# Fiscal Federalism, EMU and Shock Absorption Mechanisms: A Guide to the Literature

## Luís Miguel Pacheco

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### Keywords

Amsterdam Treaty, asymmetric shocks, budget, EMU, fiscal federalism, fiscal policy, institutions, risk-sharing mechanisms, economics

### Abstract

Fiscal federalism theory seeks to establish the optimal organization of a government, confined by certain geographic boundaries. The implications of that theory for the monetary unification process are shortly inquired. The literature measuring the redistribution and stabilization effects of the tax and transfer systems in different monetary unions is surveyed. The prospects of evolution to integration models with a federalist countenance are briefly analysed and it is given special attention to the projects of creation of a European Fiscal Transfers Scheme. That mechanism would provide the European economies with some degree of stabilization in substitution for the loss of the adjustment mechanisms. However, after analysing the different proposals for the creation of such mechanism we conclude that, given the shocks persistence, they easily become redistribution mechanisms.

### Kurzfassung

Die Theorie des Fiskalföderalismus versucht die optimale Organisation einer Regierung innerhalb bestimmter geographischer Grenzen zu eruieren. Die Implikationen dieser Theorie für den monetären Einigungsprozess werden kurz untersucht. Daran anschließend wird ein Überblick über die Literatur zur Messung der redistriutiven und stabilisierenden Wirkungen von Steuern und Transfersystemen in verschiedenen Währungsunionen gegeben. Die Perspektive einer Entwicklung hin zu Integrationsmodellen mit föderalem Zuschnitt werden kurz analysiert. Dabei wird spezielles Augenmerk auf Projekte zur Einführung eines europäischen Finanzausgleichs gelegt. Dieser Stabilitätsmechanismus würde die europäischen Volkswirtschaften in gewissem Maße für den Verlust der Möglichkeit von (Wechselkurs-)Anpassungen kompensieren. Nach einer Untersuchung der unterschiedlichen Vorschläge für einen solchen Finanzausgleich, kommen wir zu dem Schluß, daß dieser angesichts des Fortdauerns von asymetrischen Schocks, leicht zu einem redistributiven Mechanismus werden könnte.

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## Contents:

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# 1. Introduction

The fiscal federalism theory seeks to determine the optimal regional organization of a government, confined by certain geographic boundaries. That is, the study of the economic principles that determine the different competencies in matters of expenditures, taxation and transfers by the various levels of a federal system. The main criteria for an optimal regional distribution of government and taxation, given by the traditional fiscal federalism theory, are summarised in Oates (1972; 1991) and Musgrave (1983). A crucial point in this theory is the decentralization theorem stated by Oates (1972, p. 35).

The reinterpretation and adaptation of the fiscal federalism theory could furnish a reference pattern to the build-up of an united Europe and for the division of competencies between the different levels of government in the context of the new scenario created by European Monetary Union (EMU).

In trying to establish a connection between EMU's construction process and the theory of fiscal federalism we note that this theory in spite of providing important elements to the division of functions and the establishment of fiscal structures, doesn't provide a unique model that can guide the dynamic European process. Such theory will be more adaptable to already existent federations (or multi-layer systems of government), implying some limitations to the European case. By that reason, since more mature federations will present at all levels superior homogeneity indexes, the centralization of certain functions in Europe (e.g., defence, external policy, minimum levels of social security, health and education) could involve non-negligible costs. In a pre-federal state the Union's main task will be to create and supervise rules to strengthen the economic and monetary union. Nevertheless, the theory of fiscal federalism doesn't lead unambiguously to the support of von Hagen's "parallel unification proposition" (1993, p. 289). According with that author, if unification is desirable or not could only be determined empirically and by criteria that pose difficult measurement problems.

In the future development of the Union in direction to a federal system, we note that federalism has various components that could go forward in certain areas and don't even emerge in others. This will always imply the difficult task to compare the efficiency gains with the equity and social cohesion needs. Besides, in all this analysis we can't forget the political element since the unification of fiscal and budgetary policies implying that member states renounce to a significant parcel of its national policy independence, would be an irreversible step towards the creation of a political union in Europe.

## 2. Regional Stabilization and Shock Absorption Mechanisms: empirical evidence

The Maastricht Treaty signed in December 1991 established the creation of a monetary union in Europe without a common budgetary and fiscal policy. The discussions around the Treaty brought to light the debate about the desirable evolution of the Community budget. Nevertheless, fiscal federalism was not approached in that Treaty and its Article 103-A doesn't solve the problem since the mechanism proposed there isn't automatic and is to much restrictive to deal with the demands of an asymmetric shock. Therefore, since the founding countries of EMU do not fulfil the necessary conditions for the formation of an Optimum Currency Area (OCA), it would be justifiable that the institution of the monetary union was accompanied by the set-up of an automatic asymmetric support mechanism to the countries affected by adverse shocks. This stabilization acting over income and / or unemployment would compensate member countries for the loss of the adjustment instruments.

