THE CRISIS, AUTOMATIC STABILISATION, AND THE STABILITY PACT

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This paper describes recent trends on the effectiveness of stabilisers in the European Union. Using both macro evidence on the cyclical sensitivity of budget deficit to economic activity and micro evidence on the tax and expenditure profiles, we conclude, in agreement with the recent literature, that the importance of automatic stabilisation has decreased. After remarking that this trend is contradictory with the current economic institutions of Europe, which rely exclusively on automatic stabilisation for the conduct of fiscal policy, we argue that increasing flexibility, one alternative way to reduce cyclical fluctuations, does not seem a viable path. The paper concludes defending the appropriateness of discretionary fiscal policy. We argue by means of a simple model that the theoretical arguments against its use are not conclusive, and we describe a recent stream of literature, based on structural VAR models, that concludes rather robustly for the effectiveness of discretionary fiscal policy in the short and long run.

1   Introduction

The recent economic crisis and financial turmoil had an unexpected consequence: fiscal policies, for a longtime banned from the policymaker toolbox following the conclusions of the New Classical Macroeconomics (NCM) School, have been praised for their capacity to sustain aggregate demand and to dampen the cycle (Arestis and Fontana, 2009).

Though fiscal policies have gained legitimacy in the policymaking sphere, the NCM influence remains present, for example because it is still embedded in the European Stability and Growth Pact. Due to large swings in public deficits and debts, European institutions, like governments, the European Commission and the European Central Bank, are beginning to call for a reversal of fiscal stances in order to gain credibility and have public deficits converge below the 3 per cent of GDP threshold. The underlying message is simple: deficits have grown in bad times, through the full play of automatic stabilisers and the implementation of fiscal stimulus packages. Provided good times are coming back, a symmetric evolution of deficits is required, through automatic stabilisers, still, and fiscal contractions.

The underlying analysis seems reasonable, but under specific assumptions that need to pass a comprehensive empirical test. Among these assumptions, one of the most dramatic is surely the one related to the full play of automatic stabilisers. For well-known political economy mechanisms, it is easier to have deficits reduced automatically than through a political inertial process that is generally not prone to encompassing the academic ideas of reducing the scope of governments (the ratchet effect argument). Were automatic stabilisers strong, then smaller fiscal packages would be required to counter a given shock like the current crisis; more importantly, on one side it would be easier to bring back deficit and debt under control, and on the other the requirement for reducing the scope of governments after the crisis is over would also be smaller.

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As a consequence, in order to assess the consistency of the current thinking on EU fiscal policies, it is important to review the level, evolution over time and effectiveness of automatic stabilisers in the EU. A strong or increasing role for automatic stabilisers in the EU would reinforce the current arguments about exit strategies and the necessity of a fast reduction of public deficits. If the opposite were true, an inconsistency would emerge, between the severeness of the crisis and the call for a quick reversal of discretionary fiscal policies. Our paper aims at shedding light on this issue.

If automatic stabilization does not (or no longer) suffice to ensure macroeconomic stabilization, there may be the need to bring discretionary policies to the foreground. The second objective of this paper is thus to provide a summary of the recent debate, both from a theoretical and an empirical viewpoint.

In fact, if it were to be concluded that discretionary fiscal stances are detrimental to macroeconomic stability, it seems reasonable to favour a quick reversal of the current fiscal stimulus policies. Thus we give an assessment of the effects of fiscal policy on GDP. First, we discuss the effectiveness of discretionary fiscal policies as a growth-enhancing factor; second, we assess the actual ability of the Stability and Growth Pact to enhance macroeconomic stability.

The rest of the paper is organised as follows. Part 2 provides a reduced-form model that helps shedding light on the precise and crucial assumptions for fiscal policy to entail non-Keynesian effects. Part 3 reviews and discusses different approaches to estimating the scope and effectiveness of automatic stabilisers. Part 4 turns to the question of macroeconomic stability and presents estimations of the cyclical components of real GDP for the euro area for a different set of frequency bands. Part 5 concludes on the pros and cons of going beyond automatic stabilisers *via* discretionary fiscal policies.

2   Preliminary thoughts about non-Keynesian effects of fiscal policy

The economic institutions of Economic and Monetary Union in their actual design stem from two main sources. The first is the founding Treaty signed in Maastricht in 1991, and the second is the Amsterdam Treaty of 1997, that completed the setup with the Stability and Growth Pact (hereafter SGP).

The Maastricht Treaty defined the convergence criteria that countries had to fulfil in order to be admitted to the single currency area. In particular, it required a deficit to GDP ratio of no more than 3 per cent, and a public debt below 60 per cent of GDP, or approaching that level at a satisfactory pace.

The Amsterdam Treaty contains further provisions regarding fiscal policy that have the objective of increasing transparency and control on public finances. The Stability and Convergence Programmes that each year Member States present to the Commission have to contain a medium-term objective for the budgetary position of close to balance or in surplus, together with an account of the adjustment path towards the objective. The Excessive Deficit Procedure states what deviations from the 3 per cent budget deficit ceiling are acceptable and describes the sanctions for the violators. As of March 2010, no country has been fined, although disapproval of budget positions in some countries has been expressed, and the current crisis in Greece is highlighting the powerful effect of the SGP as a peer-pressure instrument.

The prolonged period of low growth experienced by most Euro area countries (especially the largest ones), and the increasing number of countries struggling to maintain their deficits within the limits set by the Stability and Growth Pact (SGP), have triggered a debate on the flaws of the current fiscal framework, and on possible reforms aimed at a better functioning of fiscal policy in

Europe.[1] The reform adopted by the European Council in March 2005 relaxes somewhat the medium term objective of a zero structural deficit for countries with low debt and/or with high potential growth; furthermore, it contemplates a number of circumstances (e.g., a strong engagement in costly structural reforms) allowing temporary deviations from the deficit ceiling, and longer delays for correcting them.

The requirement to attain a position of close to balance or surplus in the medium term is an important innovation of the SGP with respect to the Maastricht Treaty, and it was left substantially unchanged by the reform of 2005. In fact, it implies the strong consequence that public debt as a ratio to GDP should tend asymptotically to zero, a position hard to justify *per se* (de Grauwe, 2003).

Even after the reform of 2005, the focus of the Stability and Growth Pact has been on the full operation of automatic stabilisers which would allow the implementation of a counter-cyclical short run fiscal policy. However, recent assessments of fiscal policies in the EU-15 have either pointed to their a-cyclicality (Galí and Perotti, 2003) or to their pro-cyclicality (Farina and Ricciuti, 2006). This raises doubts about the effectiveness of automatic stabilisers all over Europe.

Before turning to an evaluation of this latter point, it is worth recognising that the EU fiscal framework is based upon an unfriendly view of fiscal policy that largely stems from the New Classical Macroeconomics. Under the assumption of perfect sighted households and firms, the effects of fiscal policy are consistent with the so-called Ricardian approach *à la* Barro (1974). Consequently, higher (lower) deficits produce higher (lower) private savings and lower (higher) consumption that may more than compensate the effect increase (decrease) of public demand. This mechanism, according to Giavazzi and Pagano (1990), explained why fiscal contractions in Denmark and Ireland proved expansionary. Bertola and Drazen (1993) and Sutherland (1997) developed theoretical models with non-linearities in the consumption function that led to non-Keynesian effects of fiscal policy.

It may be useful then, to better understand the conditions under which non Keynesian effects may appear. A very simple model allows to show that a crucial role is played by public spending irresponsibility and very few liquidity-constrained households.

Take an economy in which a proportion μ of households are liquidity constrained. As in Hayashi (1982) and Campbell and Mankiw (1990), liquidity-constrained individuals cannot borrow or lend, so that they consume all their disposable income in each period. The economy lasts 2 periods. During the first, labelled "Keynesian", demand drives production, while during the second, labelled "Classical", the contrary holds. Assuming there is no investment, the usual demand equations give:

$$y_1 = c_1 + G_1 \tag{1}$$

$$y_2 = \overline{y} \tag{2}$$

where subscripts refer to time periods, y is production or demand, c is private consumption and G are public expenditures.

Unconstrained individuals smooth consumption over their entire horizon: their consumption depends on their permanent income. They maximise their intertemporal utility function subject to the usual intertemporal budget constraint:

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[1] For detailed accounts of the debate on reforming the Pact, see, e.g., Arestis *et al.* (2001); Buti *et al.* (2003); Farina and Tamborini (2007); and Fitoussi and Le Cacheux (2007).

$$Max \quad u = \ln(c_1) + \beta \ln(c_2)$$

$$s.t. \quad c_1 + c_2 = R$$

where $R = y_1 + y_2 - (T_1 + T_2)$ is lifetime income, defined as the sum of disposable incomes, β is the discount factor, and T is total taxes on individuals. To simplify the exposition and without loss of generality, a zero interest rate on savings and a constant intertemporal price of consumption are assumed. Under perfect foresight, the solution gives:

$$c_1 = \frac{1}{1+\beta} R$$

$$c_2 = \frac{\beta}{1+\beta} R \tag{3}$$

Aggregate consumption of liquidity-constrained and unconstrained individuals in period 1 can thus be written as:

$$c_1 = \mu(y_1 - T_1) + (1-\mu)\frac{1}{1+\beta} R \tag{4}$$

The government has an intertemporal budget constraint (BC):

$$B_0 + G_1 + G_2 = T_1 + T_2 \tag{5}$$

where B_0 represents the initial level of public debt in the economy.

