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Does the EMU Need a Fiscal Transfer Mechanism?*

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Summary: The aim of this paper is to investigate how the birth of a central fiscal authority or the creation of a fiscal transfer mechanism could improve the action of fiscal policy in terms of stabilization in the EMU. In particular, the paper examines the theoretical reasons to support this conclusion and provides empirical evidence that shows how the EMU is not able to face asymmetric and symmetric idiosyncratic shocks.

Zusammenfassung: Die zentrale Frage des Aufsatzes lautet: Ob und wie kann eine zentrale Fiskalbehörde oder ein fiskalischer Transfermechanismus die fiskalpolitische Stabilisierung in der EWU verbessern? Dazu werden theoretische Argumente und empirische Evidenz präsentiert, die die These bestätigen, dass die gegenwärtige EWU nicht in der Lage ist, asymmetrische und symmetrische idiosynkratische Schocks zu verarbeiten.

1 Introduction

The European Monetary Union (EMU), born on 1 January 1999, includes twelve countries. What makes this institutional architecture exceptional and differentiates it from others monetary unions is the absence of a central fiscal authority. The fiscal policy, in fact, is responsibility of the single member states participating in the Union, although it is limited in terms of deficit and debt – Gross Domestic Product (GDP) ratio. The intention to create a similar institutional architecture, with a so high degree of fiscal decentralization has origin from the Delors Report (1989). However, the Delors Report claimed for a coordination of the actions of the single member states in terms of fiscal policy and also for an equalization (fiscal) system able to smooth cyclical fluctuations of the GDP around the potential level.

The absence of a similar system, the loss of the sovereignty of the monetary policy and of the maneuverability of the exchange rate by the single member states, are elements that may make the EMU unable to face asymmetric and symmetric shocks. In particular, shocks are defined symmetric if they have the same sign and similar dimension in all the member countries, while they are asymmetric if hit the member countries in a differentiated way.

Most of the current literature on this topic suggests that it is task of the European Central Bank (ECB) to guarantee the absorption of symmetric shocks and it is task of the fiscal policy of the single member countries to provide insurance against asymmetric or domestic

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shocks. However, this division of the duties is too over-simplified and has been criticized for two main reasons: first, the common monetary policy has been widely recognized to produce asymmetric effects among countries and regions, depending on the structural characteristics of the single territorial units. Thus, when the ECB acts to smooth aggregate shocks it is possible that shocks persist in some areas.

Second, it is possible that the fiscal policy of the countries participating in the Union will be ineffective in smoothing cyclical fluctuations of the GDP around the potential level.

Under these premises, the creation of a transfer mechanism, collecting public resources from countries in cyclical upswing to help those in cyclical downswing, is necessary in order to ensure the stability of the entire Union.

The aim of the paper is to provide theoretical and empirical evidence to support the creation of an equalization fiscal system able to offset asymmetric and symmetric shocks. The paper is organized as follows. The next section examines the fiscal policy of the single member states in the EMU and evaluates the desirability of a risk-sharing mechanism.

The third section provides empirical evidence in favor of the creation of a (fiscal) transfer mechanism. The fourth section presents in detail an equalization system of fiscal transfers. Finally, the last section concludes with the main results.

2 Fiscal Policy in the EMU

The presence of real asymmetric shocks in the EMU will probably continue to persist given the structural diversities of the member countries. Moreover, also in situations of (originally) symmetric shocks, when the ECB acts to smooth aggregate fluctuations, the asymmetric effects of the common monetary policy could produce a situation where shocks persist only in some areas (see Arden et al. 2000, Choi 1999, Guiso et al. 2000, Meltzer 1995, Miskin 1996, Ramaswamy and Slot 1998).

In principle, the market forces could provide a considerable help to eliminate these cyclical fluctuations. Unfortunately, as has been widely recognized in the literature, the EMU is characterized by high wage rigidity and by low labor mobility (see Bayoumi and Prasad 1997, Layard, Nickell and Jackman 1991, Vinals and Jimeno 1996). Thus, the fiscal policy is the only instrument available for the single governments to insure themselves against asymmetric (or domestic) shocks. According to these elements, the Maastricht Treaty considers the stabilization function responsibility of each member state, though limited by the Multilateral Surveillance (MS) and the by the Excessive Deficit Procedure (EDP). As a general rule, a government deficit exceeding the reference value of 3% of the Gross Domestic Product (GDP) is considered excessive (in the Maastricht Treaty framework) and should be corrected in order to avoid fiscal sanctions. However, the Stability and Growth Pact (SGP) allows deficits temporarily to exceed the three percent value under exceptional circumstances, such as a decline of 2% or more of the real GDP in a single year. This is really an exceptional case, given that since 1971 it has happened just one time (1991) for only one country, Finland (Table 1).

