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and the Economic Impact of Alternative
Fiscal Adjustment Strategies in the EU**

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The Trade-Off Between Growth & Equality and the Economic Impact of Alternative Fiscal Adjustment Strategies in the EU

by

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Abstract

This paper examines the economic impact of alternative budgetary compositions with an special focus on the effect that different fiscal adjustment strategies have on growth and equality. Based on a sample of 53 adjustment episodes occurred in the fifteen EU Member States between 1960-2000, this paper shows that different strategies of fiscal adjustment bring about different economic consequences. Expenditure-based adjustments that are preceded by bad economic and fiscal initial conditions, that are accompanied by a devaluation, and that succeed in cutting the least productive expenditures of the budget, are likely to have anti-Keynesian effects and to be expansionary. Nevertheless, they do so at the expense of increasing income inequality. The opposite is true for revenue-based consolidations. The nineties epitomize the story of expansionary fiscal consolidations via strong *wealth* and *credibility effects*, but also the rebirth of the trade-off between growth and equality, mediated by fiscal policy.

JEL Classification: E62, E23, H30, H50

Keywords: Fiscal Adjustment, Economic Growth, Equality, Budget Composition

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1. Introduction*

A central issue on the political economy of fiscal adjustments is whether these adjustments bring about any economic consequence or not, because governments that decide to launch a fiscal consolidation do so expecting certain positive (and negative) consequences in different parts of the economy and for different social groups.

Theoretical predictions regarding the economic consequences of fiscal consolidations are varied and sometimes even contradictory. For example, while standard Keynesian theory predicts that a fiscal adjustment will reduce the level of output, supply-side theorists sustain the opposite. In their view if tax cuts and decreasing interest rates accompany the fiscal adjustment, consolidations can have a crowding-in effect of private investment and consumption that might eventually overcome the loss in economic presence of the public sector and have overall expansionary effects.

Given the remarkable increase in the number of fiscal adjustment episodes in Europe in the process toward Monetary Union, the analysis of the economic impact that this adjustments may have had, has recently become a crucial issue whose relevance goes beyond its implications for the traditional theoretical disputes because it impinges directly on the current policy-making debate.

Therefore, this paper attempts to answer three related questions: (1) What are the macroeconomic effects of fiscal policy?; (2) What are the economic effects of fiscal adjustments; And (3) given that most adjustment episodes in Europe have taken place during the last decade, have fiscal adjustments in the nineties had the same economic impact that they had in the past?

Although the empirical literature on the effects of fiscal policy on economic activity in advanced economies expands from macroeconomic models that estimate the

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sign of fiscal multipliers to simulations that try to test the Ricardian equivalence, the most popular strand of this empirical literature is the one that draws lessons by looking across episodes of fiscal consolidations, with a special emphasis on identifying expansionary fiscal adjustments. Even if the country samples that are included in the analyses differ between studies, most of them identify expansionary fiscal contractions and confirm the original Giavazzi and Pagano (1990) finding, namely that Denmark (1983-86) and Ireland (1987-89) are clearest instances of expansionary fiscal contractions.¹

In order to test if these findings apply also to the set of fifteen EU Member States between 1960-2000 (with an special focus on the 1990s), this paper basically replicates those analyses with a sample of 53 adjustment episodes². The paper introduces important innovations with respect to previous studies besides the updated time-frame and the focus on EU countries. By focusing on the effects that different budgetary compositions have on the level of inequality after fiscal adjustment episodes, the paper presents very strong empirical evidence pointing to the existence of a trade-off between growth and equality mediated by fiscal policy. While expenditure-based adjustments perform better in terms of subsequent economic growth than do revenue-based adjustments, the latter are less harmful in terms of income inequality.

Section 2 summarizes the theoretical debate about fiscal policy and the macroeconomy, and offers some preliminary empirical evidence pointing to the existence of non-Keynesian effects linked to the quality of the budget, as well as the existence of an important trade-off between growth and equality mediated by fiscal policy. Section 3 analyses in detail the 53 episodes of fiscal adjustment occurred in the EU in the last forty years, and demonstrates that in the short-run fiscal adjustments that rely on spending cuts, that start in conditions of fiscal stress, and that are accompanied by monetary expansions, can increase economic growth, but at the expense of increasing income inequality. Finally, section 4, confirms that these findings are reinforced when the decade of the nineties is analyzed in isolation. Last section summarizes the main findings and concludes.

¹ See Appendix 1 for a detailed revision of these studies.

² In this respect, the paper that I take as the main reference is Alesina and Ardagna (1998). For the criteria that has been used for the selection of adjustment episodes, refer to section 3 of this paper.

2. Fiscal Policy and the Macroeconomy

The effects of fiscal policy on the macroeconomy have been subject to a long and fruitful debate. The understanding of the different theoretical contributions to this issue is crucial in order to comprehend the possible economic impact of fiscal adjustments, and the channels through which fiscal variables influence the economy.

2.1. Demand-Side Effects of Fiscal Policy: Keynesian Effects³

A natural place to start a review of the theoretical literature on the demand-side effects of fiscal policy is with the Keynesian approach. The simplest Keynesian model assumes price rigidity and slack in productive capacity, so that output is determined by aggregate demand. In this model, a fiscal expansion has a multiplier effect on aggregate demand and output. The Keynesian multiplier exceeds one, it increases with the responsiveness of consumption to current income, and it is larger for a spending increase than for a tax cut. If a spending increase is matched by a tax increase, the resulting “balanced budget multiplier” is exactly one.

Extensions of the simplest Keynesian model allow for crowding-out through induced changes in interest rates and the exchange rate. This is additional to the crowding-out which occurs to the extent that the government provides goods and services that substitute those provided by the private sector, and insofar as part of any increase in domestic demand in an open economy is met from imports. The extent of crowding-out affects the size of fiscal multipliers but does not change their sign. In the standard IS-LM model, private investment depends negatively on interest rates, and therefore a fiscal expansion paid for by increased borrowing that leads to higher interest rates reduces investment. In the open economy IS-LM (Mundell-Fleming) model, there can also be crowding-out through the exchange rate. Higher interest rates attract capital inflows which appreciate the exchange rate, and the resulting deterioration in the

³ The next three sections are based on an internal document produced by the Fiscal Affairs Department of the International Monetary Fund in which the author worked. From now on this document will be referred as IMF (2000).

external current account offsets the increase in domestic demand deriving from a fiscal expansion.

Crowding-out through interest rates and the exchange rate is influenced by certain features of the IS-LM framework such as: (1) the determinants of private investment (crowding-out is likely to be greater if investment is fairly sensitive to interest rates); (2) money demand and monetary policy (the tendency for interest rates to rise in response to a fiscal expansion could be offset by a monetary expansion); (3) openness and the exchange rate regime (with perfect capital mobility and flexible exchange rates and perfect capital mobility, there is a complete crowding-out and so fiscal policy is ineffective).

The extent of crowding-out is also affected by price flexibility. Neo-Keynesian models allow for price flexibility, although nominal rigidities remain if prices do not adjust completely to clear markets. Price flexibility, even if it is limited in the short term, will tend to narrow the range of values taken by fiscal multipliers, and in particular to limit the influence of the exchange rate regime. In an open economy with a flexible exchange rate, the extent of crowding-out depends on the response of domestic prices to changes in the exchange rate. In particular, if domestic prices move with the exchange rate, crowding-out will be less than with price rigidity, since appreciation of the exchange rate will lower prices. With a fixed exchange rate, the current account will deteriorate in response to price increases via a real appreciation of the exchange rate, and there will be more crowding-out than with price rigidity.

Changes in interest rates, the exchange rate, and prices can in addition influence crowding-out via wealth effects on aggregate demand. This will be the case in particular if consumption depends of current financial wealth. An increase in interest rates will generally reduce the nominal value of financial assets, as will an appreciation of the exchange rate in the case of foreign currency denominated assets. For households and firms that are net creditors these wealth effects will reinforce the crowding-out effects through interest rates and exchange rates described above, and reduce fiscal multipliers further. The impact of higher prices is more ambiguous, since they can have opposite effects on nominal and real wealth.

Finally, dynamic effects of fiscal policy have to be considered (Auerbach and Kotlikoff, 1987). If crowding-out takes longer to manifest than the direct impact effect of a fiscal expansion, fiscal multipliers are likely to be relatively large in the short term but then to decline over time. In particular, the wage price-loop, which determines the rapidity of age increases in response to a fiscal expansion, and the responsiveness of trade volumes to changes in the domestic currency price of imports and exports, will influence the size of short-term fiscal multipliers.

2.2. Demand-Side Effects of Fiscal Policy: Non-Keynesian Effects

Non-Keynesian effects of fiscal policy emerge from new classical models which address the well-known shortcomings of the Keynesian approach, and in particular its lack of microeconomic foundations. While new classical models place considerable emphasis on the supply-side effects of fiscal policy, the focus here is on the features of some new classical models (i.e., those that do not assume full market clearing) with demand-side implications. An important consequence of non-Keynesian effects is that they can lead to negative fiscal multipliers, which at last could make fiscal adjustments to have an expansionary effect of economic activity, instead of their traditional recessionary impact.

While some variants of the Keynesian approach recognize the role of expectations (e.g., on consumption in life cycle and permanent income models), they typically rely on adaptive expectations. By comparison, rational expectations tend to bring forward adjustments in variables that would occur more progressively with adaptive expectations. Thus the longer-term effects of fiscal policy will matter even in the short-term, and in this connection the distinction between temporary and permanent policy changes is important. For example, while a temporary fiscal expansion that has no long-term effects will not influence expectations, a permanent fiscal expansion can add to crowding-out (possibly to an extent that fiscal multipliers turn negative) because households and firms will expect that an initial increase in interest rates and appreciation of the exchange rate will persist and could become larger (Krugman and Obstfeld, 1987). The opposite effect applies then for a fiscal adjustment that is perceived as permanent. As I will show later, empirical evidence suggests that a

crowding-in following the episodes of fiscal adjustment in the European Union has occurred thanks to the perception by private agents that consolidations would be permanent.