Following Perotti (1999), present and future public expenditures are assumed to be correlated, *i.e.* to follow an inertial process whose strength depends on the value of a "stickiness" parameter ρ:

$$G_2 = \overline{G} + \rho G_1 \tag{6}$$

where $\overline{G}$ are discretionary expenditures in period 2.

Defining $B_0 + \overline{G} = \Gamma$, the BC becomes:

$$\Gamma + (1+\rho)G_1 = T_1 + T_2 \tag{7}$$

Substituting (4) in (1) gives:

$$y_1 = G_1 + \mu(y_1 - T_1) + \frac{(1-\mu)}{1+\beta}\left(y_1 + y_2 - \Gamma - (1+\rho)G_1\right)$$

$$\tag{8}$$

$$= \frac{\beta + \mu - \rho(1-\mu)}{\beta(1-\mu)} G_1 - \mu\frac{1+\beta}{\beta(1-\mu)} T_1 + \frac{1}{\beta}\left(y_2 - \Gamma\right)$$

from which the multiplier effect of public spending on short-run GDP can be computed: $\frac{\partial y_1}{\partial G_1} < 0 \Leftrightarrow \rho(1-\mu) > \beta + \mu$. It is then straightforward to show that non-Keynesian (NK) effects occur if and only if:

$$\mu < \frac{\rho - \beta}{1 + \rho} \tag{9}$$

Assume for the time being that no household is liquidity constrained (μ=0). In that case, the necessary and sufficient, condition to satisfy inequality (9) is $\rho > \beta$. Intuitively, in this simplified framework, if an increase in expenditure today is perceived as permanent (high ρ), and consumers are not patient enough (low β), then G crowds out private expenditure and has negative effects on income. NK effects would thus appear if the degree of persistence of fiscal policy is larger than the discount factor: long-lasting expenditure cuts would improve permanent income as individuals would expect lower taxes in period 2. If some households are liquidity constrained ($\mu > 0$), then the condition $\rho > \beta$ is necessary but not sufficient, as a number of households are unable to smooth consumption over periods. There are a number of reasons for considering that condition (9) is not likely to be met. First, it is really tricky to obtain: with a share of liquidity-constrained households (μ) equal to one third, and a discount factor (β) equal to 0.95, the degree of persistence in public expenditures necessary to yield NK effect would have to be extremely high ($\rho \geq 1.95$), *i.e.*, we would need to assume that government expenditure follows an explosive path, and that the model diverges form thte steady stated.. More in general, as the fraction of liquidity-constrained agents increases, the area of NK effects decreases, so that assuming NK effects is equivalent to assuming the existence of a large enough number of Ricardian consumers; however, the empirical validity of the second assumption is very disputable (see Ricciuti, 2003, for an assessment and survey of the literature).

If NK effects emerge as the exception rather than the rule, especially when the proportion of liquidity constrained individuals is large and increasing, fiscal policy becomes a tool available for smoothing economic fluctuations. Because of the design of European fiscal institutions, automatic stabilization, is particularly important, through its direct incidence on disposable income and through increased social expenditure.

3 About the effectiveness of automatic stabilisers in the EU

The current crisis, and the subsequent increase in the number of liquidty constrained households and firms, has renewed interest in automatic stabilizers; this is evident from the number of recent papers devoted to this topic in the very recent past, that contrast with the relative neglect of the previous decade Still today, the number of published articles is very limited.[2]

Afonso and Furceri (2008) are critical on the strength of automatic stabilizers in the Euro area and the EU-15. Crespo Cuaresma *et al.* (2009) study the smoothing impact of EU automatic stabilizers and call for a full account not only of the variation but also of the level of government size in order to better assess the non-linearities in this smoothing impact. Both papers endorse a panel data methodology and limit automatic stabilizers to the usual five elements of the government budget: household direct taxes, business direct taxes, social security contributions, indirect taxes and unemployment compensation (see Giorno *et al.*, 1995 and Van den Noord, 2000). These are then studied independently.

In contrast, Darby and Mélitz (2008) enlarge the definition of automatic stabilizers. They depart from the usual taxonomy as they extend the analysis to a wider set of public spending: they show that age- and health-related social expenditures and incapacity benefits have a role to play as automatic stabilizers: they also help to cushion the business cycle. Though Darby and Mélitz

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[2]   A quick search of "automatic stabilisers" or "automatic stabilizers" in the abstract of "journal articles" under EconLit leaves us with 72 articles; as a matter of comparison, searching for "inflation target" gives 726 results over the same period.

helped to renew interest for automatic stabilizers, they do not investigate their changing strength over time since the euro has been adopted. They split their sample in 1992, before the convergence process began in the EU.

From earlier literature, a consensus emerged on fiscal policy, which has to be limited to automatic stabilisation, banning discretionary intervention from the toolbox of policy interventions. The standard argument maintains that the limit of total deficit to 3 per cent, coupled with the requirement of structural balance, could avoid fiscal indiscipline (thus protecting central bank independence, and ensuring fiscal sustainability), while letting enough room for automatic stabilisation to take care of country specific shocks (see, e.g., Brunila *et al.*, 2002). Nevertheless, some empirical studies (see, e.g., Barrell and Pina, 2004) pointed to the fact that the initial levels of debt-to-GDP ratios and cyclically-adjusted deficits in some Euro area Member States might have been too high on the wake of adopting the euro to permit the automatic stabilisers to operate freely within the constraints of the SGP.

It is well-known that the effectiveness of automatic stabilisers depends on the sensitivity of government revenues and spending to economic fluctuations and on the sensitivity of economic activity to cyclical changes in government revenues and spending. Among the factors affecting budgetary sensitivity, the literature highlights the size of the public sector, the progressivity of the tax and benefit system, the sensitivity of tax bases to economic fluctuations, the institutional time profile of the tax system,[3] the level of unemployment benefits and the sensitivity of unemployment to fluctuations in economic activity. Other factors, such as the nature and size of shocks, have an influence on the effectiveness of automatic stabilisers. Finally, the overall flexibility of the economy may also dampen the shocks; that may in turn overstate the effectiveness of automatic stabilisers.

In the following, we review the evolution of these different factors over time, distinguishing the macro evidence from the micro evidence on the effectiveness of automatic stabilisers in the EU since the adoption of the euro.

3.1   *Automatic stabilisers: macro evidence*

We begin with a summary, in Table 1, of the main conclusions of different well known macroeconometric models that estimate the percentage of fluctuations in output which are smoothed by automatic stabilisers. We also report recent estimations of the smoothing contribution of automatic stabilisers by OECD economists. Though some models have been recently updated (for example, the QUEST model of the Commission), it has not been possible to find updates of estimates of the smoothing national properties of automatic stabilisers.

The most striking result is the heterogeneity among countries in terms of the sensitivity of economic activity to the cyclical changes in government revenue and spending. The standard error of business cycle smoothing through automatic stabilization across countries goes from 2 to 8 per cent, for an average of 19 per cent across models and countries. Moreover, the extent of smoothing for a country is quite different from one model to the other and the standard errors across models are large, ranging from 6 per cent for Germany to 12 per cent for the Netherlands. In spite of these discrepancies, which stem from the different model properties (the early inclusion of Ricardian consumers in NiGEM explains why the smoothing contribution is so small), overall, Table 1 shows that the scope of automatic stabilisers in the EU is low: at best, they smoothed a

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[3]   By this we mean that automatic stabilisers are more effective if, e.g., main tax revenues come from taxes which are very sensitive to economic fluctuations and whose lags are short. For example, corporate taxes are generally very sensitive to the economic cycle but delays in collection reduce the overall effectiveness of this tax as a prominent automatic stabiliser.

Table 1

Effectiveness of Automatic Stabilisers Across EU Countries
(percent)

	Bundesbank Model (1)	QUEST Model (2)	NiGEM Model (3)	INTERLINK Model (4)
France	19	23	7	14
Italy	14	21	5	23
Netherlands	14	20	6	36
United Kingdom	24	18	n.a.	30
Germany	23	17	18	31
Unweighted average	18.8	19.8	9.0	26.8
Std error	4.8	2.4	6.1	8.5

Note: percentage of fluctuations in output which are smoothed by automatic stabilisers.
Sources: (1) Scharnagl and Tödter (2004); (2) European Commission (2001); Barrel and Pina (2004); Van den Noord (2000).

maximum of 36 per cent of economic fluctuations and at worst only 5 per cent of them. This latter outcome is definitely consistent with Afonso and Furceri (2008) recent EU estimates with panel data: between 1980 and 2005 economic smoothing by social contributions and social benefits is close to 5 per cent, and to 7 per cent respectively. Moreover, the authors do not find a substantial change in economic smoothing once they limit the sample to more recent years.