The regional stabilization theme, supported by the Keynesian assumptions concerning the existence of market imperfections (namely, wage / price rigidity and low labour mobility) that difficult its equilibrium, is theoretically simple. As stated by Italianer and Pisani-Ferry (1994) such idea demands that the federal budgets provide some insurance to the states entering a monetary union through liquid transfers in case of an adverse economic shock. In this way, when an economy of the Union is faced with an adverse shock it will automatically receive transfers from the other Union countries. This could take the form of increased transfers to individuals, increased transfers from the federal budget or from other Union-member countries and lower taxes payments that will partially cushion the adverse effects of the shock[1]. Ingram (1959) first identified this phenomenon that was constantly studied by those who sought to compare the European Union (EU) fiscal and budgetary organization with the existent in other federations. The supporters of the idea referred above agree that the Community mechanisms of assistance to the member countries going through difficulties should be the more automatic and "invisible" as possible and that its objective should not be the equalisation of income levels but rather to provide an insurance against the specific shocks faced by a country. The redistribution or equalization function is addressed to correct either structural desequilibria or those provoked by a shock. In its turn, the stabilization function would be addressed to smooth the business cycle and so counteracting the economy's undesired fluctuations[2]. However, within the stabilization function of federal fiscal policy, it is possible to differentiate between stabilization in itself and the insurance function. Whereas the stabilization function would try to compensate the effects that several regions might suffer following a common (symmetrical) shock, the insurance function would be relevant in the presence of specific (asymmetrical) shocks. Naturally that if the decision of assistance has a discretionary form it will be subject to moral hazard and adverse selection problems. By avoiding moral hazard we mean that the potential beneficiaries should do not have incentives to act in a way that increases their possibilities to become effective beneficiaries. For example, with an unemployment rate insurance system, the employers could rise his demands for increased wages; governments could easily give way to anti-competition policies in the labour market and the individual incentives to search for work at the EU level would be reduced. One way to reduce moral hazard is to guarantee that transfers are transitory despite the shock persistence.

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One of the main differences between EMU and other existent monetary unions is the reduced size of the Community budget. In the next paragraph we will try to revise the available evidence on the degree of insurance provided by the budget in already existing monetary unions. Next, in the light of the conclusions taken, it would be possible to estimate the necessary degree of shock absorption in EMU and the mechanisms through which that could be accomplished.

In that way, a significant set of empirical work has explored the need for a European fiscal federation as an instrument to cushion the shocks and compensate the potential costs associated with a common monetary policy. So, from the experience of existing monetary unions, several empirical studies tried to quantify the degree of insurance that the federal budget can provide, although not all of them made clear the distinction between redistribution and stabilization or insurance. Both in the econometric and model simulation fields, we highlight the papers from Sachs and Sala-i-Martin (1991), von Hagen (1991), Goodhart and Smith (1993), Masson and Taylor (1993), Pisani-Ferry *et al.* (1993), Bayoumi and Masson (1995), Asdrubali *et al.* (1996), Obstfeld and Peri (1998), Mélitz and Zumer (1998) and Fatás (1998)[3].

Table 1, adapted from Zumer (1998, p. 258), presents a summary of the main results of the above cited studies.

Table 1

The empirical research analysed shows evidence of a remarkable stabilization effect of the federal systems of taxes and transfers (with some exceptions: von Hagen, 1991; Obstfeld and Peri, 1998 and Fatás, 1998). Nevertheless, it is necessary to have in mind the critique of Fatás stating that to obtain an estimate of the inter-regional insurance provided by a fiscal federation we couldn't simply measure the changes of taxes and transfers due to changes in income. It is necessary to take in account the transfers system impact over the federal budgets, since there should be a certain aggregated risk. So, according to Fatás, even if a European system of taxes and transfers could reduce the disposable income volatility in 30% it would be providing less than 10% of insurance. The remainder would correspond to inter-temporal stabilization through counter-cyclical budgets, which is an instrument that is available to EMU countries yet restrained by the Stability and Growth Pact limits.

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Without entering here in a detailed description of the different research methods, we can conclude that the stabilizing effects of the central budget are not negligible being in the order of the 20%. Namely, the direct transfers between regions are particularly crucial for obtaining significant stabilizing effects. Therefore, the empirical work evidences that in relation to the examples of another countries, a monetary union is viable with some stabilization degree of the central budget, although the dimension of that budget may be inferior to the one supposedly needed. Nevertheless, the main contributors for stabilization in the analysed countries come from budget categories whose transfer to the Union sphere seems highly unlikely in the near future. Namely, social security contributions and corporate income taxes. Nevertheless, the German system of inter-regional horizontal transfers to the less developed Länder (Länderfinanzausgleich) evidences that it isn't necessary that stabilization come from a central budget[4]. From this, it might be inferred that, faced with EMU, the implementation of other mechanisms would be more advisable, since the EU budget should not be expected to play the same role that, for instance, the US federal budget.

As evidenced by Gros and Thygesen (1992), the results of the regression analyses seem to suggest that the automatic insurance provided by the taxes and social security system in the Unites States is much more limited than it could seem. Those authors criticise the vision of the American experience as providing a structure for a European-wide shock absorption scheme. In his opinion, the fact that the American federal system eliminates 30 to 40% of the difference in the income per capita levels doesn't automatically imply that those mechanisms also provide insurance against specific shocks. On the other hand, the distinction between transitory and permanent shocks is crucial since permanent shocks cannot be financed indefinitely requiring adjustments in real wages or labour migration. However, it is difficult to see how the Union could supply countries with insurance against permanent and specific shocks without facing directly the problem of income redistribution.

