies major fiscal adjustments. For instance, the Irish stabilization was accompanied by a sizeable devaluation; similarly, the current small Italian fiscal adjustment was initiated at the time of the country's exit from the EMS and the subsequent devaluation. In Sweden, the fiscal adjustment in the mid-eighties occurred during a period of depreciation. The question is whether the likelihood of success of a fiscal adjustment and its economic consequences are influenced by "what comes with it" particularly concerning monetary policy in general and exchange rate policies in particular.

Table 5.1

Primary Surplus, Before, During and After Seven Major Fiscal Adjustments

	Primary Surplus / GDP			
	BEFORE (1)	DURING (2)	AFTER (3)	DIFF. (3) - (1)
BELGIUM (84-87)	-2.98	1.03	2.93	5.96
CANADA (86-88)	-2.86	0.34	1.53	4.39
DENMARK (83-86)	-5.67	2.71	5.37	11.04
IRELAND (87-89)	-3.53	2.12	4.39	7.92
ITALY (89-92)	-3.33	-0.61	N.A	2.72[13]
PORTUGAL (84-86)	-3.13	2.18	1.94	5.07
SWEDEN (83-89)	-4.16	2.17	1.57	5.73

[13] Obtained as (2) - (1).

Table 5.2

Growth Difference from G-7 Countries
Before, During and After Major Fiscal Adjustments

Growth Relative to G-7

	BEFORE	DURING	AFTER
BELGIUM (84-87)	-0.34	-1.74	0.66
CANADA (86-88)	1.69	0.67	-1.76
DENMARK (83-86)	0.40	0.38	-3.06
IRELAND (87-89)	-1.72	1.89	3.86
ITALY (89-92)	-0.18	-0.00	N.A.
PORTUGAL (84-86)	-0.31	-1.81	0.80
SWEDEN (83-89)	-0.16	-0.89	-1.52

Table 5.3

Unemployment Before, During and After Major Fiscal Adjustment, Relative to G-7 Countries

	BEFORE (1)	DURING (2)	AFTER (3)	DIFFERENCE (3) - (1)
BELGIUM (84-87)	4.34	4.64	3.50	-0.84
CANADA (86-88)	3.22	1.65	1.84	-1.38
DENMARK (83-86)	2.21	1.55	1.36	-0.85
IRELAND (87-89)	9.80	10.1	-0.35	0.17
ITALY (89-92)	5.31	4.77	N.A.	-0.54[14]
PORTUGAL (84-86)	-0.52	1.01	-0.35	0.17
SWEDEN (83-89)	-4.80	-4.92	-3.72	1.18

[14] Obtained as (2) - (1).

Table 5.4

Share of Private Business Investment Over GDP Before, During and After Major Fiscal Adjustment

	BEFORE (1)	DURING (2)	AFTER (3)	DIFFERENCE (3) - (1)
BELGIUM (84-87)	9.65	10.27	12.64	2.99
CANADA (86-88)	11.19	12.53	13.71	2.52
DENMARK (83-86)	9.19	11.65	12.57	3.38
IRELAND (87-89)	11.17	11.04	11.63	0.46
ITALY (89-92)	11.90	12.01	N.A.	0.11[15]
PORTUGAL (84-86)	N.A.	N.A.	N.A	N.A
SWEDEN (83-89)	10.59	12.61	13.63	3.04

[15] Obtained as (2) - (1).

Table 5.5

Wage and Profit Shares, Before, During and After Major Fiscal Adjustments

	BEFORE (1)		DURING (2)		AFTER (3)		(DIFF.) (3) - (1)	
	Wage Share	Profit Share	Wage Share	Profit Share	Wage Share	Profit Share	Wage Share	Profit Share
BELGIUM (84-87)	56.96	29.96	54.90	32.57	51.61	36.52	-5.35	6.56
CANADA (83-86)	53.77	38.85	54.21	37.34	55.10	35.58	1.33	-3.27
DENMARK (83-86)	56.20	31.57	54.17	35.14	55.59	33.09	-0.61	1.52
IRELAND (89-92)	54.23	21.75	51.58	25.32	50.41	26.48	-3.82	4.73
ITALY (89-92)	44.41	38.63	45.02	37.00	N.A.	N.A.	0.61[16]	-1.63[17]
PORTUGAL (84-86)	51.49	N.A.	47.42	N.A.	45.84	N.A.	-5.65	N.A.
SWEDEN (83-89)	64.09	27.73	60.20	31.63	62.26	27.86	-1.83	0.13

[16] Obtained as (2) - (1).

[17] Obtained as (2) - (1).

6. Conclusions

A policymaker contemplating the necessity of a fiscal adjustment will probably draw a bad news and a good news from this paper. The bad news is that it is impossible to successfully reduce government debt without a sizeable retrenchment of the two components of spending which are notoriously more politically difficult to cut: transfers and the government wage bill. The good news is that even relatively drastic fiscal adjustments are not associated with macroeconomic catastrophes, such as major recessions with surges in unemployment.

The necessity of reducing the fiscal weight of the 'welfare state' is indeed one of the major themes of economic policy around the world, both in established western European democracies and in 'new democracies', in Eastern Europe and in the developing world. In Eastern Europe economies in transitions have to deal with the issue of how to handle. the complex web of social safety nets provided by the previous regimes. In the developing world policy reforms almost always involve sizeable spending cuts and even in this part of the world transfer programs and pension systems are increasingly becoming the key component of the fiscal imbalance. Even in the US, with a much less generous welfare system than most European countries, budget cuts on welfare are on the agenda of the current Congress. In Western Europe, we argue in this paper, high debt countries cannot delay a substantial retrenchment of government spending in those components, transfers and wages, which have grown more rapidly in the last few decades.

An interesting question is which types of governments are more likely to successfully implement these major fiscal adjustments. Alesina and Perotti (1995a) report results which suggest that one needs unified governments to carry through successful fiscal adjustments. Coalition

governments seem unable to insure a permanent budget consolidations. Our interpretation is that disagreement within the coalition make it difficult to hold on to "tough" policies, and agreement is reached by fiscal concessions to various pressure groups within the coalition. This view is also consistent with empirical results by Roubini and Sachs (1989) on the effect of coalition governments on budget deficits [18].

In summary, a successful fiscal adjustment is typically the result of a single party government (or small coalition) which cuts transfer payments and government wages and employment without raising taxes. The effects of this adjustment on growth may very well be minimal if not even positive.

[18] For a survey of political economy models of budget deficits, see Alesina and Perotti (1995a).

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