Drawing on estimations by Blix (2008), it can be shown that the average cyclical sensitivity of public expenditures to a 1 percentage change in the output gap in EU countries is low (–0.2) and varies much across the sample of countries (standard error equal to 0.2). It comes that the homogeneity of fiscal rules at the level of countries in the EU is contradictory with the heterogeneity of empirical rules since the 1980s.

To summarize, there is evidence that the sensitivity of economic activity to cyclical changes in government revenues and spending has been rather low. If the macro effectiveness of automatic stabilisers is dubious, what about the efficiency of automatic stabilisers viewed as the sensitivity of government revenues and spending to economic fluctuations?

3.2 Recent changes in revenue and expenditure trends: Micro evidence

It was recalled earlier that the full working of automatic stabilisers rests predominantly on the size of the public sector, on the structure of the tax and benefit systems and on the level of unemployment benefits and their sensitivity to economic fluctuations. The evolution of these factors is described in the next subsections.

3.2.1 The size of the public sector

Since the seminal paper of Galí (1994), there have been many attempts to link the size of

Figure 1

General Government Size in the EU
(percent of GDP)
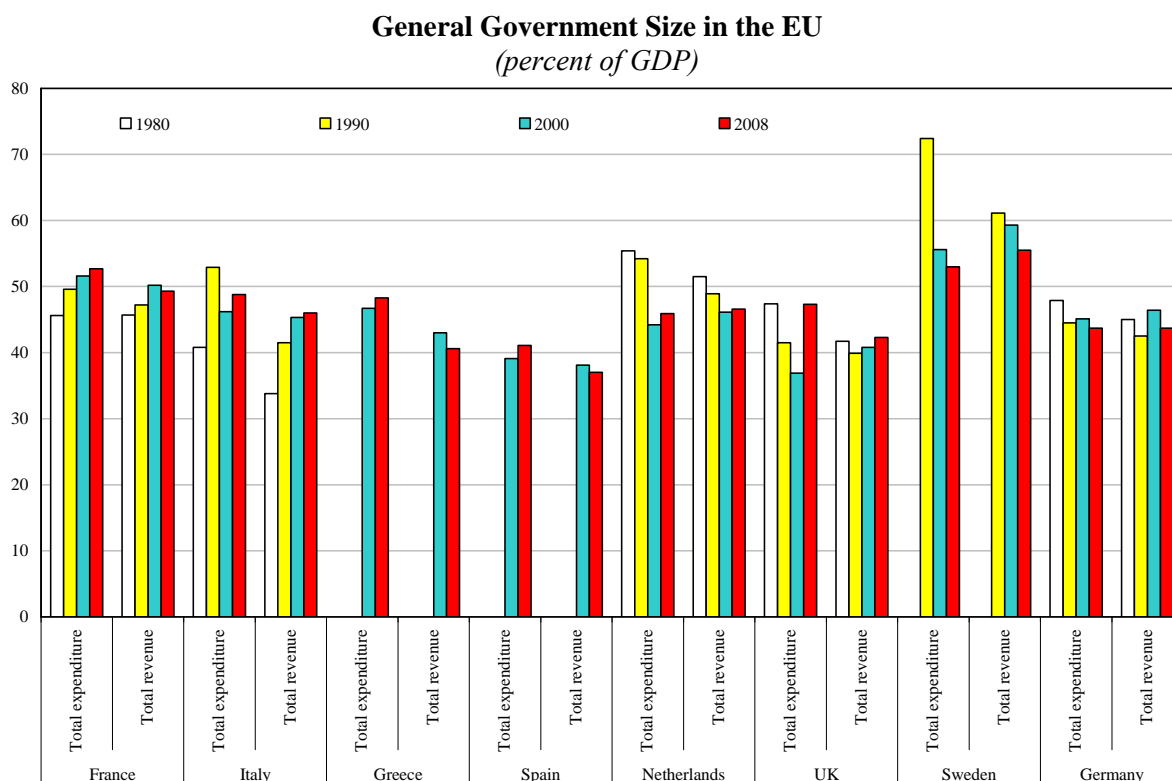
Source: Eurostat.

governments, using either the levels of expenditures or tax receipts, to output volatility/stability. Galí opted for a cross-country study involving only tax receipts, whereas Van den Noord (2000) used public spending. Both showed that higher government size corresponds to lower output volatility.

Using a sample of 20 OECD countries, Fatás and Mihov (2001) also showed that government size and the volatility of the business cycle were negatively correlated; they concluded that larger governments had more effective automatic stabilisers. Government size was measured by the ratio of public expenditures or tax revenues to GDP. Lee and Sung (2007) confirmed earlier results by Fatás and Mihov (2001), though they improved the methodology, using IV empirical techniques and making a distinction amongst public spending. Debrun *et al.* (2008) found out that above a threshold level of public spending, the effectiveness of automatic stabilisers was sharply reduced. They also pointed to a decrease in effectiveness since the 1990s.

Figure 1 displays the level and evolution of government size in eight EU countries. Three groups of countries emerge with one outlier. The Netherlands, Sweden and Germany have reduced the size of their governments, in terms of revenues and expenditures, whereas France and Italy have rather increased it. Greece and Spain, over a shorter sample, constitute a third group in which spending has increased whereas tax receipts have been reduced. The UK is the outlier: until 2006, this country joined the first group, but the financial turmoil has been so dramatic that public spending (over GDP) has recently sharply increased. This evolution stands in sharp contrast with what had happened since the 1980s. For the countries of the first and, to a lesser extent, the third

Table 2

Reduction of Interdecile Inequality After Fiscal and Social Transfers
(percent)

Country	D5/D1		D10/D5	
	1998	**2001**[**]	**1998**	**2001**[**]
EU-15[*]	–43.7	–42.0	–31.1	–32.4
France	–40.1	–37.6	–29.0	–29.4
Germany	–59.5	–66.5	–30.4	–34.1
Italy	–16.7	–17.2	–25.7	–28.7
Netherlands	–59.3	–57.0	–28.1	–23.4
Spain	–27.9	–29.1	–41.2	–34.6
Ireland	–91.7	–90.2	–33.0	–41.7
United Kingdom*	–76.4	–78.5	–35.1	–35.5

[*] indicates XXX euros adjusted for PPP.
[**] indicates the year 2003 for Germany, the Netherlands and UK; 2005 for Spain.
Sources: EUROMOD statistics on Distribution and Decomposition of Disposable Income, accessed at: www.iser.essex.ac.uk/msu/ emodstats/DecompStats.pdf on 1998 and 2001 (2003, or 2005) using EUROMOD version 31A; computations by the authors.

group, and following Fatás and Mihov (2001), it can be concluded that automatic stabilisers are now less effective than in the past. An opposite conclusion holds for France and Italy. On average, total expenditures and total revenues have decreased since the 1990s. As for the discrepancy across EU countries, when measured by the standard error of cross-country public spending, it was at its lowest in 2008 (4.1 per cent), in comparison with 11 and 6 per cent in 1990 and 2000 respectively: there has been strikingly more homogeneity in government spending in the EU than in the past, and a time when the size of governments was on average on a downward trend. The same conclusion holds for total revenues.

3.2.2 *The progressivity of the tax and benefit system*

Since the end of the 1990s, there has been a sharp modification in the tax and benefit systems of the EU-15 countries: In many of them the redistributive role of the system[4] has been attenuated, while at the same time top marginal tax rates were reduced.

Aggregate data at the EU-15 level tell a mixed story. Between 1998 and 2001 (comparable data are not available for other years), the distribution of disposable income[5] remained constant, the three first deciles receiving 14 per cent of total disposable income, the next four 35 per cent, and the highest income groups more than 50 per cent. A comparison of interdecile ratios for disposable and pre-tax incomes shows instead a change between 1998 and 2001: Table 2 shows that the

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[4] A redistributive system is viewed as a system improving the situation of the households earning the lowest income, on the one hand; and making the households earning the highest income contribute more to welfare and social expenditure, on the other hand.

[5] Disposable income is original income (from employment, investment, private pension) minus taxes plus received benefits, from maternity allowances to public pensions.