# 3. Proposals for the creation of a European Fiscal Transfer Scheme

In the light of the traditional theory of OCA, Kenen (1969) was one of the first authors to emphasize the role of fiscal policy in a monetary union as the main instrument to smooth asymmetric economic shocks. Since monetary and exchange rate policies will no longer be used autonomously by the different economies of the Union, fiscal policy will play the equilibrating role of regional differences in employment and income fluctuations.

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The vision that budgetary centralization allows countries (and regions) affected by negative shocks the possibility to receive automatic transfers, smoothing the monetary union's social costs, was also one of MacDougall's Report main conclusions (1977). The Report considered the whole project of monetary union in Europe as something premature unless the Community budget reached 5 to 7% of the Community's GDP. That report argued that for a smooth operation of monetary union in Europe was needed significant fiscal powers' centralization. However, there is a notable inconsistency between the stated advises in that report concerning stabilization policies and the concrete actions taken in that matter. None of the proposals specified in the MacDougall Report were implemented and the Community as become a monetary union without even establishing the policies that according to that Report were needed in a pre-federal integration period. As argued by Goodhart and Smith (1993, p. 443), the fact that the recommendations of the MacDougall Report have not been implemented is explained by two failures of that same report. The first was a failure to distinguish sufficiently between stabilization and redistributive measures. The second crucial failure was its inability to address the political and economic problems that such redistributive transfers would necessarily involve. A more recent report, emanated from a study group led by Padoa-Schioppa (1987), distanced itself from the 1977's report emphasising the subsidiarity principle, that is, the notion that the lowest level of government that successfully accomplishes a certain function is the one indicated to such function. The report criticised the affectation of the Community's resources and although, as the previous report, foreseeing an increase in the Community budget, demarcated itself from the need of substantial increases in the following years. Nevertheless, since 1987 there was a change of attitudes for which have contributed Sachs and Sala-i-Martin (1991) and the conclusions of the Emerson *et al*. (1992) report.

## 3.1 A European Fiscal Transfer Scheme

In a monetary union were cease to exist national monetary policies, were exists some rigidity in the goods and labour markets and were there is low labour mobility, a European Fiscal Transfer Scheme (EFTS) to cushion asymmetric shocks will probably be well-being improving. Wyplosz (1991, p. 180)

argues that the role of this scheme should be understood in the following way: firstly, it should correspond only to the additional risk due to the existence of the monetary union; secondly, it should be an insurance targeted to those individuals whose situation gets worse; lastly, it should respect the subsidiarity principle. These principles are also defended by Ploeg (1991, p. 144) when proposing the creation of such a mechanism. The objective of the EFTS is to make exchange rate changes unnecessary through income transfers between individuals of the different member states]5]. Contrary to the German system of horizontal transfers that is used to equalize regional incomes the EFTS would serve only as a compensatory mechanism of the cyclical regional effects on income / unemployment and could possibly be financed by a Community-wide tax.

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As already mentioned, the creation of such a scheme could imply moral hazard and adverse selection problems. Ploeg (1991) argued that, in spite of these problems could appear with any national compensation scheme, it would always be possible to create rules in order to make sure the EFTS does not take away the incentives for individual countries to adjust to market signals.

From the studies about the role played by the taxes and transfers' systems in terms of income stabilization and redistribution Mélitz and Vori (1993, p. 85) make two highly relevant notes for the following discussion. By one hand, the need to distinguish the stabilizing effect of its redistributive impact and, by the other hand, the fact that it is possible to create government programs with a moderate cost but with significant effects in terms of regional income stabilization. While the Sachs and Sala-i-Martin's conclusions strongly hindered that possibility, given the stabilizing weight bestowed to income taxation, Pisani-Ferry *et al.* (1993) and Bayoumi and Masson (1995) confirmed that previous idea. That is, central budget expenditure programs with moderate cost could exert superior stabilizing effects over the regional income in comparison to income taxation. So, the idea for the creation of an insurance mechanism that allowed a strong stabilizing effect with a moderate cost was reinforced [6].

Nevertheless, what are the limits of such transfers schemes? It is important to understand that fiscal transfers should only be used to deal with temporary shocks or, when permanent, should be used only temporarily. A country or a region that suffers a permanent shock should adapt itself through factor mobility with fiscal transfers only used temporarily in order to ease the adjustment problems. In some countries, the experience with the regional fiscal transfers systems evidences the difficulties in using them temporarily. Generally, when a region suffers an adverse shock the transfers from the centralised system of social security tend to acquire a permanent character. The reason is that such transfers reduce the adjustment needs, keeping real wages excessively high and eliminating the incentives to labour mobility. Goodhart and Smith mentioned that problem (1993, p. 422): "*The expectation of some fiscal support may reduce the incentives on all economic agents (government, employers, employees) to steel themselves to make the necessary and more fundamental adjustments*". As empirical examples we have the papers from Micossi and Tullio (1991) on Mezzogiorno and Courchene (1993) on Canada's Atlantic Provinces. Hughes Hallett and Ma (1993) analyse the German unification problem and the way in which transfers could contribute there to a "Mezzogiorno problem", trying to infer from those facts some implications to the EMU process.