Table 1

GDP Growth Rate

In %

	1971	1981	1991	2001
Austria	10.4	9.3	7.1	2.1
Belgium	9.0	9.0	5.5	4.9
Finland	7.5	11.6	–3.0	4.1
France	10.0	10.7	4.7	5.5
Germany	8.8	9.5	8.9	2.6
Greece	13.3	7.6	6.9	6.1
Ireland	8.7	13.0	5.6	7.9
Italy	7.1	10.2	5.1	3.1
Luxembourg	7.8	8.7	12.6	2.4
Netherlands	9.7	8.8	6.1	7.2
Portugal	12.0	11.1	8.2	5.2
Spain	9.9	9.2	6.3	6.0

Source: OECD (2003).

Furthermore, the SGP affirms that each country must satisfy a set of medium-term objectives, including a budgetary position that is in surplus or at least in balance. If the member states maintain their deficits balanced in the medium term, then the automatic stabilizers would operate freely. In fact, according to the estimates provided by the International Monetary Fund (IMF), the deficit reference value could be sufficiently flexible to make the single governments able to absorb up to 5% of the output gap (defined in terms of difference between the actual income and its potential level).

However, these considerations do not exclude cases in which the fiscal policy is unable to guarantee stabilization. In fact, if the member countries have levels of deficit close or higher than the reference value, then there is no room for the usual operation of automatic stabilizers and for discretionary fiscal policy. Moreover, even if the deficit levels are sufficiently low, it is not certain that the output fluctuations would allow the automatic stabilizers to achieve the stabilization objective without exceeding the reference value.

Another useful element to evaluate the ability of the fiscal policy to smooth asymmetric shocks is whether the current size of domestic stabilizers is adequate to achieve this objective. The answer to this question is that the magnitude of traditional automatic stabilizers will probably diminish with the development of the Monetary Union. In fact, the recent tax reforms have in general flattened the tax system by cutting marginal rates.

The improved targeting of common assistance programs and the reduced replacement ratios for pensions and unemployment benefits, may also have reduced the share of the cyclically sensitive spending. Moreover, other factors have contributed to reduce the size of the automatic stabilizers. During the ’90s, in spite of the relative fiscal expansion, the consumers could have reacted, at least partially, by reducing their consumption and, consequently, increasing their savings. In addition, the increase of the international trade in the EMU area has widened the degree of openness of the member states reducing the smoothing ability of domestic stabilizers.

Finally, governments are subject to a trade-off between stabilization and budgetary policy. In fact, if a country tries to stabilize its output around the potential level, then is likely to

become cyclical in its budget; on the converse, if it tries to stabilize its budget it will not able to smooth output fluctuations.

The empirical evidence concerning this aspect is controversial (see Galí and Perotti 2003, von Hagen and Brückner 2002). Nevertheless, most of the economists, including the author, think that remaining the architecture of fiscal policy the same, the EMU member countries will become more budget sensitive over time.

These assumptions make clear that a coordination of the fiscal policies of the member countries or the creation of an equalization system of fiscal transfers is desirable. In particular, the necessity to coordinate discretionary national fiscal policies in the EMU could become relevant in situations of European-wide recession and in cases of supply shocks. Unfortunately, the EMU institutions do not have the necessary *kit of instruments* to manage the policy coordination function. They can only provide guidelines concerning the optimal behavior for national fiscal policies, but they cannot enforce the member states in policy coordination. Also the SGP, although it provides clear and strict guidelines for convergence and stability, appears a relatively weak instrument of fiscal policy coordination (see von Hagen and Mundschenk, Canzoneri, Cumby and Dida, Breuss and Weber).

Thus, it emerges that a transfer mechanism could be the unique tool to effectively smooth synchronized and asynchronized cyclical fluctuations.

3 Empirical Evidence

In this paragraph, we propose a model to evaluate the ability of the EMU to smooth idiosyncratic shocks.

Several works in the literature have estimated the ability of many federations and countries to smooth income around the potential level (see Asdrubali, Sorensen and Yosha 1996, Crucini and Hess 2000, Fatàs 1997, Furceri 2002, Melitz and Zumer 2000, Sachs and Sala-i-Martin 1991, Von Hagen 1998). These works focused mainly on the ability of the fiscal budget to provide stabilization (Table 2).