Figure 2

**Evolution of Interdecile Disposable Income
Between 1998 and 2003***
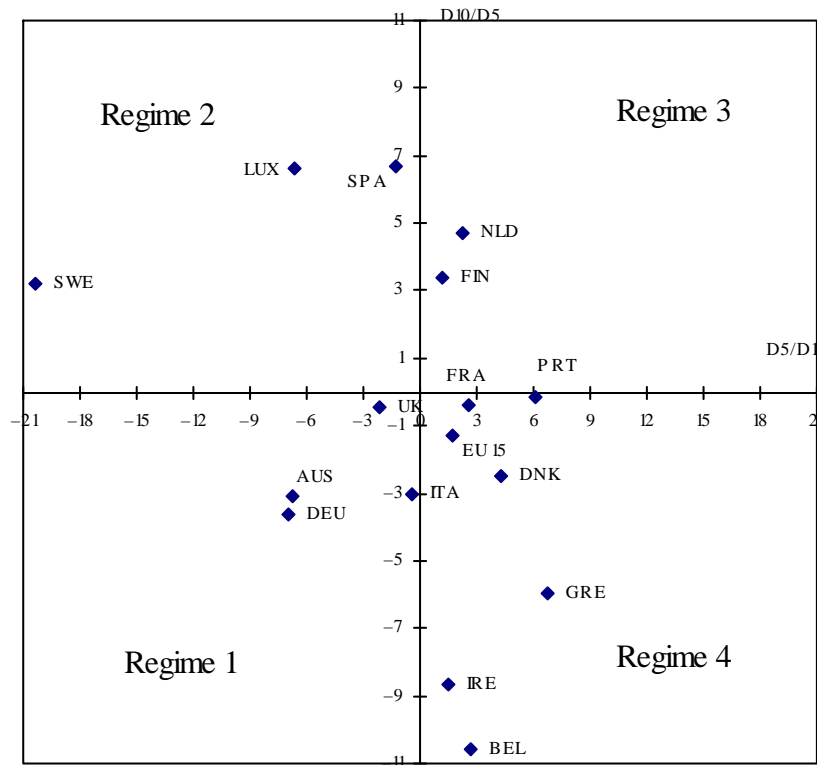
Notes: Regime 1: improvement in the two objectives; Regime 2: improvement in objective 1, deterioration in objective 2; Regime 3: deterioration in the two objectives; Regime 4: improvement in objective 2, deterioration in objective 1; Objective 1: reducing inequality for low-income earners; Objective 2: increasing the contribution effort of high-income earners.
* indicates the year 2001 for Denmark, France, Ireland, Italy and Sweden; 2005 for Greece and Spain.
Source: EUROMOD (see Table 1), computations by the authors.

benefit and tax systems permitted a reduction in inequality between Decile 5 and Decile 1 of 43.7 per cent[6] in 1998, but only of 42.0 per cent in 2001. In the meantime, redistribution between Decile 10 and Decile 5 was more substantial in 2001 than in 1998. As a consequence, the property of the tax and benefit system in the EU taken as a whole to redistribute between the middle income decile and the lowest income decile has not improved between 1998 and 2001, whereas redistribution between the upper decile and the median decile has improved. For the EU, improvement in the redistributive role of the tax and benefit system has gone half way. Except Germany, Italy and the UK, other reported countries in Table 2 reflect an inability to improve both sides of the redistributive role of the system.

Based upon the Euromod statistics, some of which have been updated in 2003 or 2005, we can draw a picture of the evolution of redistributive properties of EU-15 countries since 1998, as shown in Figure 2. Countries are distributed on the graph according to the time profile of the redistributive properties of their tax and benefit system. On the x-axis, a positive (resp. negative) value means that the relative situation of households from Decile 1 has deteriorated (resp. improved) *vis-à-vis* that of Decile 5 between 1998 and 2003.[7] On the y-axis, a positive (resp. negative) value means that the relative situation of households from Decile 5 has deteriorated (resp. improved) *vis-à-vis* that of Decile 10 over the same time span. If the two objectives – improving the situation of the households earning the lowest income, and making the households earning the highest income contribute more to welfare and social expenditure – are reached by a country (we label it Regime 1 and we consider that it is the best performing regime), both values

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[6]   In 1998, for the EU-15 countries on average, the ratio of Decile 5 to Decile 1 original income was equal to 473 per cent; with disposable income data, it was equal to 266 per cent: thus, a variation of minus 43.7 per cent.

[7]   2001 for Denmark, France, Ireland, Italy and Sweden; 2005 for Greece and Spain.

should be negative. Regime 2 holds when the households with the lowest and highest incomes are better-off at the expense of middle-income earners; Regime 4 holds when the situation of middle-income earners improves *vis-à-vis* the households with the lowest and highest incomes. Last, Regime 3 holds when the situation of the households with the highest income improves *vis-à-vis* low-income and middle-income earners.

Few EU-15 countries have actually reached regime 1 over this short period: only Austria and Germany,[8] and Italy and the UK to a lesser extent, have been able to reduce both types of income inequality since 1998. Six countries (Denmark, France, Ireland, Greece, Belgium, Portugal) are in Regime 4, where the situation of middle-income earners[9] has improved *vis-à-vis* low-income and high-income earners. On the opposite, Luxembourg, Spain, and Sweden have seen the relative situation of the lowest-income earners improve, and substantially so, at the expense of middle-income earners whose relative position with respect to the households earning the highest income decreased (Regime 2). Finland and the Netherlands are in Regime 3, witnessing deterioration in the situations of low-income and middle-income earners, at the benefit of the highest-income earners.

To sum up, countries are quite unevenly distributed across the four regimes and, except in Austria and Germany, the progressivity of the tax and benefit system decreased between 1998 and 2003 and with it, the effectiveness of automatic stabilisers on the side of public receipts.

One can also assess progressivity by looking at marginal income tax rates. Table 3 reports central government marginal tax rates of a few European countries, together with the number of tax brackets. While this measure is only partial (the overall degree of progressivity also depends on the structure of the tax base, on thresholds, exemptions, and so on), the trend is unequivocal. One can easily see that in most countries there was a sharp decrease in both the marginal rate and the number of brackets, going thus towards a less progressive tax system. The complexity of the tax system on the other hand my hide other trends of inframarginal rates and threshold, that may redistribute income towards the very poor, thus implying an increase of average propensities to consume and of multipliers, in spite of the overall decrease of progressivity.[10] The above analysis of interdecile distribution, nevertheless, together with recent studies on the long run evolution of income distribution (CITE IMF OECD), suggests that this possibility is not very realistic.

Table 4 displays corporate tax rates in EU-15 countries. Except in Spain where the change occurred later, corporate tax rates have decreased since 1990 or 2000. The common wisdom maintains that this significant and widespread reduction enhances production, incentives and entrepreneurship. In the short run, lower corporate tax rates may induce higher profitability that may fuel investment and employment. Nevertheless, they may also induce to distribute more profits which may then be invested elsewhere in the world economy and which may be missing for financing domestic social benefit systems. Moreover, if lower corporate taxes do not succeed in fuelling production and growth, the consequent rise in public deficits in Europe may push governments to reduce transfers and other public expenditures; in this sense, lower taxes may have as a side effect the reduction of automatic stabilisation.

Possible tensions on public finances because of lower taxes do not come exclusively from corporate tax rates: taxes on labour incomes have also decreased in the recent past (see OECD, 2006). Only Denmark and, to a lesser extent, Finland, Greece and Sweden, have not witnessed such a decrease. Apart from these countries, tax cuts are general and they may have had a bad influence

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[8] Both countries are close to the 45° line for which the improvements in the two objectives are comparable.

[9] The situation of the "middle-class" in these societies is well beyond the scope of this contribution which intends to give some macroeconomic and microeconomic clues on the effectiveness of automatic stabilisers. By "middle-income earners", we only refer to Decile 5. It is possible that the "middle-class" starts at, say, Decile 4 or 6 and, were it the case, conclusions related to the possible improvement or deterioration *vis-à-vis* the "upper-class" (also to be precisely defined) might be different.

[10] We owe this remark to Richard Hemmings.

Number of Tax Brackets and Marginal Income Tax Rates[*]

		1981	1991	2001	2008
Belgium	Number of Brackets	23	7	7	5
	Maximum Rate	72%	55%	55%	50%
France	Number of Brackets	12	12	6	4
	Maximum Rate	60%	56.80%	52.75%	40%
Germany	Number of Brackets	2	2	2	2
	Maximum Rate	56%	53%	48.50%	45%
Italy	Number of Brackets	32	7	5	5
	Maximum Rate	72%	50%	45%	43%
Spain	Number of Brackets	30	16	6	4
	Maximum Rate	65.09%	56%	39.60%	27.13%
Ireland	Number of Brackets	5	3	2	2
	Maximum Rate	60%	52%	42%	41%
United Kingdom	Number of Brackets	6	2	3	2
	Maximum Rate	60%	40%	40%	40%

[*] Central government rates.
Source: OECD Tax Database (www.oecd.org/ctp/taxdatabase) and calculations of the authors.

on the effectiveness of automatic stabilisers. The latter are also currently hurt by the implementation of the OECD Employment Strategy: Belgium, Denmark, Germany, and the Netherlands all experienced declining replacement rates and/or shortened benefit duration.

The decreasing size of the government may thus impair economic stability, as Fatás and Mihov (2001) argued (*cf. supra*), but it may also fuel social discontent or unrest. A quick look at Table 5 shows that except in a few countries (France, Ireland and the UK, even if the latest two experienced reductions in the replacement rates and benefit duration), the employment protection legislation (EPL) index[11] has been reduced since the mid-1980s and, quite often, sharply so like in Belgium, Germany, Italy, Portugal, Spain and Sweden. Lower taxes and lower protection may impair the effectiveness of automatic stabilisers and may contradict their advocates during the current crisis.