Additionally, it is necessary to take in account the political problems created by a situation in which high and permanent regional transfers go in only one direction. Since such problems could jeopardise national unity at a national level, European nations will have to consider them when conjecturing about the centralization of its national budgets.

Notice that, as we shall see later, above all the difficulties of definition and implementation of that scheme, remains the problem of lacking "European solidarity". In fact, it could be the very existence of the common currency to create the conditions for the future transfer of some fiscal competencies to the federal centre.

In the last few years there were proposed some schemes in the line of the EFTS that searched to evidence that restrict centralization could be efficient in smoothing temporary asymmetric shocks. Besides the already cited works of Ploeg (1991) and Wyplosz (1991), some of the more formal and significant analysis are the ones from Italianer and Vanheukelen (1993), European Commission (1993), Mélitz and Vori (1993), Hammond and von Hagen (1995) and Fatás (1998).

## 3.2 Analysis of some shock absorption mechanisms proposals ✝

We could begin with the basic characteristics that an instrument of regional stabilization should present. To be effective, and according to Goodhart and Smith (1993), an instrument of stabilization should respect the following generic principles: (i) the activation source of the instrument should be the changes in economic activity, being its operation suspended when those changes ended. Otherwise, besides its stabilizing function, the instrument would have equally a redistributive role. Such situation should be avoided in the Community context given the risks of enduring the adjustment problems and raising dependence on the transfers; (ii) the instrument should have its impact during the weakening phase of real economic activity and not in a posterior phase. It would be advisable that the instrument's activation was tied up to an indicator whose changes constitute a good approach of the variations in real income; (iii) the stabilization will work through the effects that public financial transfers will exercise on private agents' incomes and, consequently, on consumption. The European Commission (1993, pp. 79-80) adds two criteria to these three normative principles: firstly, the help should only work if the deceleration of the economic activity presented a country-specific dimension. Secondly, the Community should only offer insurance against serious economical difficulties.

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These principles are also approached by Hammond and von Hagen (1995) that consider that the construction of an insurance scheme against asymmetric shocks raises a group of questions, starting with which variable to insure and who should be insured. Those authors prefer a system based on GDP fluctuations, in comparison to an unemployment-based mechanism, given the higher problems of moral hazard and solidarity that it involves. A mechanism based on GDP fluctuations would have the advantage to be closer to the existent fiscal mechanisms in the Union, where part of the countries' contribution to the Community budget is proportional to GDP. For Italianer and Vanheukelen (1993, pp. 496-7), the variable unemployment rate would have the double advantages of recent data availability and of its relatively harmonized calculation method at the European level. A disadvantage is the fact that it constitutes a lagged value of economic shocks, due to factors as "labour hoarding", so that transfers could have a pro-cyclical impact. On the other hand, it is considered that the scheme should insure the regions and not the individuals, since an insurance system targeted to those would presuppose the existence of a complete fiscal union. Besides these general principles, Hammond and von Hagen consider also that the ideal insurance scheme should gather the following characteristics: be simple and automatic; the whole amount collected should always be distributed; the transfers should only be done in response to shocks of null conditional expected value; the system should not be regressive; it should compensate a great part of the relevant shocks; and it should guarantee Union budget neutrality. However, since all these principles are not mutually compatible, it will be necessary to choose among the desired characteristics. As we shall see ahead, one of the main objectives of its work will be to explore the importance of the trade-offs involved in those choices.

Italianer and Vanheukelen (*op.cit.*) recognise that the experience of other federations is not very useful, once the factors that had there the largest impacts in stabilization won't probably be transferred to the Union's responsibility in the short / medium term. Though, they present a concrete proposal of two variants of stabilization mechanisms based on the annual changes of the countries' unemployment rates in relation to the Community average. Once the mechanism operates based in the relative changes observed in unemployment and it is not based in the unemployment levels, the risks of provoking moral hazard problems or deviations in direction to any peculiar group of countries is minimized.

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Italianer and Vanheukelen distinguish two variants for the automatic stabilization mechanism. On one hand, a "full stabilization mechanism", which would operate for all asymmetric shocks independently of its dimension; and, on the other hand, a "limited stabilization mechanism", that would be activated in an automatically or discretionary form when the shocks magnitude exceeded a certain threshold. The proposed scheme, although based on the unemployment rates doesn't constitute a scheme of inter-personal transfers in the form of unemployment subsidies, being a system of direct payments to the member states that will have the freedom to decide how to expend those funds.

The operation of the system is the following: for each member state the unemployment rates are measured in regular intervals and in a harmonized basis. Since it is intended to eliminate the seasonal changes and to obtain a measure of the shock it is calculated, for each member state (country i) and for the Community average excluding that country i, the differences between the present and the twelve months ago unemployment rates.

$$dU_i(t) = U_i(t) - U_i(t - 12)$$

$$dU_{i\,EC}(t) = U_{i\,EC}(t) - U_{i\,EC}(t - 12) \tag{1}$$

If it verifies a situation in that:

$$dU_i(t) > 0$$

$$\text{and } dU_i(t) > dU_{i\,EC}(t) \tag{2}$$

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then, each percentage point of difference between the changes of the unemployment rate in the country i and the average change in the Community's remaining countries would imply a monthly transfer $T_i(t)$ equal to one given percentage $\alpha$ of a 1/12 of the country i's GDP in the previous year. That transfer system could have a ceiling, which attained would stop it. So, in order to put a maximum limit in the system the authors establish that relative changes in unemployment above two percentage points would not be compensated. Though, fixing that percentage $\alpha$ in 1%, the maximum monthly payment to a member state will be equal to 2% of 1/12 of its annual GDP.