The Keynesian approach is based on an assumption that consumption is related to current income. If consumers are Ricardian, in the sense that they are forward-looking, and are fully aware of the government's intertemporal budget constraint, they will anticipate that a tax cut today, financed by higher debt, will result in higher taxes being imposed on themselves and/or their children in the future. Permanent income is therefore unaffected, and in the absence of liquidity constraints and with perfect capital markets, consumption will not change (Barro, 1974). Thus there is Ricardian equivalence between taxes and debt. Ricardian equivalence implies that a reduction in government saving resulting from a tax cut is fully offset by higher private saving and bequests, and aggregate demand is not affected. The fiscal multiplier is zero in this case. Nevertheless, if taxes are not lump-sum but progressive, financing the deficit through tax increases or debt will not have the same impact. At last, it is important to note that Ricardian equivalence is based on strong assumptions. Thus short time horizons, less than perfect foresight, partial liquidity constraints, imperfect capital markets, and non-altruistic desire to pass some of the current fiscal burden to future generations can reestablish a stronger link between fiscal policy and consumption. Consequently, the practical significance of Ricardian equivalence is problematic, at least in its perfect form.

Finally, another, perhaps more important, channel through which debt accumulation may affect the fiscal multiplier relates to risk premia on interest rates. As government debt builds up with fiscal expansion(s), risk premia that reflect the mounting risk of default or increasing inflation risk will reinforce crowding out effects through interest rates (Miller, Skidelsky, and Weller, 1990). Under such circumstances, a temporary fiscal expansion will be more effective than a permanent one, because it poses less risk of undermining debt sustainability. In this context, policy credibility is crucial. If there is little faith in the government's ability to reverse a temporary spending increase or tax cut because it lacks a track record of fiscal prudence, and the expectation is that a fiscal expansion which is announced to be temporary will in fact turn out to be permanent, then interest rate will most likely reflect risk premia. Sizable risk premia

represent perhaps the clearest reason that fiscal multipliers could turn negative, because private spending responds positively to a credible commitment to debt reduction and a lowering of risk premia. This is one of the main explanations for expansionary fiscal contractions given by Giavazzi and Pagano (1990) and Alesina and Perotti (1997). As this paper shows too, it was in countries that started fiscal adjustments in conditions of fiscal stress and subsequently with high risk premia, where decisive cuts in welfare spending sent a signal of credible commitment to deficit reduction and produced a crowding-in effect that resulted in non-Keynesian effects and expansionary fiscal adjustments.

2.3. Supply-Side Effects of Fiscal Policy

The analysis of the stabilization role of fiscal policy traditionally focuses on its demand-side effects, while supply-side effects are seen as more important over the longer-term. However, the distinction between short-term demand-side concerns and longer-term supply-side issues may not be so clear. If the economy is operating at full capacity and productive capacity cannot be increased in the short-term, a fiscal expansion (which may be undertaken on the assumption that there is excess capacity or for political reasons) has to be crowded-out. Only policies that promote supply-side responses can address capacity constraints, and their impact is primarily longer term. However, supply-side effects of fiscal policy can have short-term demand-side consequences because of expectations that longer-term growth will be higher. If a fiscal adjustment is imparted through tax increases and spending cuts that are good for the supply side, this will tend to decrease fiscal multipliers, and the adjustment will be expansionary.

In assessing the long-term impact of fiscal policy, attention should thus be paid to the way in which changes to labor income taxes affect the supply of labor, and changes to capital taxes affect saving and investment. The location of internationally mobile labor and capital can also be affected. In the final analysis, however, the impact of tax changes on the supply of labor and capital, and thus on growth, is an empirical issue about which clear-cut conclusions have yet to be provided (Blundell and MacCurdy, 1999). Attention should be also paid to the way in which spending on public goods and other goods with positive externalities can lead to higher growth, as is

demonstrated in models where the government invests in both physical and human capital (Murphy, Shleifer, and Vishny, 1989; Lucas, 1988).

Changing the emphasis, some attention has been given to the way in which labor market characteristics might influence whether changes in taxes and spending can have non-Keynesian effects through supply-side channels. In particular, Alesina and Perotti (1997) note that increases in labor income taxes can have a significant negative supply-side impact in unionized, imperfectly competitive labor markets where before-tax wages, and hence labor costs, also increase to reflect the higher taxes. However they argue that an agreement on wage moderation with trade unions could limit the increase in before-tax wages, or inflationary pressures during a fiscal contraction accompanied by a sharp devaluation, thus reducing the fiscal multiplier and possibly contributing to non-Keynesian effects. Such an agreement is more likely with highly centralized unions. Lane and Perotti (1996) also argue that reductions in government employment (which reduce labor demand, weaken unions, lower wages, and thus increase profitability) can be a source of non-Keynesian effects.

A final word should be dedicated here to new classical models. The distinctive feature of full-fledged new classical models is that prices clear markets, so that fluctuations in output are the result of supply-side shocks and not of changes in aggregate demand. One implication of new classical models, first highlighted by Lucas (1975) and Sargent and Wallace (1975), is that fully anticipated policies affecting aggregate demand (but not aggregate supply) have no effect on growth either in the short term or the longer term. Only unanticipated policies (which reflect either surprises by the government or imperfect information) have an effect, which emerges entirely through the supply side. This does not mean that these models are silent on fiscal policy. However, they focus on the design of optimal fiscal policy, as distinct from the impact of fiscal policy on economic activity (see Lucas and Stokey, 1983; and Chari and Kehoe, 1998).

2.4. Preliminary Empirical Evidence

From the previous theoretical review, most predictions regarding the effect of fiscal policy on the macroeconomy remain ambiguous. The purpose of the following empirical sections is to disentangle these ambiguities. To start doing so, table 1 reports bilateral Spearman correlations between the common two measures of fiscal policy (the annual change in the primary budget balanced, corrected and non corrected by the economic cycle), and different measures of economic policy outcomes (GDP growth, unemployment, inflation and income distribution⁴).

Table 1. Bilateral Correlations. Fiscal Policy and Macroeconomic Outcomes, 1960-2000

	Var. Primary Budget Balance	Var. CycAdj. Prim.Budget Balance	Quality of Budget	Strength Fiscal Adjustment
Var. Prim. Budget. Bal	1			
Var. CycAdj.Prim.B.Bal	0.77***	1		
Quality of Budget	0.16***	0.15***	1	
Strength of Adjustment	0.74***	0.93***	0.22***	1
Var. Real GDP Growth	0.14***	-0.17***	0.10***	-0.13***
Var. Unemploymt Rate	-0.24***	0.04	-0.06	-0.06
Var. Prices	0.03	0.12***	-0.12***	0.04
Var. Inequality	0.18***	0.24***	0.16***	0.21***

The inclusion of this last variable is new in the literature on the economic impact of fiscal adjustments. Taking into account that parties formulate their fiscal policy aware of its distributive consequences (Mulas-Granados, 2002, 2003), it is crucial to ascertain whether these policies achieve the results they intend or not. In addition, two other variables from (Maroto and Mulas-Granados, 2002) are included in the table, measuring the quality of the budget⁵ and the strength of the adjustment⁶, since strong

⁴ Inequality is measured by the Gini coefficient. Data has been obtained from the World Income Inequality Database of the United Nations (2000), and has been completed for some years and some countries with the database from the Luxembourg Income Study Group (2001). Overlapping three-year moving averages have been used to fill out the gaps in the series. The Gini coefficient as expressed in these databases runs from 0 to 100. It is 0 when the distribution of income is completely egalitarian, and it is 100 when it is completely inegalitarian and one person holds all the income in a society. See Appendix 2 for a detailed explanation of the Gini coefficient.

⁵ The quality of the budget measures the contribution of cyclically adjusted primary expenditures to the total amelioration of the budget balance. See Maroto and Mulas-Granados (2002) for a more detailed definition of this variable.

⁶ The strength of the adjustment measures in absolute terms the distance between the annual change in the cyclically adjusted primary budget balance and the 1.5% adjustment threshold beyond which a consolidation is considered to be taking place.

expenditure-based adjustments are expected to increase the sustainability of the consolidation episode, and their economic consequences can be more acute.

Simple bilateral correlations in table 1 provide many interesting findings. Economic growth is negatively associated with fiscal adjustments and specially if those are strong, since strong adjustments give the private sector less chances to completely replace the public sector in the areas where it has unexpectedly withdrawn its activity. Nevertheless, economic growth is positively correlated with better quality of the budget, which would imply that adjustments based on spending cuts are more likely to be expansionary. Unemployment is negatively associated to improvements in the budget balance, since higher unemployment means less public revenues and more expenditures. By contrast, prices are positively associated to improvements in the budget balance, meaning that monetary easing and fiscal adjustment work together. Finally, inequality is positively associated to improvements in the budget balance.

These results point toward the existence of an important trade off between economic growth and income distribution that is mediated by fiscal policy. The idea of a trade off between growth and equality was deeply developed in the framework of neoclassical economics at the beginning of the past century, but still seems to hold pretty well today when fiscal policy is under discussion. The reasoning behind this trade off is that if the State is going to intervene to redistribute income, it will impose taxes that will distort the sound functioning of efficient markets, which in turn will discourage private investment and will have a decisive negative impact on productivity and economic growth (Przeworski, 1986; Boix, 1996). Therefore public transfers of income and capital from the richer strata to the poorer strata of any economy would only be sustainable in the long run as long as the associated taxes do not damage domestic productivity and the capital's net rate of return. If the productivity and the rate of return are positive and higher than in other countries with lower taxes, investors will still remain in the country. Both conditions are necessary to maintain growth in the long-run with considerable public spending. In fact, these are the conditions that have supported the generous welfare states in Europe until today.