3.2.3 *Unemployment expenditures*

Some items of public spending, in particular those linked to the support of the unemployed, help to balance the consequences of shocks. A negative shock on aggregate demand is partly dampened by generous unemployment benefits which sustain consumption of those most dramatically hit by the shock. More active unemployment public expenditures – those labelled

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[11] The EPL, introduced by Nicoletti *et al.* (2000), is extensively discussed in OECD (2004). It is built by aggregation of 18 indexes from three main areas: Employment protection of regular workers against individual dismissal; specific requirements for collective dismissals; and regulation of temporary forms of employment. As all aggregative indexes, it is not exempt from criticisms (see, e.g., Bertola *et al.*, 2000 and Fitoussi, 2003). Nevertheless, it is a useful representation of the trends in employment protection over time.

Table 4

Main Corporation Tax Rate
(percent)

Country	1990	2000	2005	2009
Austria	30		25	20
Belgium	43	40.2	35.5	35.5
Denmark	50		28	25
Finland	33	29	26	26
France	42 (distributed profit) 37 (retained profit)	37.8	34.9	34.4
Germany	36 (distributed profit) 50 (retained profit)	52	39.3	15.8
Greece	46 (40: industry)		32	25
Ireland	43 (10: industry)	24	12.5	12.5
Italy	36	37	33	27.5
Luxembourg	34	37.5	30.4	21.8
Netherlands	35		31.5	25.5
Portugal	34		27.5	25
Spain	35	35	35	30
Sweden	52		28	26.3
United Kingdom	35	30	30	28

Sources: *European Tax Handbook* 2005 and 2009, year 1990 reproduced from Sterdyniak (2005, p. 24), and year 2000 reproduced from Saint-Etienne and Le Cacheux (2005, p. 22).

under the heading of active labour market policies (ALMP), mostly training – also reduce the costs of unemployment for the unemployed, promoting their employability and improving their probability of finding a new job, thus shortening unemployment duration. Expenditure aimed at fighting unemployment can help to maintain economic stability through a combination of supportive measures for the demand for labour and enhancing the effective supply of labour.

Consequently, the sum of passive *and* active unemployment public expenditures reveals the stabilisation properties of unemployment expenditures: passive expenditures like benefits undoubtedly impinge very quickly on the aggregate demand whereas active expenditures are meant to reduce the duration of unemployment for those unemployed.

In general, the responsiveness of unemployment expenditures to the unemployment rate has decreased, thus reducing the stabilising properties of the system. Figure 3 displays pairs of yearly variations[12] in unemployment public expenditures (active and passive expenditures) and yearly variations in unemployment rates, for the EU-15 countries, distinguishing two sub periods: 1991-97 and 1998-2005.[13]

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[12] With a short sample it has not been possible to perform a panel test with fixed effects, so that we have chosen a specification in first differences to remove country effects.

[13] The Amsterdam Treaty in 1997 made clear that the transition period towards the adoption of the Euro would not be followed by a benign-neglect attitude towards public deficits: the convergence criterion of a public deficit below 3 percentage points of GDP was soon to become a rule of conduct within the newly constituted Euro area.

On this figure, we expect pairs to be evenly distributed on an upward line whose slope would reveal the average elasticity of unemployment expenditures to the unemployment rate. There is actually a very interesting pattern in Europe: since 1998, the elasticity of unemployment public expenditures to the unemployment rate has been significantly lower than before (0.1 rather than 0.2 on average). Stated differently, the relationship between variations in unemployment expenditures and unemployment rates was stronger in the preceding period despite the Maastricht public finance criteria.

It is also noteworthy that the level of unemployment expenditures for the same rate of

Table 5

EPL Index,[*] Selected Years

Country	1985	1995	2005	2008
Austria	2.21	2.21	1.93	1.93
Belgium	3.15	3.15	2.18	2.18
Denmark	2.4	1.5	1.5	1.5
Finland	2.33	2.16	2.02	1.96
France	2.79	2.98	3.05	3.05
Germany	3.17	3.09	2.12	2.12
Greece	3.56	3.5	2.73	2.73
Ireland	0.93	0.93	1.11	1.11
Italy	3.57	3.57	1.82	1.89
Netherlands	2.73	2.73	2.12	1.95
Portugal	4.19	3.85	3.46	3.15
Spain	3.82	3.01	2.98	2.98
Sweden	3.49	2.47	2.24	1.87
United Kingdom	0.6	0.6	0.75	0.75
US	0.21	0.21	0.21	0.21
EMU11[**]	-	2.75	2.23	2.2

Source: OECD, Employment Outlook, 2004. Data for 2005 and 2008 from OECD STATS (http://stats.oecd.org/index.aspx).
[*] Version 1 (unweighted).
[**] EMU11: Austria, Belgium, Finland, France, Germany, Greece, Ireland, Italy, Netherlands, Portugal, Slovak Republic, Spain.

unemployment has decreased since 1998, in comparison with the preceding period. This latter property of the European social system appears clearly in the cases of Italy, France, Spain, Austria and, to a lesser extent, Germany (Figure 4). The UK is an outlier in this respect: With the exception of one point in the 1998-2005 sample, the relationship between unemployment expenditures and unemployment rate has hardly changed.

The stylised facts on the reduction of tax rates, the reduction in the progressivity of the tax and benefit systems, and the reduction in the Employment Protection Legislation, all seem to point unequivocally towards a decrease of the effectiveness of automatic stabilisation in European countries.

Therefore, public deficits may be less and less cyclical, or less and less able to dampen fluctuations. In the literature, (e.g., Girouard and André, 2005) it is customary to report elasticities of taxes, transfer payments and other expenditures with respect to GDP growth, elasticities which have generally remained constant over time. Looking at unemployment expenditures only, it is however possible to suggest that for most of EU countries their relationship with GDP growth rate has changed substantially since the end of the 1990s.

4   How to substitute for automatic stabilisation?

If the effectiveness of automatic stabilisers has decreased, as we documented in the previous

Figure 3

**Relationships Between the Variation in Unemployment Public
Expenditures (Expressed in Percentage Points of GDP)
and the Variation in Unemployment Rate,
Both Stated in Percent, EU 15, 1991-1997 and 1998-2005**
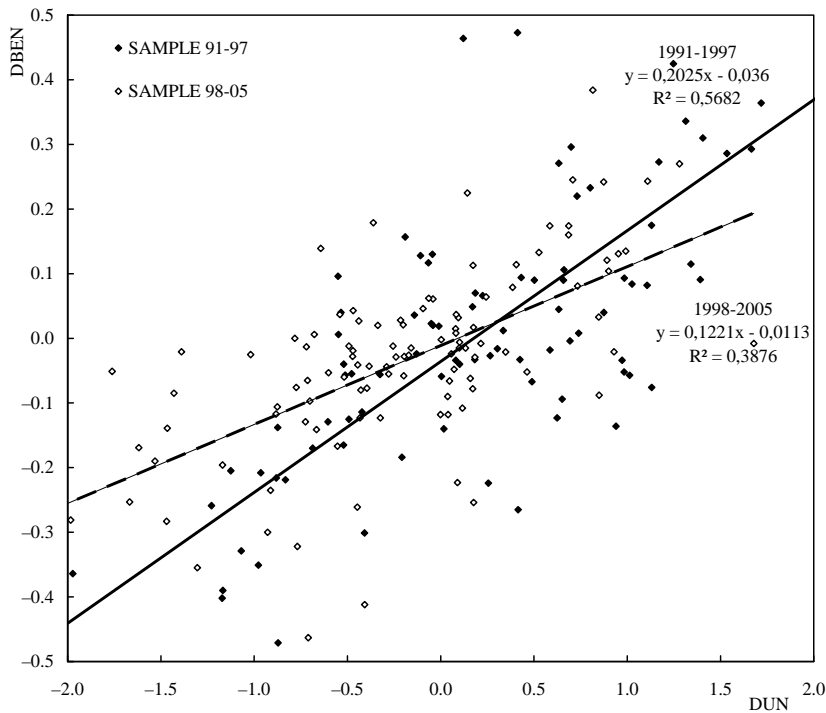
Source: OECD and computations by the authors.

section, we need to ask whether something else emerged, that could allow the system to adjust. In fact, it may be argued, that in a competitive world, where markets (for labour, goods and services or finance) are highly flexible, prices adjust rapidly to bring output fluctuations under control. The operation of automatic stabilisers could thus turn out to be less necessary than in the past.