Therefore, we would have the following rules for the monthly transfers:

$$T_i(t) = 0 \qquad\qquad \text{if} \quad dU_i(t) - dU_{i\,EC}(t) \le 0$$

$$\text{or} \quad dU_i(t) \le 0$$

$$T_i(t) = \alpha \cdot [\, dU_i(t) - dU_{i\,EC}(t) \,] \cdot GDP_i \quad \text{if} \quad 0 < dU_i(t) - dU_{i\,EC}(t) \le 2$$

$$T_i(t) = \alpha \cdot 2 \cdot GDP_i \qquad\qquad \text{if} \quad dU_i(t) - dU_{i\,EC}(t) > 2$$

Equally, there is the hypothesis to create a "limited stabilization mechanism". In that case the transfers would only be activated if the effects of the asymmetric shock, translated by the divergence in the unemployment rates changes, surpassed a given minimum level (for example, fixed in 0,3 percentage points). This limited system would imply the following rules for the monthly transfers, assuming them as automatic:

$$T_i(t) = 0 \qquad\qquad\qquad \text{if} \quad dU_i(t) - dU_{i\,EC}(t) \le 0,3$$

$$\text{or} \quad dU_i(t) \le 0$$

$$T_i(t) = \alpha \cdot [\, dU_i(t) - dU_{i\,EC}(t) - 0,3 \,] \cdot GDP_i \quad \text{if} \quad dU_i(t) - dU_{i\,EC}(t) > 0,3$$

$$\text{and} \quad \alpha \cdot [\, dU_i(t) - dU_{i\,EC}(t) - 0,3 \,] \le 0,015$$

$$T_i(t) = 0,015 \cdot GDP_i \qquad\qquad \text{if} \quad \alpha \cdot [\, dU_i(t) - dU_{i\,EC}(t) - 0,3 \,] > 0,015$$

Italianer and Vanheukelen built different scenarios simulating the application of the proposed mechanism in the 1984-91 period (with quarterly data) and in the 1981-90 period (with annual data).

The results evidence that there is not an apparent connection between relative prosperity and the value of the transfers, which illustrates the non-redistributive and stabilizing character of the proposed scheme. However, and those data are not presented here, it is verified that the average distribution of the monthly / annual transfers for the member states is unequal, which reflects divergent situations in terms of unemployment in the eighties. The results evidence that a significant part of the payments (about 65%) will be destined to just three countries – Spain, France and Italy – which certainly represents a potential focus of political divergence.

In the described schemes, the value of the transfers received by Portugal would be one of the lowers, either in cumulative terms, either in average annual terms. Relatively to the percentage weight of those transfers in national GDP, the values would amount to between 0,016% and 0,031%, depending on the adopted scheme. So, the results for Portugal are clearly inferior to the average results evidenced for most of the remaining European countries.

The main conclusions of Italianer and Vanheukelen are the following: (i) the possibility to create a stabilization system with a degree of effectiveness close to the USA levels, but with an annual cost of only 0,2% of Community's GDP (in two of the most relevant scenarios, the payments averaged 10,8 billion ECU per year, which represented about 0,22% of the Community's GDP in 1990). The relationship found between stabilization and cost is due to the fact that this mechanism is specifically

created with a stabilization purpose while in the existent federations such mechanisms are the result of the federal systems of taxes and transfers; (ii) Although simple and operational, this mechanism will be equally subject to the current problems involved in stabilization (namely, identification of the shock, implementation lag and a probable pro-cyclical bias). However, the authors empirically evidence the weak magnitude of those problems. In the same way, the moral-hazard problems usually associated to Community systems of unemployment benefits will be avoided, since the scheme is based on inter-government transfers given in accordance to the relative changes observed in the unemployment rates; (iii) The fact that it is possible to create a limited stabilization scheme, if the complete one is not desired, that with an equal cost would provide a remarkable degree of stabilization whenever the shocks magnitude surpassed a certain threshold.

Evidently, the budgetary cost of the proposed mechanism will be a function of its generosity. Besides, the final degree of stabilization depends on three parameters that will have to be determined by the political debate: the minimum threshold for the relative unemployment change that qualifies for payment, the size of the payment and the maximum annual payment by member state. Therefore, the stabilizing power conferred to the mechanism depends on the political preferences that reflect the behaviour regarding aversion to risk.

Mélitz and Vori (1993) presented another proposal for a shock absorption mechanism. The authors' objective is to build a fund to which all the member states would contribute and that would make regular payments based in the different countries' relative misfortunes. The objective of the fund would just be the insurance of income per capita or of the unemployment rate, trying to demarcate itself from income stabilization and redistributive aspects. This "insurance" would be at the national level once the objective is to compensate a loss of the national independence in terms of macroeconomic policy. Besides, being the objective just the insurance, the scheme allows the possibility to be the poorer countries to contribute in favour of the richer ones.