Our purpose is to analyze the grade of smoothing that is possible to achieve by several factors, including also the fiscal budget. To this purpose, we decompose the GDP in various aggregates all closely tied to it: Gross National Product (GNP), National Income (NI), Disposable National Income (DNI) and Total Consumption (C).

The relations that link these aggregates are the following:

$$\begin{aligned} &\text{GDP-GNP} = \text{international net transfers of factors income} \\ &\text{GNP-NI} \quad = \text{capital depreciation} \\ &\text{NI-DNI} \quad = \text{international net transfers (transfers less taxes)} \\ &\text{DNI-C} \quad = \text{total saving} \end{aligned} \tag{1}$$

Now, let us suppose that a shock hits the economy of one country, modifying the value of the GDP. If the economic system is able to smooth the shock, then there is some countercyclical factor able to perform this task. Let us consider the following decomposition:

Table 2

Budget Stabilization Effect

	USA	EU	Canada	UK	Germany	France	Italy
Sachs and Sala-i-Martin (1991)	38						
Von Hagen (1991)	9–10						
Goodhart and Smith (1993)	13		12–24	21–34			
Masson and Taylor (1993)			24				
Pisani-Ferry et al. (1993)	17				33–42	37	
Bayoumi and Masson (1995)	30.2		17.4				
Asdrubali et al. (1996)	13						
Obstfeld and Peri (1998)	10		13				3
Melitz and Zumer (1998)	20.3		14.4	21		19.4	
Fatás (1998)	11.1			13.3	10	6.2	
Furceri (2002)		4.03					

$$GDP = \frac{GDP}{GNP} \cdot \frac{GNP}{NI} \cdot \frac{NI}{DNI} \cdot \frac{DNI}{C} \cdot C \tag{2}$$

If after the shock the GNP varies and the other aggregates are unchanged, then full stabilization is obtained. In more detail, if the GDP varies and the GNP remains unchanged, then stabilization is achieved at first stage by the *international net transfers of factors income*. In the same way, if also the GNP varies and the NI remains constant, then cyclical smoothing is provided by the *capital depreciation*, … Finally, if also the total consumption changes, it means that a quota of the shock is not smoothed.

In this way it is possible to obtain a measure of stabilization for each of the factors in (1). In principle, all these factors have a counter-cyclical effect. The first aggregate expresses the international transfers of the income that is earned by foreign people in each country. The second aggregate is responsible for the discrepancy between GNP and NI. It is calculated as a constant part of the total amount of capital *(*δK*)*. Thus, since the capital-output ratio is typically counter-cyclical in the short-run also the depreciation will be. The third factor is based on the mutual insurance between the countries and in our analysis is a proxy of the fiscal budget. Finally, the fourth aggregate represents the *consumption smoothing*. In situation of booms, according to the Permanent Income Hypothesis, people will save part of their income to finance future consumption in situations of recession.

Our approach to provide a measure of stabilization obtained at each stage, consists to consider the cyclical component of each one of these aggregates and calculate the relative variance. We decompose the time series of each country in a cyclical and in a trend (or growth) component by using the Hodrick-Prescott filter with a smoothness parameter equal to 40.[1] The value of this parameter allows to determine a cyclical component that has a variance (calculated as deviation from the potential level) less than 2%.

1 Although the HP filter does not always produce a reliable measure of the output gap it represents a very useful tool to obtain a cyclical component that varies just moderately. In any case is our opinion that the final results are not particularly affected by the way to obtain the cyclical component, because this should affect both the amount of shock smoothed and not smoothed in the same direction.

Table 3

Variance Reduction in the Cyclical Component

In %

Gross Domestic Product	107.01
Gross National Income	104.16
National Income	74.63
Disposable National Income	70.02
Total Consumption	67.09

Table 4

Variance Reduction

In %

International Net Transfers of Factors Income	2.66
Capital Depreciation	27.60
International Net Transfers (transfers less payment of taxes)	4.31
Total Saving	2.74
Not Smoothed	62.70

The variance of the cyclical component provides a measure of the distance (in absolute value) of the cyclical component from the trend.

Furthermore, the difference in the variances of the cyclical components between aggregates represents the contribution in terms of counter-cyclical action provided by each of the factors in the previous decomposition. We provide an estimation of these variances by running a dynamic panel model where we regress the cyclical component for each aggregate on a set of explanatory variables such as the past values of the cyclical component.

Tables 3 and 4 show the results for the EMU member states.[2] By looking at Table 3, we can observe that the variances of the GDP and of the GNP are very close. The same happens for the variances of the NI, DNI and C. The only significant discrepancy is between the variance of the GNP and that of the NI.