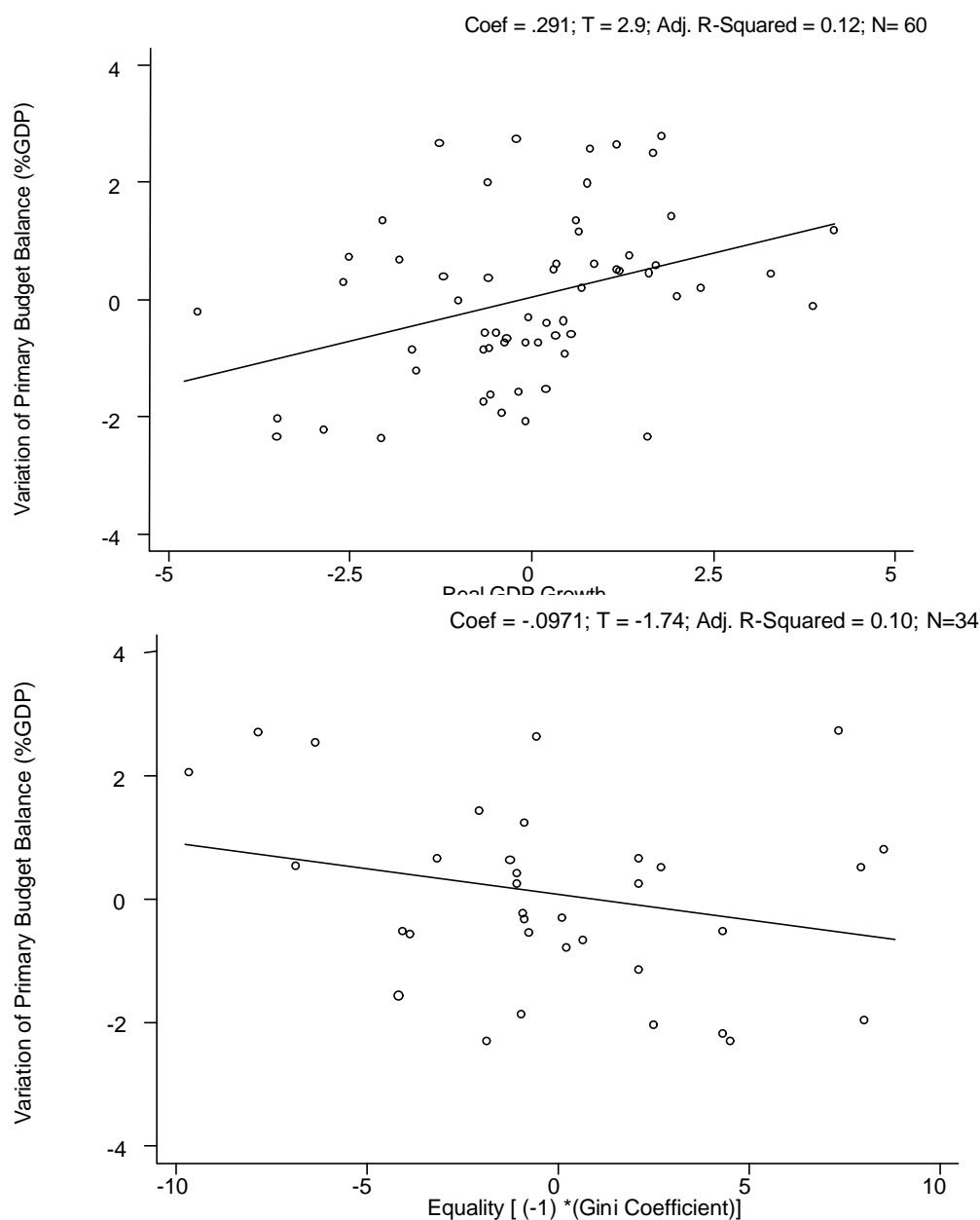
The existence of this trade off between growth and redistribution was widely accepted under the paradigm of neoclassical economics up to the point that socialist

governments in the twenties were willing to abandon redistributive policies if they harmed the medium term rate of economic growth (Boix, 1996). The substitution of this paradigm by the Keynesian one offered a way to escape that zero-sum game. Keynesian economics affirmed that economic growth was less a matter of supply conditions, and more a matter of aggregate demand. By stimulating aggregate demand, output would grow, and full employment could be reached, without very strong costs in terms of inflation. The combination of full employment policies and public spending expansion to stimulate domestic consumption, offered a combination of policies that were positive for both growth and equality. Once these policies proved no longer applicable in the seventies, basically due to the induced rigidities that they had generated in the aggregate supply, the neoclassical paradigm came again to dominate the landscape of economic ideas. EMU was conceived under its direct influence, and as the empirical evidence in this paper will show, it has coincided with a rebirth of the old trade off. With aggregate demand locked by means of a supranationalized monetary policy and the 3% deficit limit to fiscal policy, economic growth has become again a question of supply-side economics. For social democratic governments this means intervening in the provision of human and physical capital. For more conservative governments this means lowering the taxes that disincentive private investment, and reducing labor costs. In this framework again, direct transfers of income to the worse off (the very basis of the welfare state) are very much restricted by how much they damage the capital's rate of return, and how much they affect productivity. When too much social spending reduces both, economic growth will be negatively affected and redistribution policies will not be sustainable. Then, expenditure-based fiscal adjustments that arrive in moments when budget deficits are harming productivity and private investment, are likely to increase economic growth (via positive supply-side effects associated to a crowding-in of private investment and consumption). However, this will be achieved at the cost of increasing income inequality.

Only the IMF and the World Bank have systematically studied the effect of stabilization policies (that include serious fiscal adjustments) in developing countries on both growth and equality. Their studies almost always have concluded that successful stabilization experiences have increased economic growth and have reduced inequalities, normally as a “collateral effect” of the general economic stabilization, and sometimes also helped by World Bank's poverty reduction programs (Tanzi, Chu, and

Gupta, 1999). Nevertheless, the story for industrial countries seems to be somewhat different. Among the very few studies that have addressed the equity dimension of fiscal adjustments in advanced economies is the work by Ford (1998) and Smeeding (1997, 2000), who find that recent fiscal consolidations in OECD countries have run parallel to widening distribution of incomes and poverty increases. These results will be also confirmed by the empirical evidence presented in this paper. In fact, the continuous presence of the mentioned trade off between growth and equality, mediated by fiscal policy during episodes of expenditure-based consolidation becomes graphically very clear in figure 1, where results in terms of growth and equality are plotted against the amelioration of the budget balance through expenditure-based adjustments.

Figure 1. Expenditure-based Fiscal Adjustments, and the Trade off between Growth and Equality, 1960-2000



3. The Economic Impact of Fiscal Adjustments

The preliminary evidence presented in the previous section allows the formulation of three hypotheses regarding the economic impact of different types of fiscal adjustments, be they revenue-based or expenditure-based adjustments.

1-Fiscal adjustments can have Keynesian or anti-Keynesian effects on growth and employment, depending on the “good quality” composition of the adjustment. Expenditure-based adjustments are more likely to have expansionary anti-Keynesian effects, while revenue-based adjustments are more likely to be associated with contractionary Keynesian effects. Initial fiscal conditions and accompanying monetary conditions are likely to be important in both cases.

2-Even if expansionary fiscal adjustments are likely to occur under some specific circumstances, it remains unclear whether the “good quality” composition that generate them works through aggregate demand or aggregate supply.

3-Finally, while some expenditure-based fiscal adjustments can be expansionary, they are also likely to increase income inequality.

In order to test hypotheses 1 and 3, and to solve the open question in 2, I split the sample of 53 episodes of fiscal consolidation defined as those years in which the cyclically adjustment primary budget balance (CAPB) improved by at least 1.5% of GDP one year and was followed by a positive figure in the subsequent or preceding year, or when the CAPB improved at least 1.25% of GDP during two consecutive years⁷. Using this standard definition to select episodes of fiscal adjustment, the sample of 53 cases is divided between 28 revenue-based adjustments and 25 expenditure-based adjustments.⁸

⁷ This is the same criteria used for the selection of adjustment episodes in the most important papers in this field. See for example, Alesina-Ardagna (1998), Perotti and Kontopoulos (1998), Mulas-Granados (2002, 2003). Also see Alesina and Perotti (1997) and Maroto and Mulas-Granados (2002) for a discussion on the sensitivity of results to different fiscal adjustment definitions.

⁸ An episode of fiscal adjustment is considered to be revenue-based when more than half of the contribution to average deficit reduction during the episode of adjustment comes from an increase in the average total revenues during the episode. The opposite applies to expenditure-based adjustments.

Once this sample of adjustment episodes has been selected, I look at the average values of a wide range of economic variables two years before the adjustment, during the adjustment episode, and two years after the adjustment. The main reasons for looking only at two-year intervals before and after the consolidation episode have to do with the attempt to keeping as many data points as possible during the nineties (when 18 of the 53 episodes occurred), and because in the longer term the relationship between fiscal adjustments and other economic variables is more difficult to identify, since the latter can be reflecting the impact of many other factors (Alesina and Ardagna, 1998).

Fiscal adjustments can differ substantially, depending on whether they rely on increases in revenues or on spending cuts (Mulas-Granados, 2002, 2003). Table 2 is very illustrative in this respect. On the one hand revenue-based adjustments typically increase revenues from direct taxes to maintain public spending in public transfers, public wages, and public investment. On the other, expenditure-based adjustments rely mostly on cuts in transfers, wages and investment, and only increase direct taxes marginally during the adjustment. This slight increase in revenues coming from direct taxation is however immediately reversed once the adjustment has ended and the size of public expenditures in terms of total GDP has been reduced.