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Mélitz and Vori argue that any attempt to create an insurance mechanism for the member states should focus on the deviations between the national level and a national reference level. In conflict with Italianer and Vanheukelen in respect to the reference value, the authors argue that any system that tried to compensate situations of unemployment above the Community average, would become a scheme of income redistribution. In fact, comparing his specification with the one of those authors, Mélitz and Vori notice that in spite of the Italianer and Vanheukelen's use of variables in first differences largely reduces the magnitude of the redistributive effects, that is not enough to eliminate the problem that payments present a defined direction to a group of countries, since the unemployment rate in the member states tends to present a trend in relation to the Community average.

Thus, the proposed system would be based in the following relationship:

$$x_i - x_i^* - \Sum w_i ( x_i - x_i^* ) \qquad\qquad (3)$$

where $x_i$ is the national value "to insure" (income per capita or unemployment rate); $x_i^*$ is the national reference value and $\Sigma w_i ( x_i - x_i^* )$ corresponds to the averaged sum of the $( x_i - x_i^* )$ deviations in the Union[7]. Considering the variable income per capita, negative values for the expression (3) would imply payments on the part of the remaining countries. In the case of the unemployment rate, payments would be processed on the part of the remaining countries when (3) assumed positive values. Naturally that the amount of the contributions would depend on the absolute values presented by (3).

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Just as Italianer and Vanheukelen, these two authors try equally to see how an insurance scheme based in income per capita or in the unemployment rate, would have operated in Europe in the 1960-1990 period.

Be $y_i$ the income per capita and $u_i$ the unemployment rate in the country i. Three reference values are admitted, either for the income per capita ( $y_{1i}^*$, $y_{2i}^*$, $y_{3i}^*$ ), either for the unemployment rate ( $u_{1i}^*$, $u_{2i}^*$, $u_{3i}^*$ ), in an increasing order of sophistication. Relatively to $y_i^*$, we have:

$$\ln y_{1i\,t}^* = constant + a_1\, t \quad (t = time) \qquad (4a)$$

$$\ln y_{2i\,t}^* = constant + a_1\, t + a_2 \ln y_{i,\,t-1} \qquad (4b)$$

$$\ln y_{3i\,t}^* = constant + a_1\, t + a_2 \ln y_{i,\,t-1} + a_3\, t^2 \quad (4c)$$

and we will have corresponding definitions for $u_i^*$. Supposing that the deviations relatively to the reference levels are given by $Y_i$ and $U_i$, being $Y_{1i} = y_i - y_{1i}^*$, and so forth $Y_{2i}$, $Y_{3i}$, $U_{1i}$, $U_{2i}$, $U_{3i}$. Then, we will have three values of insurance for income per capita and for the unemployment rate, respectively[8].

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The results strongly thwart the ones from the previous proposal, since an insurance scheme of the unemployment rate would lead to an extremely reduced program in terms of covered individuals[9]. So, there is a first conclusion that a Community-wide insurance plan should focus on income per capita and not in the unemployment rate, given the great stability of its distribution. However, the fact that in the different countries the differences relatively to the reference values are extremely connected, reduces the interest for income per capita insurance in a way that the benefits due to such system cannot compensate the derived expenses from its continuous maintenance. Therefore, the results indicate that an important program could constitute a source of disagreement instead of promoting European unity.

Being made the pertinent proviso that the analysis is based on past data that can deeply change with EMU's materialisation, it is not forgotten the aspect that the appearance of a "shock absorber" implying an increasing budgetary centralization would probably raise political problems given the feelings of sovereignty loss and restrictions over national policies. Therefore, since the existent stabilization mechanisms in the present monetary unions are something posterior to its creation, the authors favour a "piecemeal solution". The scheme would erupt as a by-product of an enlarged union budget and in the context of an extended "European solidarity" in a way that the redistributive effects would seem less problematic.

Hammond and Von Hagen (1995) presented another proposal for a temporary and asymmetric shock absorption mechanism. Such proposal differs from the previous ones in the empirical definition of the asymmetric shocks and in the extent of the treated questions. Those authors establish a mechanism that would insure countries against deviations, purely transitory and specific, from a common trend describing the economies long-term equilibrium path. With data from 1960-1993, different alternatives

are analysed depending on the degree of sophistication required to compute the payments, the needs of consolidation and the number of participating economies. Each alternative is judged in terms of the size and direction of the payments, and their budgetary and distributive implications. Besides, it's performed the comparison between European insurance and self-insurance. Lastly, the consequences for the variability of national income fluctuations over time due to the functioning of an insurance scheme are explored.

In the first approach, designated as "Innovation Approach", transfers are connected to annual deviations, not correlated and conditionally unexpected, of EU countries income per capita from a common stochastic trend. This system based on a complex econometric procedure would function in a satisfactory way. The payments in certain years could be very high, yet, they would tend to compensate in all countries in a relatively short time span. Therefore, the results presented by those two authors evidence, by one hand, that the followed approach would not generate a significant and permanent income redistribution and, by the other hand, the possibility to obtain a significant insurance degree against asymmetric shocks. Nevertheless in his methodology is always ignored the problem of feeding the system with new data.