What emerges analyzing Table 4, is that after a shock in the EMU, the amount of it that is not smoothed is more than 62% and the budget factor is able to smooth only the 4.31% of the shock. The only factor that provides a considerable reduction of the amplitude of the cyclical fluctuations is the depreciation rate. Thus, the risk of shocks, both symmetric and asymmetric, represents a serious problem in the EMU suggesting that the adoption of a fiscal transfer mechanism should be desirable.

4 The Transfer Mechanism

A fundamental characteristic of many monetary federations and unions is to conduct stabilization and redistribution policies. These kinds of policies are designed to redistribute income

2 We use OECD data for the EMU countries from 1970 to 2002.

across regions or nations in response to income inequalities (redistribution) or cyclical downswings (stabilization). In principle, these kinds of transfers can be vertical or horizontal. In the first case, the central government collects public resources and uses them for *stabilizative* and *redistributive* purposes, in the second case, these transfers are provided by the countries in cyclical upswings (or high income) to the countries in cyclical downswings (or low income).

Fiscal transfers can be lavished discretionally or automatically. The last way should be preferred because it avoids, or at least limits, strategic behaviors and moral hazard problems. Moreover, a discretionary scheme could be affected by bureaucratic factors that reduce the effectiveness of stabilization actions and could be not credible in terms of payment of these transfers.

In principle, national governments can self-insure their nations against transitory domestic shocks by borrowing and lending in the international capital market. In particular, the government of a depressed nation could borrow and support the domestic demand in order to push up the economy, while the government of a prospering nation could invest its higher output in international assets, guaranteeing intergenerational insurance against shocks.

Clearly, this reasoning holds only in situations where there are no frictions and each country has free access to the capital market. The problem with this kind of insurance mechanism is the wealth distribution in favor of people holding a large portfolio of assets, determining a greater income divergence.

Another way to provide insurance against shocks could be the creation of a national stabilizing fund operating at the same way of a transfer mechanism. The advantage of this mechanism could be a reduction of the danger of moral hazard. However, several problems could arise with this mechanism. Countries could be affected several times by negative shocks leaving no opportunity to create or increase the fund for further shocks. In addition, countries can implement this kind of scheme only when they face positive shocks. In any case, depressed nations should respect the Maastricht Treaty reference value of the 3% (unless they manifest a decrease in the GDP greater than 2%). Moreover, if the consumers are perfectly rational and forward-looking they could anticipate the future tax payments and not fully increase the consumption, making the actions of the governments less effective. On the converse, a transfer mechanism has not this kind of problems and thus should be preferred.

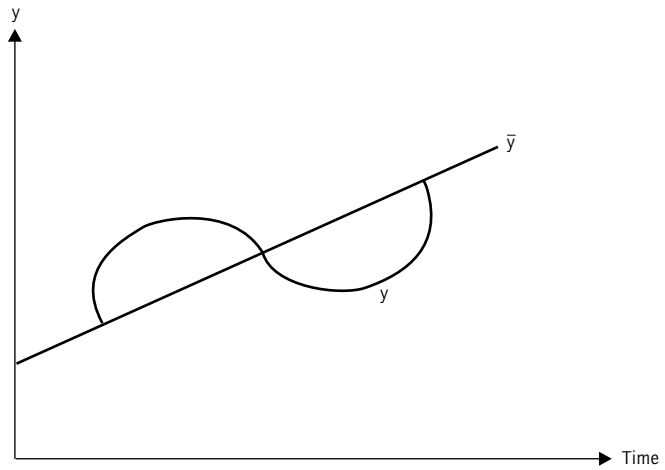
From the preceding discussion, it emerges that an equalization system of fiscal transfers, collecting public resources from countries in cyclical upswings to provide help to those in cyclical downswings, is necessary to guarantee the full absorption of asymmetric and symmetric shocks.

To implement a transfer mechanism is essential to chose the variable to target (GDP, total consumption, unemployment rate, etc.) and to decide the characteristics that the mechanism should have. Finally, we define a functional form that relates the transfers to the shocks.

Let us start with the first item. This scheme should serve to smooth cyclical fluctuations of the GDP around the potential level (Figure 1).

Figure 1

Cyclic Fluctuations



Let us consider $\bar{y}$ the potential level of GDP and y the pattern described by the data of the GDP. The purpose of the transfer mechanism is to reduce the amplitude of the cycle, in order to make $y = \bar{y}$ for each period of time.