It is important to note that expenditure-based adjustments take place when the initial fiscal conditions are very deteriorated. This confirms the findings of Von Hagen, Hallet and Straucht (2001) who showed that the probability of starting a fiscal adjustment raised when the public debt increased. The debt to GDP ratio, the level of expenditures and the overall budget deficit are systematically higher in the two years previous to expenditure-based adjustments. This implies that governments facing strong fiscal imbalances, created by high public transfers and wages that cannot be financed by total revenues, are more likely to undertake a fiscal adjustment based on spending cuts. The amelioration of the debt-to-GDP ratio, the reduction of total expenditures, and the improvement of the budget balance is remarkable after the adjustment episode in cases of expenditure-based adjustments, while it is more moderate in cases of revenue-based adjustments. In the latter cases, once the budget deficit is under control and the consolidation episode comes to an end, the increase in revenues that made the adjustment possible is then used to finance further increases in public transfers, wages

and investment. These two different strategies have been generally associated to governments with different economic preferences regarding the role that the public sector should play in the economy (Mulas-Granados, 2002). These two different strategies, however, may not be neutral (Garcia and Hénin, 1999), in the sense that they may not have the same economic results.

Table 2. Initial Fiscal Conditions, Budget Composition and Strategies of Fiscal Adjustments, 1960-2000

	Non-Adjust.	Adjustment					
		Revenue-Based			Expenditure-Based		
		Before	During	After	Before	During	After
Fiscal Policy							
Debt Ratio	47.44	55.05	61.60	60.37	59.62	69.26	65.11
Var. Debt Ratio	0.87	2.32	2.34	1.03	4.36	1.67	0.04
Budget Balance	-1.60	-4.41	-3.41	-2.95	-6.34	-4.11	-3.33
Var. Budget Balance	-0.29	-0.99	0.96	-0.32	-1.03	1.53	0.19
Total Revenues	39.19	40.89	43.22	44.89	46.18	46.48	44.09
Var. Total Revenues	0.36	0.58	1.41	-0.08	0.22	0.78	-0.42
Total Direct Taxes	12.10	12.60	13.59	14.04	13.24	14.07	13.27
Var. T. Direct Taxes	0.20	0.17	0.56	0.01	-0.03	0.31	-0.23
Total Expenditures	41.08	45.34	46.50	47.75	52.30	51.59	48.12
Var. Total Expenditures	0.68	1.41	0.41	0.05	1.46	-0.81	-0.18
Total Transfers	14.60	15.75	16.46	16.23	17.75	17.25	16.46
Var. T. Transfers	0.33	0.43	0.42	0.22	0.40	-0.34	-0.28
Total Public Wages	11.26	11.28	11.28	11.63	12.67	12.37	11.68
Var. T. Public Wages	0.23	0.13	0.06	0.03	0.13	-0.29	0.04
Total Pub. Investment	3.33	3.54	3.28	3.42	3.48	2.82	2.72
Var. T. P. Investment	0.06	0.06	-0.10	0.03	-0.01	-0.24	0.02

Source: Own elaboration

As shown in table 3, GDP growth, unemployment, inflation, and inequality behave very differently depending on the type of adjustment implemented. Starting with initial conditions, it is worth noting that GDP growth is lower before expenditure-based adjustments than before revenue-based ones, and both are smaller than during years of non-adjustment. The same happens with unemployment and inflation rates. This means

that governments decide to undertake expenditure-based adjustments when domestic macroeconomic conditions have worsened considerably, probably because it is only then when the public opinion is willing to accept the welfare cuts associated to expenditure-based adjustments. As an example, the average unemployment rate before expenditure-based adjustments is 2.5 percentage points higher than before revenue-based ones. In the cases of inflation rate and GDP growth, these differences are around 3% and 0.5%, higher and lower respectively.

Table 3. Macroeconomic Outcomes of Fiscal Adjustments, 1960-2000

	Non-Adjust.	Adjustment					
		Revenue-Based			Expenditure-Based		
		Before	During	After	Before	During	After
Macroeconomic Outcomes							
Real GDP Growth	3.72	2.19	1.61	3.16	1.73	2.46	3.36
Var. Real GDP Growth	-0.11	-0.50	-0.11	0.50	-0.19	0.50	0.56
Unemployment Rate	5.32	6.14	7.02	6.96	8.76	9.08	8.41
Var. Unemployment Rate	0.08	0.25	0.55	-0.02	0.63	0.04	-0.45
Price Index	73.33	91.76	116.56	128.86	117.89	133.50	120.93
Inflation Rate	3.71	6.80	7.03	6.70	9.36	7.53	6.75
Inequality Index	30.56	29.86	30.90	31.51	30.84	33.31	34.15
Var. Inequality Index	0.12	0.04	0.10	0.19	0.03	0.31	0.47

Source: Own elaboration

Increased growth follows after both revenue-based and expenditure-based consolidations. However, during revenue-based consolidations there is a typical Keynesian temporary recession that increases unemployment, and reduces the growth rate, while the opposite happens during expenditure-based adjustments. During and after the latter, growth increases and unemployment is reduced. In the same way, inflation remains constant during and after revenue-based consolidations, but decreases considerably in cases of expenditure-based adjustments.

Nevertheless, not everything is positive in favor of expenditure-based adjustments. Fiscal consolidations that rely on spending cuts have higher costs in terms

of income inequality than do revenue-based ones. As figure 1 illustrated and table 3 clearly shows now, inequality increases during and after both types of fiscal adjustments, but it is during and after expenditure-based adjustments when the Gini coefficient grows more dramatically, indicating important increases in income inequality. The reasoning behind this fact is straightforward. Since welfare systems across Europe consist, roughly speaking, on tax collection through progressive-tax systems, in order to finance the social transfers to the worse-off, fiscal adjustments that reduce taxes and public expenditures by a greater amount, have the double effect of undermining the main source of income progressivity (progressive direct taxation), and withdrawing resources from programs that are targeted to the poorer people in each society.

These results confirm the latest findings by the most prominent authors in the area⁹, who have found at the end of the nineties important increases in income inequality. In fact, already in one of their initial papers on the topic, Alesina and Perotti (1996) raised the point that it was maybe due to the possible inequality consequences of fiscal adjustments why European governments were traditionally so reluctant to undertake expenditure-based adjustments. In fact, besides the possible ideological aversion that some political parties (mainly social democratic ones) may have traditionally had toward income inequality, lies also the fact that the electorate tends to punish incumbent governments if during their mandate inequality has increased (Mulas-Granados, 2003b).

So far, the empirical evidence presented until now in tables 2 and 3 supports the argument that expansionary fiscal adjustments occur primarily when initial fiscal and economic conditions have worsened considerably (high debt-to-GDP ratios, high budget deficits, high inflation and unemployment rates, and low GDP growth), and when the adjustment is expenditure-based (cutting public transfers, public wages, and investment)¹⁰. These expenditure-based adjustments, although they can be expansionary

⁹ Gottchalk, Gustaffson, and Palmer (1997); Danzinger and Reid (1999); Ford (1998); Atkinson (2000); Smeeding (2000); and Freeman (2000).

¹⁰ Note that these results are very similar to those reported by Alesina and Ardagna (1998), and all other similar studies collected in Appendix 1. Note also that the importance of bad initial fiscal conditions in generating expansionary fiscal adjustments, while very much stressed in studies dealing with advanced economies such as (Perotti, 1999; Giavazzi, Jappelli and Pagano, 2000), has been also corroborated in studies dealing with low-income countries (Gupta, Clements, Baldacci and Mulas-Granados, 2002).

and increase economic growth, have important costs in terms of increasing income inequality.

But if hypotheses 1 and 3 at the beginning of this section have been already confirmed, it remains unclear whether the budget's composition and initial economic conditions are the only factors behind expansionary fiscal adjustments; it can be the case that the size of the adjustment¹¹ and the accompanying monetary conditions can also play a role in generating the economic expansion. Furthermore, it remains to be clarified whether these expansionary fiscal adjustments work primarily through supply-side or demand-side mechanisms.

In relation to the question of size of the adjustment, there may be a role for this as a factor generating expansionary fiscal consolidations, since the difference between the figures for the budget balance "after" and "before" adjustment is bigger in the case of expenditure-based expansionary fiscal adjustments than in the case of revenue-based ones (meaning that the budget deficit is reduced more in the former than in the latter case). However, this effect does not seem to be very important because the differences are small in comparison: expenditure-based adjustments reduce the budget deficit by 2 average percentage points, while revenue-based adjustments reduce the budget deficit by 1.5 percentage points.

The question of accompanying monetary conditions does seem to play a role too, but again a very limited one. As can be seen in table 4, both types of fiscal adjustments are usually accompanied by a nominal devaluation (an increase in the exchange rate). This devaluation is however maintained after expenditure-based consolidations but reversed after revenue-based ones. With respect to short-term real interest rates, there seems to be no differences in their behavior across types of adjustment, since they remain more or less constant before and during the adjustment, and they only fall after expenditure-based ones, reflecting the lower risk premia. Therefore, the story of expansionary fiscal adjustments seems to be based more on the composition of the budget, than on the size of the budget cut or the simultaneous expansion of monetary

¹¹ Giavazzi and Pagano (1996) argue that a large adjustment, by inducing a permanent change of fiscal regime, can be expansionary because expectations are less susceptible to be affected by smaller adjustments.

conditions. It is true that monetary policy was slightly more relaxed during and after expenditure-based expansionary adjustments, but this can also be reflecting the fact that almost all expenditure-based fiscal consolidations that took place in the nineties started right after the monetary storms in the EMS during 1992-93.

Table 4. Monetary Policy and Fiscal Adjustments, 1960-2000

	Non-Adjust.	Adjustment					
		Revenue Based			Expenditure Based		
		Before	During	After	Before	During	After
Monetary Policy							
Real Interest Rate (ShTerm)	1.85	3.02	3.11	3.11	3.04	2.95	2.62
Var. Real Interest Rate	0.07	-0.44	-0.11	0.41	0.30	-0.17	-0.02
Real Interest Rate (G4)	-0.14	-0.54	-0.47	-0.74	-0.50	-0.30	-0.22
Real Exchange Rate	99.06	101.18	102.75	101.11	97.19	97.89	96.62
Var. Real Exchange Rate	-0.07	-0.27	0.50	-0.69	-0.12	0.64	0.87

Source: Own elaboration

Once the macroeconomic results that different types of fiscal adjustments bring about have been described, and once the type of initial and accompanying fiscal and monetary conditions that influence those final outcomes have become clear, the last step in this analysis is then to investigate the channels through which expansionary fiscal adjustments work. As can be observed in table 5, economic expansion after expenditure-based fiscal consolidations is mediated by a remarkable crowding-in of the private sector in the form of increasing consumption and a boom of private investment.