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The "Deviation Approach" emerges as a second approach, that tries to simplify the previous one tying payments to the asymmetric deviations that a given economy presents in relation to a common trend. Under this approach, the average, maximum and minimum payments pattern presents very similar characteristics to the previous approach. Through time and for each country, the contributions and the benefits cancel out in a way that do not appear permanent redistribution situations. Nevertheless, as in the previous approach, the payment's standard deviation is considerably higher for the small and open economies. Therefore, to some countries there are substantial differences in payments which leads to large differences in the payments size under the two approaches. To Portugal, the payments correlation under the two approaches is only 63 per cent which indicates that payments sometimes go in the wrong direction. However, for most countries this correlation is about 90 per cent.

An even more decisive step to the simplification of the system was taken with the third approach, the "Naïve Approach". Now the objective will be to stabilize the rate of growth of real per capita GDP around the annual EU average growth rate. What is verified is that, on average, this approach leads to high transfers from the higher growth countries to the smaller growth countries. Now, average transfers are high and positive to the countries of relatively higher growth (cases of Greece, Spain, Ireland, Italy and Portugal) and high and negatives to the countries of slower growth (Denmark, Germany, Luxembourg, the Netherlands and United Kingdom). Therefore, the payments' system becomes highly regressive, being characterized by permanent transfers that will perpetuate the income differentials in Europe, once the countries that present the higher growth rates are also the poorer ones. The results under the "Naïve Approach" evidence accentuated differences in relation to the "Innovation Approach". Namely, the payments average under the "Naïve Approach" is higher and moves frequently in different directions.

The performance of the "Naïve Approach" improves relatively to the "Innovation Approach" when it is considered the operation of the system in a restricted group of countries. That is, the simplification seems to be less problematic if EMU is restricted to the six EEC founder countries plus Denmark, originating a "Europe at two speeds". That suggests that monetary union could function in a smoother way if monetary unification only began after economic integration had been considerable accomplished. In this context the simplification of the procedure would involve a smaller cost, in spite of continuing to produce adverse distributive consequences.

In its work, Hammond and von Hagen consider the hypothesis for the different countries to have its

own insurance scheme against asymmetric shocks, instead of integrating a EU-wide scheme. That "self-insurance" scheme demands, in situations of positive asymmetric shocks, the investment of the excess revenues in insurance accounts placed in the international capital markets that could later be to used to face a negative shock. Comparing the advantages of this mechanism with the ones from the participation in a European-wide scheme, Hammond and von Hagen conclude that "self-insurance" would be, for certain countries, more attractive the more simplified the approach and the more correlated the payments. This will particularly be true to the small and less developed economies of EU, as Greece and Portugal.

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A last empirical point explained by Hammond and von Hagen are the consequences for the variability of the national income fluctuations and employment over time due to the functioning of an insurance scheme. Under the "Innovation Approach" the stabilizing effects on the product will be more important in the southern European economies, in Belgium and in Luxembourg. That is, with the stabilization of asymmetric shocks these countries gain a larger stability of income over time. For the "Deviation Approach" the results are similar, however, the transfers under the "Naïve Approach" increase the variability of the cyclical movements in almost all countries. According to the authors, these results suggest that even under the "Innovation Approach" the countries' majority will not have a great enthusiasm for an insurance mechanism of this type once its contribution for the stabilization of the variance of income is reduced, even under the complete covering of the asymmetric shocks. In fact, under the "Naïve Approach", the final result of the insurance mechanism's simplification is that it can promote macroeconomic destabilization.

Naturally that the simulations carried out by Hammond and von Hagen do not allow an immediate generalization, providing just an example. However from that example they state a final conclusion that given the high cost of simplification and the fact that the efficacy of the system isn't obvious, probably will be advisable for the EU to postpone its creation[10].

In a recent work Fatás (1998) presented empirical evidence that any system based on deviations from a reference value or trend would certainly lead to significant and permanent transfers. Those transfers could be regressive, going in any direction (for example, from poor to rich regions) which would undermine the support for the system and could further create tensions among member countries. More complicated mechanisms, based on models that decompose output (or unemployment) changes into permanent or transitory components, even though could correct some of those inefficiencies, would create endless debates about the model's design and type of data to feed into it. Besides, and according to the author, the potential insurance benefits have decreased over time because of increased correlation across countries. If that trend persists, the stabilization properties of a fiscal federation will continue to diminish. So, Fatás concludes that the potential for the supply of additional inter-regional insurance is weak, because it hardly could compensate the many problems associated with its creation, implementation and management.

To finalise lets consider the aspect of the financing and budgetary form of the mechanism and the destination of the funds. In the majority of the analysed works these aspects are posed as open questions. European Commission (1993, p. 84) discusses these aspects defending that the proposed mechanism should have the budgetary form of a reserve whose global volume should correspond to the maximum theoretical amount of payments. Such reserve should be constituted under the form of a stabilization fund created with that solely objective and functioning outside the general budget. If that didn't happen, this reserve which would represent a considerable portion of the ordinary expenditure, would limit the necessary budgetary margin of manoeuvre to deal with other Union responsibilities. In relation to the financing of that reserve, it is proposed that the contribution of each member state be based on its share of the Union's total GDP. Majocchi and Rey (1993) propose that their discretional

mechanism was financed in an *ad hoc* manner by the countries concerned and that the amounts to be paid were conditional in order to assure its consistency with the Community's objectives.