Other transfer mechanisms that have been proposed in literature, consider the unemployment rate the variable to target. Although the GDP and the unemployment rate are strictly related in the long-run, in the short-run could be uncorrelated. This is due to factors as the *labor hoarding* that makes temporarily unchanged the unemployment rate when the output increases. Thus, by determining the transfers as function of the unemployment rate, there is the risk that these transfers become pro-cyclical (in the sense that they contribute to expand the fluctuations of the GDP around the potential level) instead of counter-cyclical.

The second element that we take into account in building the transfer mechanism is the characteristics that it should have. What we require is:

- The *automaticity* of the mechanism, in order to avoid or at least limit strategic behaviors.
- It should be *not regressive*. This means that the transfers should be lavished only in correspondence of shocks or decrease in the growth-rate of the GDP and not for small level of income. Otherwise this scheme would provide redistribution instead of stabilization.

Finally, the transfers for each period and for each country should be function of the level of the shocks and of the relative size of the economy of that country. All these three elements are included in the following rule of functioning:

$$T_{i,t} = f(\varepsilon_{i,t}, y_{i,t}) \tag{3}$$

Where $\varepsilon_{i,t}$ represents the shock for the country i at period t and $y_{i,t}$ is a measure of the relative size of the economy compared to those of the entire Union (for example, GDP_i / GDP_{EMU}).

If $\varepsilon_{i,t} > 0$ then $T_{i,t} < 0$, that means that the country *i* must contribute to help the countries in cyclical downswings. On the converse, if $\varepsilon_{i,t} \leq 0$ then $T_{i,t} \geq 0$, implying that the country *i* will receive public resources at time *t* from the countries in cyclical upswings.

Obviously, greater is the relative size of the economy of the country *i*, greater is the contribution provided (received) in case of positive (negative) shocks.

The simplest logical functional form for *f* is:

$$f(\varepsilon_{i,t}, y_{i,t}) = \alpha\varepsilon_{i,t} y_{i,t} \tag{4}$$

where α is a constant term less than zero. This is also the most used functional form in the literature.

In our opinion, however, this formulation has some weakness and could generate transfer too large that could reverse the cycle in some situation. In fact, let us suppose that only one country is hit by a negative shock. In this case, the other countries should contribute depending on the their relative size and on the size of the positive shock. In this situation, the transfers received by the country in cyclical downswing could be enormous.

Our approach allows to vary *a* over time and among countries. To this purpose, we decompose it in two terms:

$$\alpha_{i,t} = \beta_{i,t}\gamma_t \tag{5}$$

where $\beta_{i,t}$ takes into account the relative importance of the negative (positive) shock for the country *i* at time *t* compared to those negative (positive) of the other countries. This permits to distribute the amount of transfers in a way that the countries with larger negative (positive) shocks will receive (pay) greater transfers.

γ_t is function of the relative number of countries hit by the same kind (sign) of the shocks. This allows to depurate the transfers from the symmetry-effect.

By this way, the size of the transfers should be adequate to guarantee stabilization.

5 Conclusions

The European Monetary Union is characterized by one (common) monetary policy and by twelve national fiscal policies. Given the absence of a central fiscal authority or a fiscal equalization system, the loss of the sovereignty of the monetary policy and of the maneuverability of the exchange rate by single member states, the only instruments that can insure the entire EMU economy against shocks are the common monetary policy and the national fiscal policies.

However, the asymmetric effects of the monetary policy could lead to a situation where shocks persist in some areas. Thus, the only remaining stabilization instrument is represented by the fiscal policy of the single member states. Unfortunately, also the fiscal policy could be ineffective. For example the member states participating in the Union could have their

budget not balanced and thus no room for the usual operation of automatic stabilizers and for discretionary stabilization policies.[3] Moreover, even if the deficit levels are sufficiently low, it is not certain that the output fluctuations would allow the automatic stabilizers to achieve the stabilization objective without exceeding the reference value. Finally, it is likely that the width of automatic stabilizers will diminish with the development of the EMU.

The empirical evidence shown in this paper supports these findings. After a shock hits the EMU economy, only the 37% of it can be smoothed and the only significant factor able to smooth cyclical fluctuations is capital depreciation. This result reflects the constraints of the Maastricht Treaty and of the SGP and the rigidities of the labor market characterizing the EMU area.

This implies that both symmetric and asymmetric shocks represent a serious problem in the EMU and a change toward the creation of a transfer mechanism as implemented in section 4 would be desirable.

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3 This, for example, is happening for the largest member countries (Germany, France and Italy).

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