This crowding-in is also present in revenue-based adjustments but is much less important¹². This important crowding-in of the private sector in expansionary expenditure-based consolidations is accompanied by higher profits and lower labor costs, which are at last translated into an improvement of the trade balance. The argument behind the reduction in labor costs that improves the budget balance, increases profits and investment, thus contributing to an increase in the level of output is the following: during expenditure-based adjustments, the government wage bill is

¹² See Argimón, González-Páramo, and Roldán (1997) for similar evidence on crowding-in after fiscal adjustments.

reduced and there are no increases in direct taxes (that principally rely on the labor factor). Both measures have the effect of reducing labor costs directly and indirectly by undermining the bargaining power of labor unions.

Table 5. Microeconomic Outcomes, Trade Policy Outcomes, and Fiscal Adjustments, 1960-2000

	Non-Adjust.	Adjustment					
		Revenue Based			Expenditure Based		
		Before	During	After	Before	During	After
Microeconomic Outcomes							
Private Consumption	57.80	57.93	58.32	58.09	57.95	58.39	58.97
Var. Private Consumption	-0.09	-0.07	0.19	0.03	-0.02	0.23	0.37
Private Investment	18.66	17.63	18.22	18.01	17.35	18.16	19.26
Var. Private Investment	0.02	-0.03	0.49	-0.40	0.05	0.55	0.76
Labor Costs Index	107.08	108.88	108.02	105.43	108.20	104.86	101.83
Var. Labor Costs	-0.13	0.48	-0.49	-1.39	-0.98	-1.85	-1.54
Profits Share	31.84	31.77	31.06	31.88	31.10	32.31	32.92
Var. Profits Share	0.04	0.05	0.02	0.09	0.03	0.72	0.31
Trade Policy Outcomes							
Imports	29.60	35.99	35.50	36.60	36.34	35.86	37.44
Var. Imports	0.80	0.47	0.33	1.54	0.74	0.94	1.10
Exports	21.46	24.06	24.13	26.01	25.80	28.51	29.08
Var. Exports	0.65	0.34	0.61	0.77	0.87	1.08	1.15
Trade Balance	-0.36	-1.41	-0.25	-0.30	-1.77	0.67	0.68
Var. Trade Balance	-0.08	-0.20	-0.02	-0.11	0.31	0.95	0.20

Source: Own elaboration

The truth is that this mechanism of diminishing labor costs that trigger expansionary fiscal adjustments should not be uniquely associated to expenditure-based fiscal adjustments. In fact, this mechanism would also work for revenue-based fiscal adjustments if trade unions internalized the government's budget constraint, or if they did not ask for an increase in real salaries when taxes grew. This only happens in countries such as the United States or Canada, where trade unions are almost inexistent,

or in countries such as the Scandinavian ones, where the high degree of corporatism and a centralized wage bargaining process have traditionally made trade unions encompassing and collaborative with the government's budget constraint, and have thus permitted social democratic governments to balance their budgets via revenues without damaging labor costs, domestic productivity and economic growth (Alesina and Ardagna, 1998; Alesina, Perotti and Tavares, 1998; Garrett 1998, and Esping-Andersen, 1995, 1996, 1999). In other countries, trade unions are strong enough to protest and demand higher salaries, but not enough to be able to control all wage demands across different sectors of the economy, that can bring about a concertation at the national level¹³. This is what has given expenditure-based adjustments the monopoly in reducing labor costs and generating expansionary fiscal adjustments, while revenue-based adjustments can only have these effects in countries with a very strong corporatist tradition.

Summing up, what the empirical evidence presented in this section has shown can be grouped in three different sets of conclusions, that confirm the three initial hypotheses that were stated at the beginning of the section:

1-In the short-run, the composition of fiscal adjustments is a crucial factor determining the economic consequences of consolidation episodes. Expenditure-based adjustments normally take place in situations of fiscal stress, with low GDP growth, high debt levels, strong budget deficits and poor initial economic performance. When these consolidations succeed in reducing the most rigid items of the budget, namely public transfers and public wages, they are expansionary. Their economic effects are to increase GDP growth, and reduce inflation and unemployment rates, but they do so at the cost of increasing income inequality more than what revenue-based adjustments do. Note that these results are important for two strands of the economic literature: the one on the growth-equality trade-off, and the one related to growth theory. With respect to the latter, these results are particularly important since they provide further evidence of the role that endogenous growth theories give to fiscal policy¹⁴ in generating growth. In

¹³ According to Alesina and Perotti (1997b), in such cases where trade unions are not weak nor strong enough, a 1% increase in the income tax, increases labor costs in 2%.

¹⁴ Previously to endogenous growth models, the neoclassical growth models of Solow (1956) and Swan (1956) rejected a direct connection between fiscal policy and growth. In their view, the share of government expenditure in output, or the composition of expenditure and revenue, can influence the

endogenous growth models (Barro, 1990 and 1991; Barro and Sala-I-Martin, 1995; and Mendoza, Milesi-Ferretti and Asea, 1997), investment in physical and human capital can affect both the level of output and the steady-state growth rate. Taxes that affect the investment decision (thus labelled as distortionary) can create tax wedges and thus diminish the rate of growth. And expenditures that are included as arguments in the private production function (thus classified as productive) can have a direct positive impact on the steady-state rate of growth¹⁵. Also, in this respect Kneller, Bleaney and Gemmel (1999: 171) affirm that: “(1) distortionary taxation reduces growth whilst non-distortionary does not; and (2) productive government expenditure enhances growth, whilst non-productive expenditure does not”¹⁶.

2-When fiscal adjustments are expansionary, non-Keynesian effects work through both demand-side and supply-side mechanisms.

- a) With respect to demand-side mechanisms, this section has provided evidence of the existence of *wealth effects*, given that a cut in public consumption that is perceived as permanent increases private consumption, because households discount future higher levels of disposable income as a result of the expected reduction in taxes.
- b) There are also *credibility effects* that benefit both private consumption and private investment. When debt is high, interest rates are high and any deficit reduction, mostly if it is based on spending cuts, reduces the risk premia, and consequently interest rates, facilitating the crowding-in of private consumption and investment.¹⁷

savings rate or the incentive to invest in physical or human capital, but they cannot affect the long-run rate of growth. Fiscal policy cannot affect the growth rate because it is driven by exogenous factors of population growth and technological change. See Judd (1985), and Chamley (1986).

¹⁵ See Gerson (1998) for an extensive review of the theoretical and empirical literature on the relationship between taxation and government expenditure and economic growth.

¹⁶ For similar conclusions see also Aschauer (1989); Barro (1990, 1991); King and Rebelo (1990); Easterly and Rebelo (1993); Jones, Manuelli and Rossi (1993); Easterly, Rodríguez, and Schmidt-Hebbel, 1994; and Kneller, Bleaney and Gemmel (2000).

¹⁷ Note that the size of the increase in private consumption depends on the absence of liquidity-constrained consumers (Alesina and Ardagna, 1998), and therefore, as noted by Perotti (1999), the result hinges on the efficiency of financial markets, and should be stronger when fiscal consolidation occurs in bad times when the debt-to-GDP ratio is growing rapidly. For similar previous arguments in this respect, see also Blanchard (1990) and Bertola and Drazen (1993).

- c) And with respect to the supply-side, the reduction in the government wage-bill in unionized imperfectly labor markets proves crucial to reduce labor costs, to increase business's profits, and to improve the trade balance, thus contributing to the economic expansion.

3- Finally, the choice that governments planning to undertake a fiscal adjustment face seems to lie between two extremes: one option is to undertake a revenue-based adjustment that may not be so expansionary but that will prevent income inequality from raising dramatically; and an alternative option is to pursue an expenditure-based strategy that may be expansionary but at the cost of increasing inequalities substantially. As shown by Mulas-Granados (2002, 2003) this decision is heavily influenced by the rate of unemployment, by the structural budget balance in previous years, by the electoral calendar, by the fragmentation of the cabinet, and most importantly, by the ideology of the party in government.

4. The Economic Impact of Fiscal Adjustments During the Nineties

During the nineties, the dynamics presented in previous sections can be applied without any major revision. Revenue-based adjustments and expenditure-based ones have had similar characteristics than those from previous decades¹⁸. Similarly, they have also had opposite economic consequences, in the short-run. While expenditure-based adjustments in the nineties have shown better chances of increasing economic growth, revenue-based ones have proved less likely to increase income inequality.

The driving forces leading to expansionary fiscal adjustments during the nineties have also been a mix of supply-side and demand-side mechanisms of wealth effects, investment boom and credibility effects. The process of strong deficit reduction in Europe, and the downward convergence of interest rates, maintained inflation at historically low levels, and this curbed unit labor costs down following expenditure-based adjustments. The trade balance improved, and private investment and consumption boomed, increasing the GDP growth rate in the EU up to a point that made European leaders affirm at the Lisbon European Summit of 2000 that the objective for

¹⁸ For details on fiscal policy, monetary policy, microeconomic outcomes, and trade policy outcomes during the nineties, see Appendix 3.

2010 should be to become the most competitive and developed knowledge-based economy in the world.

Furthermore, the decade of the nineties shows some of the most salient and paradigmatic cases of expansionary fiscal consolidations. Among them Italy and Spain. In the first case, after the strong devaluations that made the lira exit the EMS in 1992, the sustained fiscal adjustment that took place during the whole decade of the nineties multiplied the credibility effects that served as the basis for their posterior economic growth. The pension reform implemented in 1995 showed the commitment of the Italian government to making fiscal balance a durable policy, and became the turning point for the Italian government in gaining the credibility of markets and private agents. The subsequent decrease in interest rates boosted private investment and served as the basis for the economic growth of the second half of the decade¹⁹. In this respect, the announcement of future reimbursement of the special tax that the government levied to qualify for the third stage of EMU, was crucial for not losing again the credibility of private agents. If the tax was to be returned in the future, it indicated that the fiscal discipline would have to be even tighter than before.