Although the above-mentioned argument is common among economists who promote more flexibility and "structural reforms" in Europe (see, e.g., Sapir *et al.*, 2003), it needs to be supported by identifiable empirical facts. In the vein of McConnell and Perez-Quiros (2000), who docu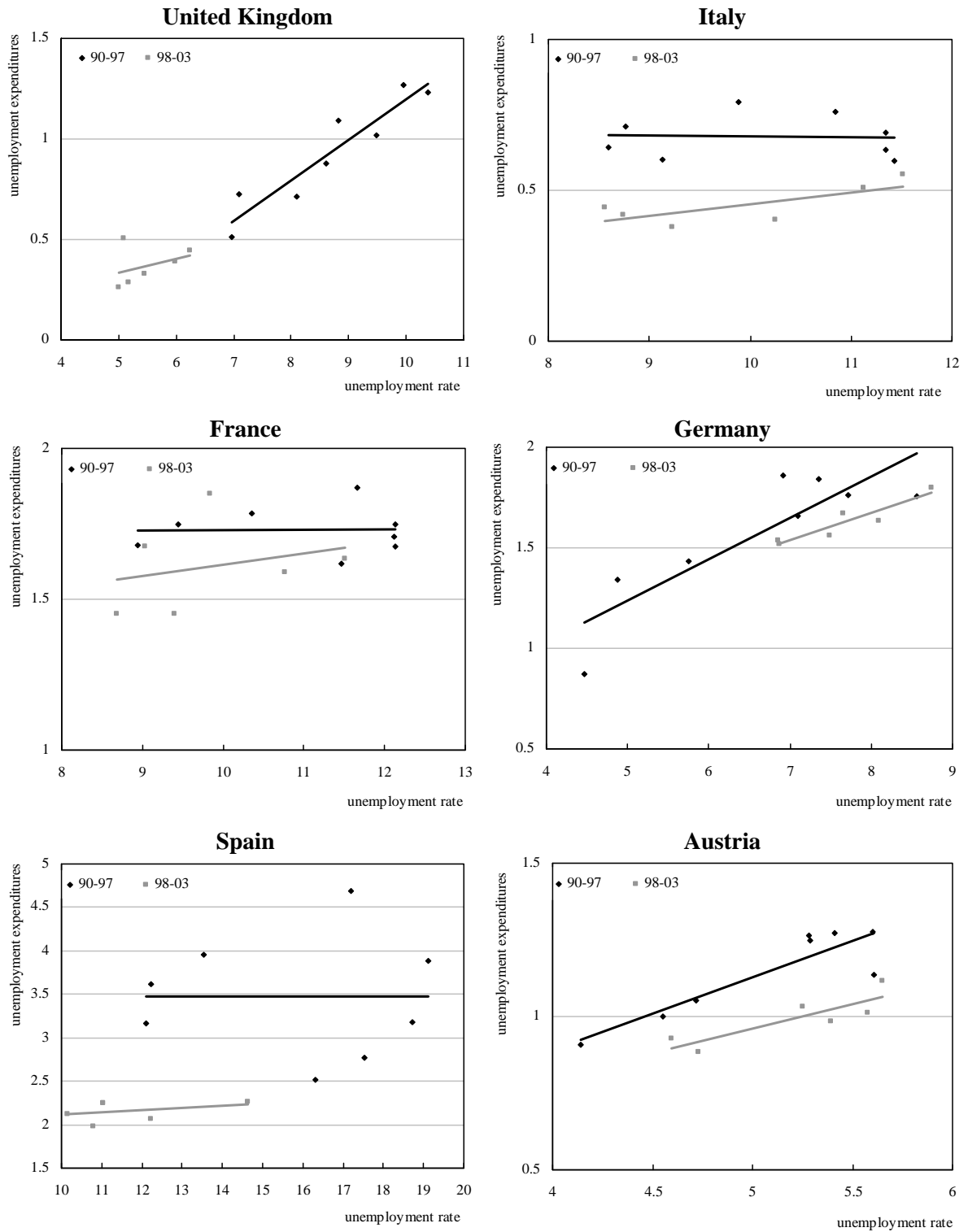mented the decline of US output volatility, we study output volatility in Euro area countries taken as a whole, and in some EU-15 countries taken individually. We remove the mean of GDP growth from yearly GDP growth rates; we then fit a constant and a linear trend to the ensuring gap; and we perform a CUSUM and CUSUM of squares test on the cumulative sum of the recursive residuals.[14] The CUSUM of squares test reports possible instability in the variance of the parameters.

For the Euro area taken as a whole, parameter instability occurs only around the German reunification years (Figure 5). Nevertheless, although not statistically significant, parameter instability increased between 1985 and 1991. The CUSUM of squares test for the Euro area detects statistically significant instability in the variance during the crisis of 1993. Movements outside the critical lines, which are suggestive of variance instability, are also revealed in the UK from 1975 to 2000, in Italy from 1978 to 1986, in the Netherlands from 1980 to 1997, and in Sweden from 1981 to 1998 (figures available upon request). Over the recent years, like the US, Europe seems to have experienced a decline in output volatility.

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[14] A well-known drawback with a CUSUM test based upon recursive residuals is that a shift late in a sample is likely to go relatively unnoticed. A CUSUM test using OLS residuals gives better results for late-sample data, but none of the tests can be considered significantly superior to the other (Ploberger and Krämer, 1992).

Figure 4

Relationships Between Unemployment Public Expenditures (Expressed in Percentage Points of GDP) and Unemployment Rate, 4 Main EU-15 Countries, 1991-97 and 1998-2003

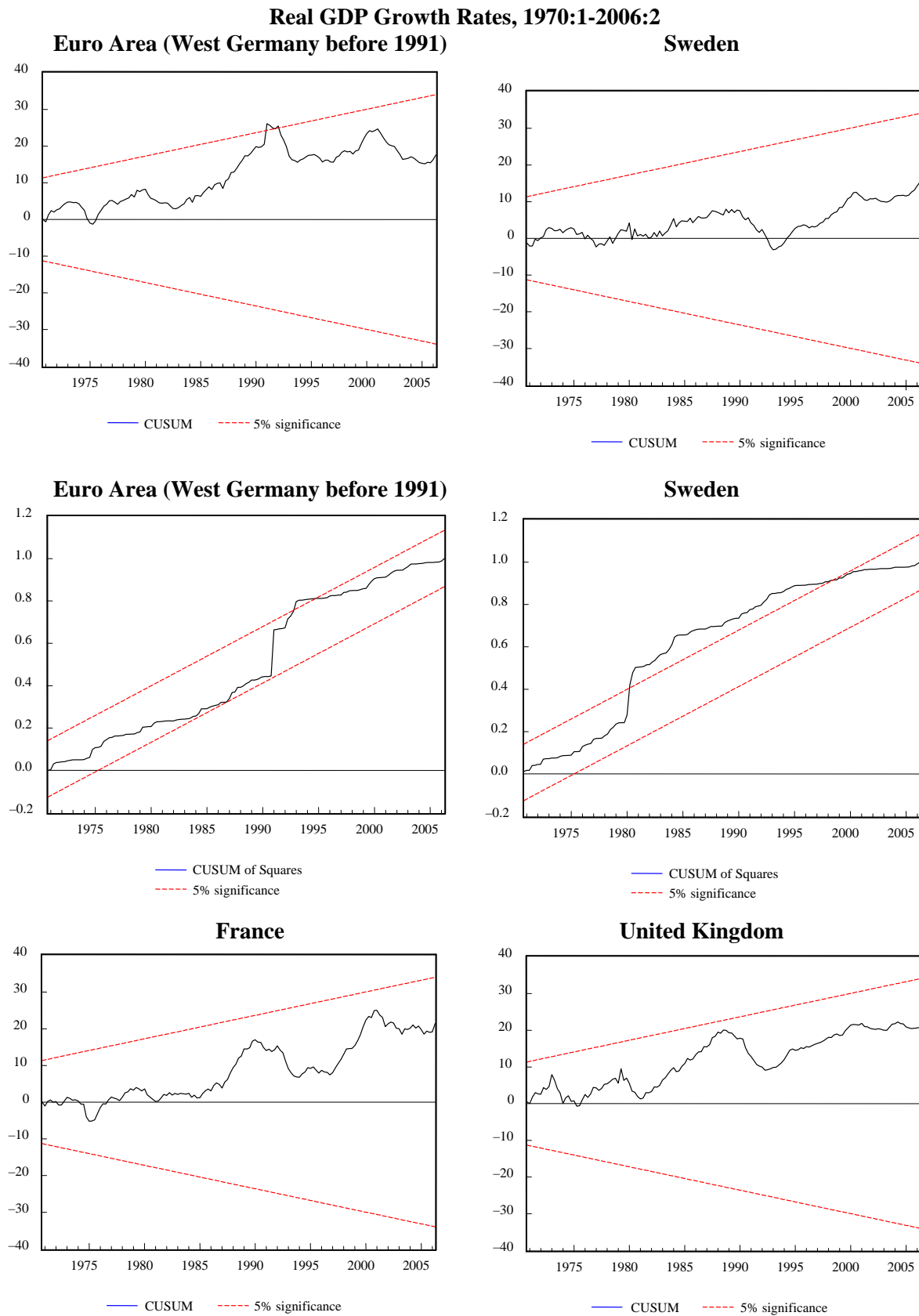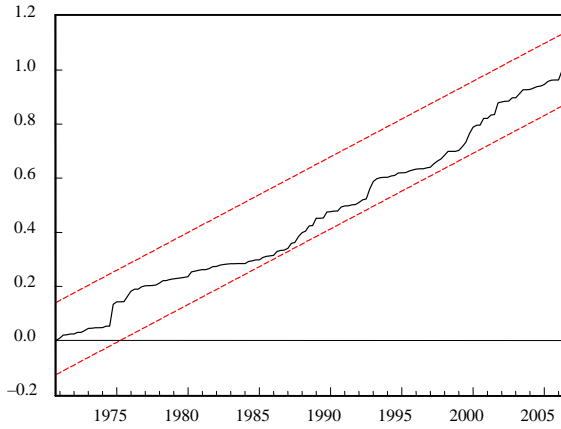Source: OECD and computations by the authors.