The Spanish case was somewhat different because its debt-to-GDP ratio was not as astonishingly high as the Italian one, and therefore the crowding-in of the private sector came through a wealth effect channel, instead of through a credibility effect mechanism. The turning points in this case were the reform of the unemployment benefits system of 1994 and the freezing of public wages in 1997. Both decisions showed the strong commitment of both the Socialist and the Popular governments to comply with the Maastricht criteria and to qualify with the first group joining the euro. These measures, together with the 1992, 1993, and 1995 devaluations of the peseta increased the competitiveness of Spanish exports that led the economic recovery during the three years following the 1992 economic recession. After that, the systematic reduction in interest rates following the fiscal effort made by the government (based on cuts in public consumption, transfers, and public investment) was the main factor driving the private investment and consumption booms responsible for the second strongest economic rate of growth in Europe during the second half of the nineties.

¹⁹ I thank Marco Buti, Head of the Public Finances Division of the European Commission, for providing me with the detailed insights of the Italian experience.

Similar examples can in fact be found all across Europe. As Von Hagen, Hallett and Strauch (2001), and Gemmell and Kneller (2001) show, the story of expansionary fiscal adjustments applies specially well in the nineties²⁰. And this was so because the Maastricht criteria came to impose a credible deficit reduction precisely when European countries faced some of their worst moments in terms of budget deficits and accumulated debts since the Second World War. The fact that the pre-consolidation fiscal stance was seen by private agents as unsustainable, in the sense that it would have required higher taxes to serve the public debt, explains why the adjustment episodes of the nineties had a positive expectation effect on forward-looking consumers and investors. These new expectations increased growth and employment despite the period of fiscal restraint. An easing of monetary policy coming from the devaluations triggered by the 1992-92 ERM crisis, and decreasing interest rates, also played a significant role in achieving these results.

Table 6 below reports the results of replicating the model used by Von Hagen, Hallett and Strauch (2001) with my database, in order to answer if non-Keynesian effects in the nineties were stronger than those already identified by many authors for previous decades²¹. This is done by estimating a model for the interaction between fiscal policy, real output and monetary conditions, analyzed in a system of three endogenous variables. Replicating their procedures, I estimate the following model, including debt/DGP, long-term interest rate, both lagged one period, and the change in the EU-15 output gap²² as exogenous variables.

$$\Delta F_t = f(\Delta F_{t-1}, M_{t-1}, \Delta Y_t, \Delta Y_{t-1}, \Delta GAP_t, DEBT_t, dummies)$$

$$\Delta M_t = m(\Delta M_{t-1}, F_t, i_{t-1}, \Delta Y_t, \Delta F_{t-1})$$

$$\Delta Y_t = y(\Delta Y_{t-1}, \Delta F_{t-1}, \Delta M_{t-1}, \Delta GAP_t)$$

²⁰ It is interesting to note that these findings with actual data reject the predictions made in the middle of the nineties by the same authors, when they predicted pronounced recessions as a consequence of the fiscal effort needed to fulfil the Maastricht criteria (see for example Von Hagen and Lutz, 1996).

²¹ They apply their model to a sample of 19 OECD countries, while I replicate it with the sample of 15 EU countries contained in the AMECO database of the European Commission.

²² Measured as the difference between aggregate demand and potential output, as defined by the European Commission in the AMECO database. This variable was also used by Von Hagen, Hallett and Strauch (2001) for their analysis of the determinants of the probability of starting a consolidation.

The GDP growth equation is characterized by output being dependent only on lagged fiscal or monetary policies, lagged output growth, and the change in the EU-15 output gap. The monetary policy equation has the real monetary conditions index²³ depending on its own lag, the change in the cyclically adjusted domestic structural balance, and its lag, output growth, and the lag of long term interest rate. Finally, the fiscal policy equation describes the change in the cyclically adjusted domestic structural balance as a function of its own lag, current monetary policy, current and lagged domestic output growth, the EU-15 output gap, and the debt-GDP ratio. As they do, I also include country dummies in the fiscal policy equation only²⁴.

This model is estimated using a “three-stage least squares estimator in order to take into account any cross correlation between the various residuals which may reflect some of the behavior of the variables which had to be omitted from the panel estimation. Robust standard errors were estimated to account for heteroskedasticity and any remaining serial correlation” (Von Hagen, Hallett and Strauch, 2001: 54)²⁵.

As results in table 6 show²⁶, during the seventies and the eighties, GDP growth was strongly positively affected by its own lag, and by the surrounding cyclical conditions in the EU.

It was negatively affected by monetary and fiscal contractions, although the coefficient for the change in the fiscal stance is not statistically significant. These effects were all reinforced in the nineties. GDP growth became even more dependent on its lag and on the average EU output gap, what reflects the growing interdependence of European economies, and it was also more negatively affected by monetary

²³ As in Von Hagen, Hallett and Strauch (2001), the stance of monetary policy is measured by the Monetary Conditions Index built specifically for this purpose. The index is the sum of the short-term real interest rate and the real exchange rate, each weighted by its sample standard deviation.

²⁴ The results for the estimation of this equation are not shown in table 6, but they are available upon request.

²⁵ The ideal specification for such a three equations system would have been a structural VAR system, but that was impossible to estimate given data limitations that ruled out the estimation of a model with sufficient lags for all variables. Instead I used, following Von Hagen, Hallett, and Strauch (2001), a simple partial reduced form system.

²⁶ Since the determinants of fiscal policy have been extensively analyzed in previous works (Perotti and Kontopoulos, 1998; Von Hagen, Hallett and Strauch 2001; Mulas-Granados, 2002), and the determinants of monetary policy lie outside the focus of this paper, and most importantly because the main focus of this paper is on the impact of fiscal policy on “growth vs. equality”, only results for the growth equation are reported in table 6. However, the results for the estimation of the other two equations are available upon request.

contractions, meaning that devaluations and/or falling interest rates had a bigger positive impact in increasing growth during the nineties than they had before. But what is most striking is that the impact of fiscal consolidations on growth became much less negative during the nineties. Also, the positive impact that quality of the budget had on growth before 1990, was reinforced in the following decade. These two results confirm that non-Keynesian effects of expenditure-based fiscal consolidations applied even better during the nineties than in previous decades.

Table 6. Expansionary Fiscal Adjustments. The 1990s in Perspective

	Real GDP Growth (1970-1989)	Real GDP Growth (1990-2000)
Real GDP Growth t-1	0.253*** (3.76)	0.562*** (6.79)
Monetary Conditions Index t-1	-0.242** (1.91)	-0.489*** (2.88)
Var. Output Gap (UE-15)	0.677*** (8.01)	0.793*** (3.55)
Var. Cyclic. Adj. Budget Balance t-1	-0.101 (1.40)	-0.078 (0.57)
Quality of the Budget t-1	0.088* (1.89)	0.112** (2.23)
Constant	1.885*** (6.73)	1.655*** (3.70)
Observations	297	163
Adj. R-squared	0.31	0.46
LR Chi 2(7)	72.66	110.71
Prob>Chi 2	0.000	0.000

Absolute value of t-statistics in parentheses

* significant at 10%; ** significant at 5%; *** significant at 1%

Nevertheless, the reverse side of this paradigmatic story of expansionary fiscal consolidations during the nineties was the parallel process of growing income inequalities. As shown in table 7, the difference between the average increase in GDP growth after expenditure-based fiscal adjustments and revenue-based ones is bigger in the nineties than in previous decades (compare with results in table 3), meanwhile the increase in income inequalities after expenditure-based adjustments that took place during the nineties, was also more pronounced and continues to increase in the large majority of European nations

Table 7. Macroeconomic Outcomes of Fiscal Adjustments, 1990-2000

	Non-Adjust.	Adjustment					
		Revenue-Based			Expenditure-Based		
		Before	During	After	Before	During	After
Macroeconomic Outcomes							
Real GDP Growth	2.74	1.96	2.26	2.66	1.74	2.56	3.61
Var. Real GDP Growth	0.01	0.03	-0.04	0.25	0.42	0.13	0.30
Unemployment Rate	8.54	8.24	8.42	9.10	9.35	8.84	8.82
Var. Unemployment Rate	-0.03	0.21	0.21	-0.09	0.55	-0.08	-0.67
Price Index	163.69	155.88	193.75	212.96	172.81	170.31	162.85
Inflation Rate	6.11	8.14	8.48	8.80	10.67	6.94	6.29
Inequality Index	32.43	30.60	31.08	31.41	29.30	30.28	34.64
Var. Inequality Index	0.09	0.03	0.07	0.10	0.05	0.24	0.65

Source: Own elaboration

Fiscal adjustments alone cannot be made the sole driving force responsible for the mentioned increase in income inequality during the nineties. The widening of the income distribution has been also exacerbated by two simultaneous factors, such as technological change that has increased the demand for highly paid skilled labour, and globalization of trade and production that has increased competition between low-paid workers in developing countries and the unskilled in industrialized ones (Ford, 1998). This is what has been named the “efficiency hypothesis” in some of the latest studies in globalization (Garrett, 1998; Kaufman and Segura-Ubiergo, 2001), according to which globalization of trade has imposed cuts in welfare spending as a means of gaining external competitiveness. The result of all these changes has been a U-turn in the trend of income inequality among advanced economies. As shown in table 8, the downward trend in inequality that characterized the sixties and the seventies turned into an upward trend of increasing inequalities from the mid eighties until today. Although the turning point can be generally identified at the beginning of the eighties, it varies across nations. For example, Scandinavian countries did not experience a rise in inequality until the nineties, while in others such as Germany and France, these increases were fairly modest.

Table 8. Historical Trends in Income Distribution, 1970-2000

	Mid-Early 1970s to Mid-Late 1980s	OECD Study 1980s	Mid-Late 1980s to Mid-Late 1990s
Austria	0	0	++
Belgium	0	+	+
Denmark			-
France	-	0 (-)	+
Finland	-	0	+
Germany	-	+	+
Greece			-
Italy	--	-	++
Ireland			+
Luxembourg			
The Netherlands	0	+	++
Portugal			-
Spain		-	+
Sweden	-	+	+
UK	++	+++	++
EU-15	-	0	+

Source: Smeeding (2000: 26)

Note: +++ (- - -) Significant rise/decrease in income inequality (more than 15%); ++ (- -) Moderate rise/decrease in income inequality (7%-14%); + Modest rise/decrease in income inequality (1%-6% increase); 0 No change (-1% to +1%).

Nevertheless, besides the obvious impact that globalization has had in widening income distribution and increasing inequality, it is also evident that growing income inequality in the European Union has run parallel to significant cuts in social spending along the decade, accelerated and accentuated in the run-up to EMU.

Some cases are specially relevant in this respect, such as Finland, Austria, Italy, the United Kingdom and Spain. In all of them, strong reductions of the relative share of social spending to GDP were accompanied by remarkable increases in income inequality. On the other hand, Portugal and Greece offer the positive side of the story, with transfers being maintained or increased during the mid-nineties, and income inequality being reduced.

There are some cases, however that do not fit exactly in the mentioned correlation between cuts in social transfers and increases in income inequality. France and Germany, for example, are two cases where income inequality increased in spite of moderate increases in transfers. While the German case is obviously explained by the process of German unification, and the effect of expanding the German Welfare State to the Eastern part of the country, the French case remains unclear. Something similar, but

with an opposite sign, happened with Denmark, the only country where inequalities were importantly reduced during the nineties in spite of a serious retrenchment in public transfers.

Table 9. Changes in Social Spending and Income Inequality, 1993-1997 (%GDP)

	Income Inequality	All Transfers (Total Change)	Major Transfers (Disaggregated Change)		
			Transfers to Working Age People (*)	Disability	Unemployment
Austria	1.1	-0.6	0.3	0.4	-0.1
Belgium	0.4	-1.2	-0.7	-0.3	-0.4
Denmark	-1.6	-1.1	-2.1	0.1	-2.0
France	0.1	0.2	-0.3	-0.1	-0.3
Finland	1.4	-4.3	-2.5	-0.9	-1.6
Germany	0.2	0.6	-0.1	0.1	-0.3
Greece	-0.2	0.7	-0.1	-0.1	0.0
Italy	1.5	-0.9	-0.4	-0.2	-0.2
Ireland	0.4	-2.3	-0.6	0.0	-0.7
Luxembourg	-0.2				
The Netherlands	0.5	-2.9	-1.2	-0.7	0.2
Portugal	-0.2	0.7	-0.1	-0.2	0.0
Spain	0.6	-2.3	-2.3	-0.1	-2.2
Sweden	0.4	-3.5	-1.2	-0.4	-0.6
UK	0.9	-1.3	-0.8	0.0	-0.8
EU-15	0.3	-0.4 (^)	-0.6	-0.1	-0.5

Source: Own elaboration. Data on social spending from EC (2001: 25). Data on Income Inequality from Smeeding (2000) and WIID (2000).

Note: Figures show changes between 1993 and 1997, all measured in terms of GDP, except the change in income inequality measured by the Gini coefficient.

(*) Includes unemployment, plus disability benefits, plus social assistance.

(^) Weighted by Real GDP share in 1997, excluding Luxembourg.

5. Conclusion

The clearest and most comprehensive way to conclude this paper and summarize all the empirical evidence presented until now, is to affirm that different strategies of fiscal adjustment bring about different economic consequences.

Expenditure-based adjustments that are preceded by bad economic and fiscal initial conditions, that are accompanied by a devaluation, and that succeed in cutting the least productive expenditures of the budget, are likely to have anti-Keynesian effects

and to be expansionary. Nevertheless, they do so at the expense of increasing income inequality. The opposite is true for revenue-based consolidations.

For expansionary fiscal adjustments to take place, demand-side effects in the form of crowding-in of the private sector, as well as supply-side effects in the form of lower labor costs and increased investment, usually take place simultaneously. The signal that expenditure-based adjustments send to private agents inform about the commitment of the government to a sustained fiscal effort, and this produces a credibility effect that is crucial for expansionary fiscal adjustments to take place.

The nineties epitomize the story of expansionary fiscal consolidations, but also the rebirth of the trade-off between growth and equality, mediated by fiscal policy. Since the process of fiscal adjustment imposed by the Maastricht criteria arrived in a moment of special fiscal stress for public finances across Europe, credible spending cuts succeeded in attracting private investment and consumption, and therefore accelerated growth. However, the negative side of the strongest episode of fiscal adjustment in Europe in the last three decades has been the progressive widening of income distribution and the increase in inequalities that have reached in the nineties its higher levels as well.

In this respect, the choice between revenue-based and expenditure-based adjustments has to be informed by their likely economic consequences shown in this paper, and this strategic decision is therefore subject to the concrete preferences over growth and equality that every government may have.

Appendix 1. The Empirical Literature on the Economic Impact of Fiscal Adjustments

Table A.1. Cross-Section Studies of Expansionary Fiscal Contractions

Authors	Sample	Definition of Contraction	N. of Episodes	Type of Analysis
McDermott and Wescott (1996)	20 OECD countries, 1970-95	Primary structural balance improves by at least 1.5% of GDP in two years.	74	Correlations of averages across groups of episodes
Giavazzi and Pagano (1996)	19 OECD countries, 1970-92	Any period when the primary structural balance moved in a consistent direction; a cumulative 5 percentage point of GDP change marks a “large” consolidation.	223	Panel regressions of consumption functions (error correction specification)
OECD (1996)	All OECD countries, 1975-95	Primary structural balance improves by 3% of GDP in consecutive years.	15	Correlations of averages across groups of episodes
Cour, Dubois, Mahfouz, and Pisani-Ferry (1996)	17 OECD countries, 1970-94	Continuous improvement in primary structural balance, including an “intense” subperiod.	19	Correlations of averages across groups of episodes, consumption functions estimated across countries.
Alesina and Perotti (1997)	20 OECD countries, 1960-94	Primary structural balance improves by at least 1.5% of GDP in one year or 1.25% of GDP in two consecutive years.	62 years of tight fiscal policy	Correlations of averages across groups of episodes.
Alesina and Ardagna (1998)	All OECD countries, 1960-95	Primary structural balance improves by 1.5% of GDP in two consecutive years.	51, of which 23 expansionary	Correlations of averages across groups of episodes.
Alesina, Perotti, and Tavares (1998)	19 OECD countries, 1960-95	Primary structural balance improves by 1.5% GDP in one year.	69, of which 19 successful	Correlations of averages across groups of episodes.
Alesina, Ardagna, Perotti, and Schiantarelli (1999)	18 OECD countries, 1960-96	Primary structural balance improves by at least 2% of GDP in one year or 1.25% of GDP in two consecutive years.	Not given	Correlations of averages across groups of episodes, investment equations from pooled regressions.
Perotti (1999)	19 OECD countries, 1965-94	Not given	Not given	Panel regressions of consumption functions (Euler equation specification).
Giavazzi, Jappelli, and Pagano (2000)	18 OECD countries, 1970-96	Not given	38 expansions 65 contraction	Panel regressions of national saving rates.

Source: IMF (2000: 20-21)

Table A.1 (continuation). Cross-Section Studies of Expansionary Fiscal Contractions

Authors	Main Evidence of Expansionary Contractions	Channels	Characteristics of Expansionary Contraction
McDermott and Wescott (1996)	For successful consolidations, GDP growth rate relative to OECD average: -0.2% (before), 0.1% (during) and 0.7% (after)	For expansionary contractions, mostly through investment; for debt-increasing expansions, crowding-out of investment; for stable-debt expansions, growth via consumption	Size is important, as composition; expenditure cuts (specifically transfers and government wages) more likely to be successful; timing with respect to world business cycle also important.
Giavazzi and Pagano (1996)	For large/persistent consolidations, \$1 increase in taxes (cuts in transfers) raises private consumption by 15-20c in long run	Private sector consumption (other channels not tested)	Size and persistence most important; clearer effects for government spending but also for taxes and transfers.
OECD (1996)	Four of 15 consolidations had growth above potential and six were within 1% point of potential	Not addressed	Supportive monetary policy helps avoid adverse activity consequences.
Cour, Dubois, Mahfouz, and Pisani-Ferry (1996)	Large retrenchments on average led to 0.1% reduction in G-7 corrected growth, but small retrenchments led to 0.4% reduction. Non-Keynesian retrenchments had higher growth rate of private consumption than predicted by a standard consumption function.	Consumption most important.	Size most important; other factors not clear.
Alesina and Perotti (1997)	For successful consolidations, GDP growth rate relative to OECD average: -0.2% (before), 1.1% (during), and 0.3% (after)	Emphasizes impact of unit labor costs and competitiveness, and hence on investment and exports.	Composition is crucial.
Alesina and Ardagna (1998)	For expansionary contractions, GDP growth rate relative to G-7 average: 0.2% (before), 1.3% (during), and 0.9% (after).	Emphasizes impact on unit labor costs and competitiveness, and hence on investment and exports.	Composition more important than size; income policy and exchange rate depreciation are important preconditions.
Alesina, Perotti, and Tavares (1998)	For successful consolidations, GDP growth rate relative to OECD average: -0.3% (before), 0.1% (during), and 0.2% (after)	Investment more important than consumption; labor market also important.	Composition more important than size; labor market structure also important.
Alesina, Ardagna, Perotti, and Schiantarelli (1999)	1% cut in primary spending leads to 0.2% increase in investment after impact, and 0.8% increase after 5 years, similar effects for 1% increase in labor taxes; larger effects for cuts in government wages.	Tax and spending affect labor costs, and hence profits and investment.	Composition is crucial.
Perotti (1999)	Expenditure shocks have Keynesian effects with low debt or deficits, but non-Keynesian effects with high debt or deficits; evidence on similar switch with tax shocks is less strong.	Private sector consumption (other channels not tested).	Initial fiscal conditions are crucial; composition is also important..
Giavazzi, Jappelli, and Pagano (2000)	Non-Keynesian responses by private sector more likely when fiscal impulses are large and persistent.	Private sector consumption/saving (other channels not tested)	Size and persistence most important; but not initial fiscal conditions. Non-Keynesian effects larger for changes in taxes than spending, an for contractions rather than expansions.