Figure 5

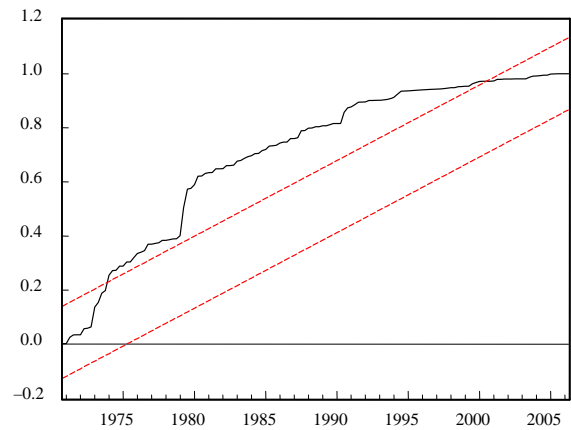**Real GDP Growth Rates, 1970:1-2006:2**

Euro Area (West Germany before 1991)

Sweden

Euro Area (West Germany before 1991)

Sweden

France

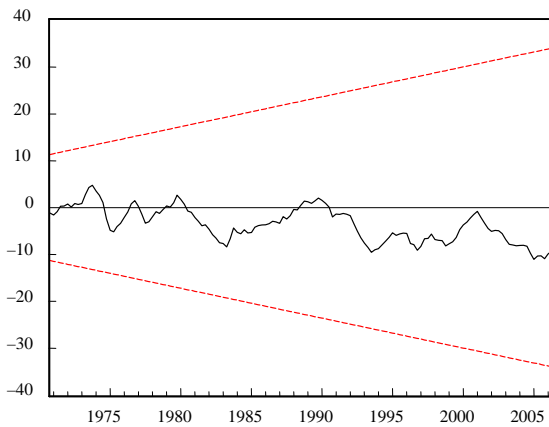**United Kingdom**

Figure 5 (continued)

Real GDP Growth Rates, 1970:1-2006:2

France

United Kingdom

CUSUM of Squares
5% significance

CUSUM of Squares
5% significance

Italy

Netherlands

CUSUM   5% significance
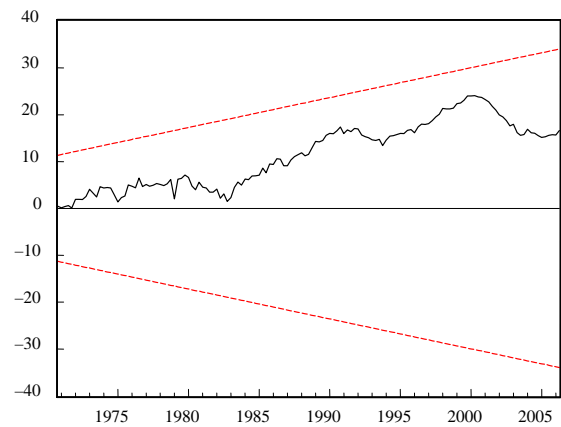
CUSUM   5% significance

Italy
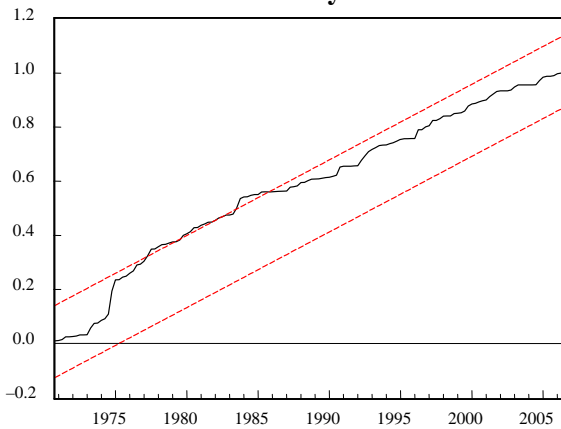
Netherlands

CUSUM of Squares
5% significance
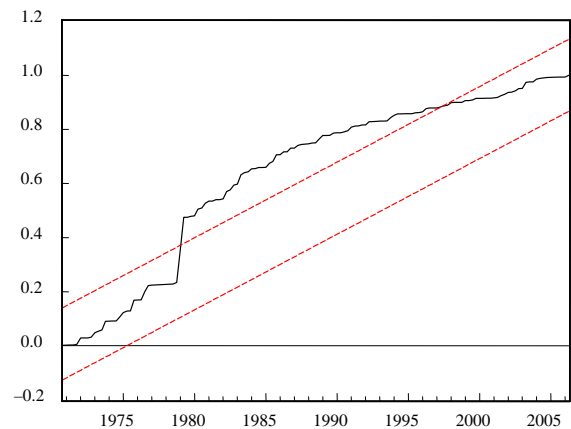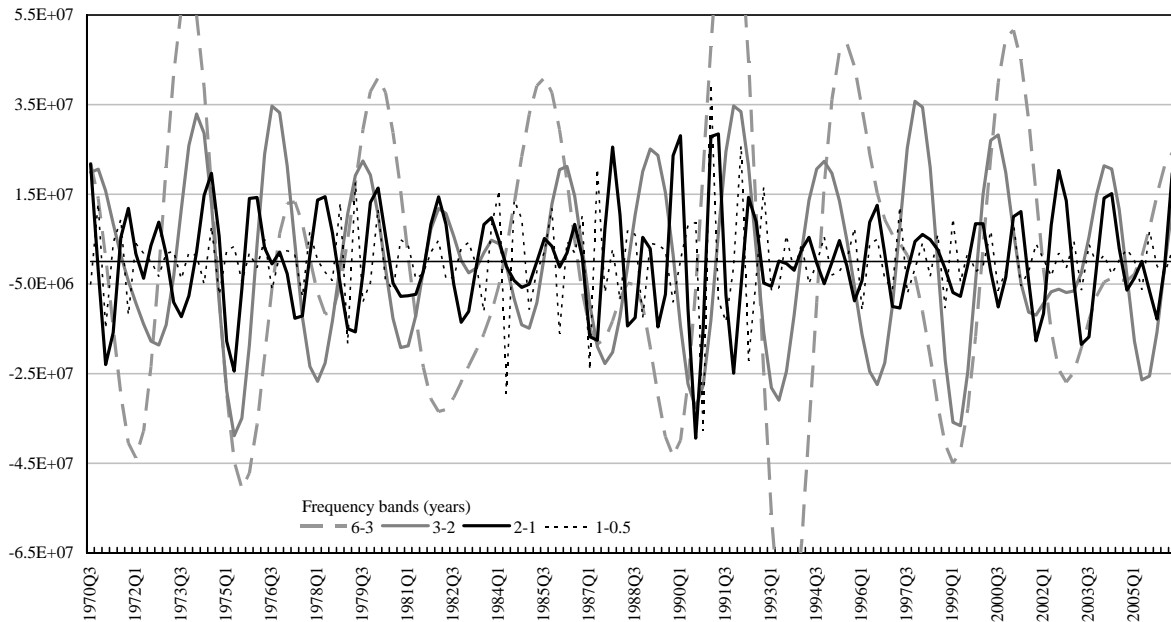
CUSUM of Squares
5% significance

Figure 6

Cyclical Components for the Euro Area Real GDP
(selected frequencies)

Source: OECD. Series obtained using the Iacobucci and Noullez (2005) filter.

Nevertheless, contrary to what happened in the United States, the decreased variability in Europe happened against a background of soft growth through the 1990s, with the largest European countries, notably Germany and Italy, which experienced growth rates close to zero (in 2002-3) and significantly below the EU average. In a context of low growth, it is not surprising that the variability of growth decreased. To eliminate the effect of changing growth trends, we detrended the series and analyzed the behaviour of cyclical components. We used the filter proposed by Iacobucci and Noullez (2005) that over short samples has a better performance with respect to more widely used filters (like Baxter-King or Hodrick-Prescott). Figure 6 shows the cyclical components of real GDP for the euro area for a number of frequency bands, from medium (6-3 years) to very short (1 year-6 months) cycles. A visual inspection shows that, in particular for the 6-3 year band, we observe an increase in variability in the early 1970s, and in the early 1990s, two periods of macroeconomic turbulence. Nevertheless, the picture shows no clear reduction in variability in recent periods, no matter what frequency we examine. To obtain a less impressionist assessment, we computed, for each of the frequency bands, the standard errors of two subperiods of equal length (1970Q3 to 1988Q2, and 1988Q3 to 2006Q2). The results, reported in Figure 7, show that for all the frequencies (except the very long cycles 18-6 years) the variability in the second period is slightly larger than in the first. Using a cut-off between the periods linked to institutional changes (for example the Single European Act of 1986, or the Maastricht Treaty of 1992), does not alter significantly our findings, which are also robust to detrending the series with the HP filter. Furthermore, this cyclical pattern is confirmed for most individual countries, with the exception of the UK.[15]

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[15] Figures are not reported. They are available from the authors upon request.