Source: IMF (2000: 20-21)

As can be observed from the previous summary, all studies identify expansionary fiscal adjustments. Growth rates tend to respond more favorably to episodes of successful fiscal consolidation²⁷ than do episodes of unsuccessful consolidation. The same is true of unemployment rates. However, the quantitative impact of fiscal consolidations (that is, the size of the associated –negative- multipliers) varies markedly across successful and unsuccessful consolidations.

The characteristics of expansionary fiscal consolidations are not completely clear. Some studies as Cour, Dubois, Mahfouz, and Pisani-Ferry (1996), Giavazzi and Pagano (1996), and Giavazzi, Japelli, and Pagano (2000) find that large consolidations are most effective. While Alesina and Perotti (1997) and subsequent studies by the same authors emphasize instead the composition of adjustment, and in particular the gains from cutting transfers and other forms of unproductive spending, McDermott and Wescott (1996) conclude that both the size and composition of fiscal consolidation are important, which is precisely what has been found in this paper too.

Initial fiscal conditions and the other economic policies that accompany fiscal consolidation may also play a role. While some studies find no evidence that these things are important, OECD (1996), Alesina and Ardagna (1998) and Perotti (1999) suggest that the initial level of debt, an exchange rate depreciation preceding consolidation, wage restraint, and/or fiscal consolidation in the context of broader structural reform influence whether a fiscal consolidation is expansionary or contractionary.

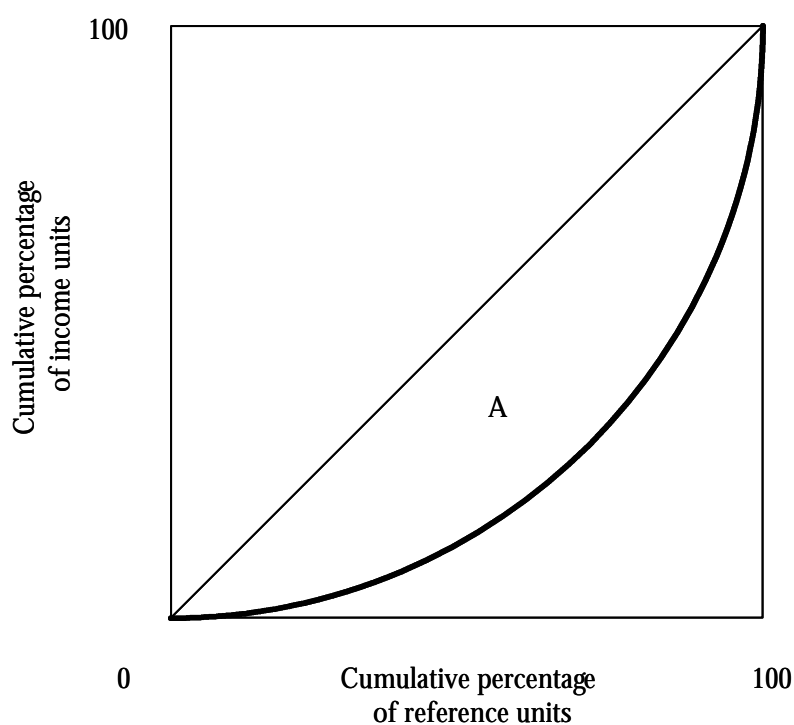
Finally, the investment response to fiscal consolidation is important in some studies. Although the theoretical literature emphasizes the role of private consumption, Alesina and Ardagna (1998) and Alesina, Perotti and Tavares (1998) find that the behavior of investment prior to, during, and after fiscal consolidations is also significant, and in some cases more important, determinant of growth. Further evidence supporting this thesis has been also provided in this paper.

²⁷ Successful consolidations are larger, of longer duration, or have a significant impact on the debt ratio.

Appendix 2. The Lorenz Curve and the Gini Coefficient²⁸

The following gives a brief graphical explanation of the Gini coefficient and the construction of equivalence scales. For further reference on these and other issues related to the design and analysis of household surveys, see Deaton (1997).

Figure A.1. The Lorenz Curve and the Gini Coefficient



A straightforward graphical interpretation of the Gini coefficient is the Lorenz curve, which is the thick curve in the figure above. The horizontal axis plots the cumulative percentage of the population whose inequality is under consideration, starting from the poorest and ending with the richest. The vertical axis plots the cumulative percentage of income associated with the units on the horizontal axis. In the case of a completely egalitarian income distribution in which the whole population has equal incomes, the Lorenz curve would be the dashed straight 45-degree line. When inequality exists, the poor population has a proportionately lower share of income compared with the rich population, and the Lorenz curve may look like the above thick curve below the 45-degree line. As inequality rises, so the thick curve moves towards the bottom right-hand corner.

²⁸ World Income Inequality Database (2000: 21)

The Gini coefficient is the area A between the 45-degree line and the Lorenz curve. The Gini coefficient may be given as a proportion or percentage. From this it is clear that the Gini coefficient will be equal to 0 when the distribution is completely egalitarian. If the society's total income accrues to only one person/household unit, leaving the rest with no income at all, then the Gini coefficient will be equal to 1, or 100%.

Appendix 3. The Economic Impact of Fiscal Adjustments during the 1990s. Complementary Data

Table A.2. Initial Fiscal Conditions, Budget Composition and Strategies of Fiscal Adjustments, 1990-2000

	Non-Adjust.	Adjustment					
		Revenue Based			Expenditure Based		
		Before	During	After	Before	During	After
Fiscal Policy							
Debt Ratio	66.64	75.80	81.80	86.65	68.85	65.68	68.07
Var. Debt Ratio	0.30	2.09	1.90	-0.49	2.42	0.39	-2.31
Budget Balance	-2.84	-5.18	-4.72	-3.50	-5.56	-3.40	-1.76
Var. Budget Balance	0.26	-0.81	1.11	0.75	-0.59	1.41	0.81
Total Revenues	46.87	45.92	45.76	47.17	46.81	48.30	46.53
Var. Total Revenues	0.31	0.08	1.26	-0.08	-0.01	0.76	-0.21
Total Direct Taxes	14.38	14.74	14.51	15.38	15.08	15.87	14.21
Var. T. Direct Taxes	-0.04	0.04	0.78	-0.03	-0.15	0.37	-0.08
Total Expenditures	50.31	51.18	50.15	50.53	54.45	52.44	49.35
Var. Total Expenditures	0.13	0.48	0.03	-0.12	0.74	-0.67	-0.74
Total Transfers	12.23	11.87	11.06	11.74	13.11	12.30	11.52
Var. T. Transfers	-0.02	-0.09	-0.05	-0.01	0.03	-0.26	-0.24
Total Public Wages	18.89	19.18	18.81	17.61	18.91	17.47	11.52
Var. T. Public Wages	-0.05	-0.09	0.20	-0.01	0.30	-0.80	-0.64
Total Pub. Investment	2.82	2.51	2.54	2.70	2.78	2.46	2.33
Var. T. P. Investment	0.01	-0.01	0.01	0.05	-0.03	-0.07	-0.04

Source: Own elaboration

Table A.3. Monetary Policy and Fiscal Adjustments, 1990-2000

	Non-Adjust.	Adjustment					
		Revenue Based			Expenditure Based		
		Before	During	After	Before	During	After
Monetary Policy							
Real Interest Rate (ShTerm)	4.13	5.71	5.17	4.90	4.71	3.75	3.22
Var. Real Interest Rate	-0.24	-0.13	-0.23	-0.22	-1.13	-0.36	-0.40
Real Interest Rate (G4)	0.04	0.86	0.99	1.00	0.47	-0.30	0.31
Real Exchange Rate	100.46	100.87	101.79	101.69	99.65	106.60	100.63
Var. Real Exchange Rate	-0.44	0.67	0.28	-0.14	-2.66	0.96	0.40
Source: Own elaboration							

Table A.4. Microeconomic Outcomes, Trade Policy Outcomes and Fiscal Adjustments, 1990-2000

	Non-Adjust.	Adjustment					
		Revenue Based			Expenditure Based		
		Before	During	After	Before	During	After
Microeconomic Outcomes							
Private Consumption	56.59	56.44	57.82	56.77	56.22	57.63	58.71
Var. Private Consumption	-0.09	-0.07	0.11	0.02	-0.04	0.43	0.69
Private Investment	17.83	16.82	17.37	16.71	16.74	17.41	18.44
Var. Private Investment	-0.09	0.11	0.27	-0.21	0.05	0.30	0.62
Labor Costs Index	100.65	102.20	102.05	100.25	102.41	100.07	99.60
Var. Labor Costs	-0.63	-0.12	-0.15	-0.29	-1.20	-1.34	-1.63
Profits Share	31.73	31.67	31.02	31.74	31.20	31.98	32.12
Var. Profits Share	0.03	0.05	0.02	0.07	0.04	0.46	0.27
Trade Policy Outcomes							
Imports	40.81	41.29	39.70	40.35	35.76	36.74	39.63
Var. Imports	1.33	0.97	0.43	0.97	1.67	1.54	1.76
Exports	31.19	29.60	27.50	28.37	29.46	30.47	36.14
Var. Exports	1.17	0.54	0.46	1.02	1.55	1.66	1.43
Trade Balance	2.04	1.33	0.88	1.72	1.41	2.07	2.86
Var. Trade Balance	0.27	0.10	0.70	0.11	0.41	0.83	0.33
Source: Own elaboration							

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