Finally, we may notice that, contrary to the US, the EMU countries are confronted with a very specific policy architecture which leaves monetary and fiscal policy uncoordinated and whose federal budget is both small (1 percentage point of EU-25 GNP) and not allowed to contribute to stabilising the economies. This fetters domestic fiscal policies.

Thus, we can conclude that the likely occurrence of asymmetric shocks in the EU and the institutional framework question the belief that increasing flexibility will be sufficient to assure income stabilisation (especially when average growth will go

Figure 7

Standard Error of the Filtered Series at Different Frequencies
(two subsamples of equal length)

Source: OECD; series obtained using the Iacobucci and Noullez (2005) filter, and calculations of the authors.

back to more standard levels). This is somewhat confirmed if we analyze Figure 5 together with Table 5, that documents a significant increase in labour market flexibility. This flexibility did not yield a significantly improved capacity of the economy to react to shocks. In the next section we argue that in light of a number of recent articles on the subject, and of the decreased effectiveness of automatic stabilisation described above, discretionary fiscal policy should be reconsidered as a possible tool for economic stabilisation, either to dampen output fluctuations or to sustain potential output through public investment expenditures.

5   Concluding remarks

In this paper we highlighted a contradiction between the spirit of the Stability and Growth Pact, and the actual behaviour of fiscal policies in Europe. On the one hand the Pact is designed with the objective to rule out any discretion in the conduct of fiscal policy, thus leaving to automatic stabilisation the task of countercyclical policy; on the other hand, though, a number of stylized facts that we reported points to a significant decrease of the role of automatic stabilisation. Progressivity of the tax system and the size of the public sector have been reduced in most European countries, and the sensitivity of unemployment benefits to the unemployment rate has decreased since the late 1990s.

Thus, even if we were to adhere to the principles behind the setting chosen by European countries to rule economic policy, and we gave importance only on automatic stabilisation, we would be forced to admit that nowadays fiscal policy in the EMU is mostly dysfunctional.

We believe that this moment of crisis may actually be an opportunity. The debate opened at the beginning of this decade on the flaws of the Stability Pact has been closed by the reform of
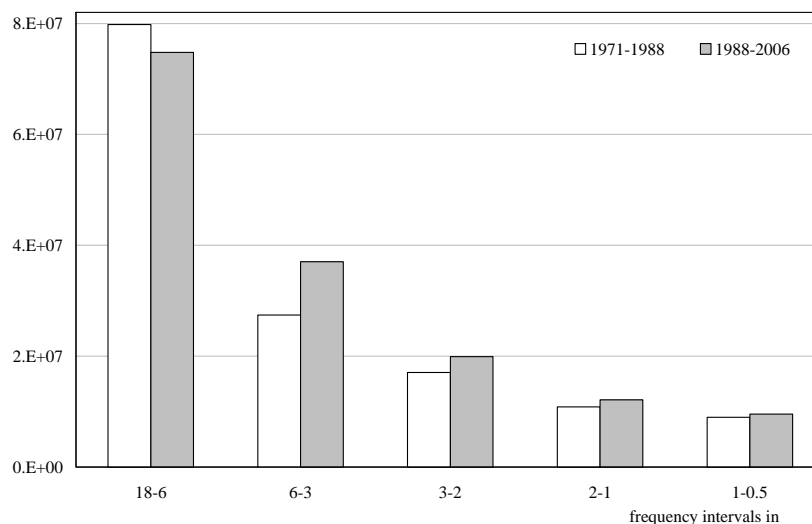
2005 that took it out of the political agenda. Maybe that reform was too hasty, and what is needed is a more radical rethinking of the framework for fiscal policy. The institutional framework that rules the economic governance of Europe, restricting fiscal policy to the working of automatic stabilisers, was not fortuitous, as it stemmed quite logically from the widespread aversion of the academic profession for discretionary fiscal policy, which emerged over the 1980s and 1990s. Four main sets of arguments have been advanced to justify this aversion: the first is that discretionary fiscal policy is subject to a number of delays (from decision to implementation) that make it impossible to use in reaction to shocks. By the time the effects of policy are felt, the shock it was supposed to address may have vanished.

The second set of arguments against discretionary fiscal policy deals with crowding out effects on private expenditure (in particular investment) up to the point at which the overall increase in income becomes negligible. This may happen because the deficit is financed with borrowing, thus increasing interest rates (directly and because of the inflationary pressure of deficit) and the cost of investment; or because public spending is aimed at moving the economy away from some sort of optimal or "natural" position, so that rational consumers react in order to bring the system back to its natural level. A weaker version of this argument focuses on the intertemporal budget constraint of rational consumers (whose role we highlighted in the model of Section 2 above) who anticipate future tax increases to repay for current deficits, and hence react by increasing their current savings and reducing their expenditure (the Ricardian equivalence, see Barro, 1974).

A third argument against fiscal policy discretion, made popular by the recent experience in the US, is the *twin deficits* hypothesis; based on the national accounting identity it is possible to show that an increase in budget deficit may create an equivalent deficit of the current account, so that total domestic income may not increase, and the expansionary effect may benefit other countries through increased imports.

Theoretical counter arguments or empirical weaknesses may be found for each of these reasons against the use of discretionary fiscal policy as a tool for stabilisation (see, e.g., Arestis and Sawyer, 2003; and Blinder, 2006). Beyond the "critique to the critique", there is at least one prominent reason for defending discretionary fiscal policy: a recent strand of literature, started by Blanchard and Perotti (2002), confirms that the empirical evidence is unable to rule out a positive role for discretionary fiscal policy. If anything, it generally shows significant short term effects and also, in some studies, a significant effect in the long-run (the multiplier values for some of these papers are reported in Table 6).

The papers in the vein of Blanchard and Perotti (2002) borrow from the structural VAR methodology. Very simple reduced form VAR models are estimated, and then the identification is obtained by imposing to the contemporaneous residual correlation matrix a number of constraints that originate in the institutional system, in estimated elasticities, and so on. Contrary to Taylor's (2000) methodology, Blanchard and Perotti (2002) attempt to extract purely discretionary fiscal components. They do not use computed structural deficits which rely on estimations of the output gap and the biases they are associated with. Moreover, the discretionary stance is corrected for interest payments.

The impulse response functions for these exercises usually show short term Keynesian effects across countries (Blanchard and Perotti, 2002; Perotti, 2004; Biau and Girard, 2005; Giordano *et al.*, 2007; Benetrix and Lane, 2009). Perotti (2004) is an exception in this respect: he found low and even negative fiscal spending multipliers in the short run in the UK, Australia, and Canada, depending on the sample (1960-2000, 1960-79, 1980-2000). Benetrix and Lane (2009) found out a positive multiplier effect in the short run in Ireland, and pointed to the superiority of public investment on government consumption to produce Keynesian-like effects of fiscal policy.

Table 6

Fiscal Multipliers in the Recent VAR Literature

Authors	Country	Multiplier of …	
Blanchard and Perotti (2002)	USA	expenditure	= [0.9; 1.3] (short run)
Perotti (2004)	USA	expenditure	= [0.1;0.7] (short run) = [-1.3;1.0] (long run)
	Germany	expenditure	= [0.8;1.3] (short run) = [–0.7;1.1] (long run)
	UK	expenditure	= [–0.2;0.5] (short run) = [–1.1;0.8] (long run)
	Canada	expenditure	= [0.1;0.6] (short run) = [–2.2;0.9] (long run)
	Australia	expenditure	= [0.0;0.6] (short run) = [0.2;0.6] (long run)
Biau and Girard (2005)	France	expenditure	= 1.4 (short run) = 1.8 (long run)
Giordano *et al.* (2007)	Italy	expenditure	= 1.7 (short run)
Creel *et al.* (2007)	France	primary balance	= 0.8 (short run) = 2.0 (long run)
Creel *et al.* (2009)	UK	investment	= 3.1 (long run)

Creel *et al.* (2007, 2009) recently extended the methodology of Blanchard and Perotti (2002) by imposing longer run constraints (namely through the introduction of a debt accumulation equation); neglecting these constraints, as done in the existing literature did not seem justified, especially when trying to assess the effect of public investment. They show that, if the long term interaction between debt, fiscal policy and monetary policy is not artificially shut off, the long run multiplier remains significantly positive and equal to 2 in France after a discretionary shock on the primary deficit and to 3 in the UK after a discretionary shock on public investment.

It is therefore possible to conclude that, on empirical grounds, a discretionary fiscal policy has a positive and persistent impact on output. From a short run perspective, it also means that this policy has an impact on long-run economic growth, and hence on potential output. This empirical conclusion is consistent with a strand of the literature which argues that the natural rate of growth is sensitive to aggregate demand (see, e.g., Leon-Ledesma and Thirlwall, 2002) or with papers which argue that fiscal contractions impinge negatively on potential output (see, e.g., Fazzari, 1994-95, p. 245). This paper, also drawing on the small illustrative model that we presented, suggests that a reformed fiscal rule for Europe should leave some room for discretionary policy, at least in compensation for the ineffectiveness of automatic stabilisers.

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