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# 4. Concluding Remarks

In spite of providing important elements and orientations for the establishment of the fiscal and budgetary structures, the theory of fiscal federalism doesn't supply a unique model for Europe that can guide the dynamic and evolutionary process in which the policies and the institutional arrangements have been developed. Although the EMU creation will favour European federalism that will be a long-term trend depending, firstly on the flexibility left to fiscal policies but ultimately, on political choices. Be noticed that the choice that Europe faces is not between the federation and the no-federation (or between the budgetary centralization and the budgetary decentralization), but on the appropriate degree to that federation. This relativization of the term "federal" leads to an enlarged group of possible formulas to trail that necessarily need to be framed in an enlarged political debate about EMU's future direction. Notice that, an intermediate solution, disconnected with the proposed systems, could be national contracts for the creation of stabilization funds negotiated by the parts (government, unions and firms), as recently happened in Finland. This stabilization fund, connected to economic activity, is designed to cushion the shocks incurred by the country as a member of EMU. This mechanism that is built upon the private sector is a legal way for the country get free from the Stability and Growth Pact limitations, since the fund is independent from public administration's budget.

In case EMU means an increase in the asymmetric shocks' occurrence risk and in a context of Stability and Growth Pact's constrained deficits and different monetary policy transmission mechanisms, the need for a European fiscal transfer scheme will increase. In its benefits are included the role of inter-temporal stabilization that the national systems could hardly accomplish. This Community mechanism of attendance to states with difficulties will have to be as automatic and "invisible" as possible, being not its objective to equalize the income levels in the countries but to provide an insurance against specific shocks. Thus, in its attempt to attend member states in its stabilization actions in presence of shocks, the Community should build an instrument of mutual insurance that guarantees, in an efficient way and with a moderate cost, a certain degree of stabilization to the participant countries. The aspect of the cost of such mechanism is very important given the small dimension of the Community budget. Under this point of view, the creation of a Community's insurance mechanism against specific risks will certainly attract more support than the extreme solution of fiscal federalism. In fact, some works were pointed that evidenced the possibility to create an effective system with stabilization purposes, but with a reduced annual cost in terms of the Union's GDP. However, analyzing the different proposals for the creation of income per capita or unemployment insurance schemes we took the idea that although providing in some cases a significant stabilization degree, they become easily redistribution mechanisms, given the shocks persistence. Additionally, there is a complete collection of operational, financing and administration problems. Thus, the evidenced absence of agreement explains because until now no such mechanism was truly thought for EMU.

Relatively to Portugal, it is possible to take some important implications from the analyzed works. In first place, a scheme based on the unemployment rate would lead to extremely reduced values in terms of transfers and in terms of covered individuals. In second place, an insurance mechanism based on income per capita would imply a regressive system in which Portugal would prefer to "self-insure". Therefore, to Portugal it isn't evidenced the favourable character of the proposed mechanisms. Be noticed that the analysed works are just examples that can't be generalized. However, given the probable increasing synchronization of European shocks and given the implementation, financing and

follow-up problems that an EFTS would imply it is highly probable its postponement. But although fiscal federalism is not in EMU's calendar that doesn't imply its definitive abandonment. It could be the common currency's own existence to create the conditions for the future transfer of some fiscal competencies to the federal centre. In the long term, in the context of a mature EMU with a stronger cohesion of interests, the creation of a transfers scheme could deserve serious political attention. Besides purely economical factors the political factors will have here an important role beginning with the political will to increase the Union's budget and, above all, with the clarification of the political project regarding the European integration process.

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## Endnotes

(*) This paper is a revised version of a chapter from my master dissertation presented at the "Instituto Superior de Economia e Gestão – Universidade Técnica de Lisboa" in December 1998 under the title: "A Teoria das Zonas Monetárias Óptimas e o Federalismo Fiscal" ("The Theory of Optimum Currency Areas and Fiscal Federalism"). I'm must gratefully acknowledge all the comments made by Prof. Vitor Constâncio from ISEG -UTL Lisbon to my dissertation as to this specific paper. All remaining errors are the sole responsibility of the author.

(1) Italianer and Pisani-Ferry (*op.cit.*, p. 155): "*A federal budget would therefore make the monetary-union contract both less costly and more credible*". There's also the opinion of Pelagidis (1996, p. 474) on the creation of a federal scheme of insurance: "*It will also have significant political and social benefits by convincing Europeans to build on what they have in common and restore their differences*".

(2) Concerning the distinction between Redistribution and Stabilization, Goodhart and Smith (1993, p. 419) argued that: "*Differences in the level of fiscal variables that are functions of the level of economic activity are essentially redistributive, whilst differences in fiscal variables that are a function of the rate of change of economic activity constitute stabilization. There is a considerable overlap between fiscal measures which lead to redistribution and those that lead to stabilization*". According to those authors, an equation that regressed the level of (federal) expenditure (or taxation)

on the level of regional (State) incomes (employment) would be a measure of the extent of inherent redistribution within the system. In contrast a better method to measure the extent of stabilization would be an equation relating the change in (federal) expenditure (taxes) to the change in economic activity.

(3) Other authors searched the magnitude of risk sharing provided by the capital markets and the structural funds (Sorensen and Yosha, 1998 and Atkeson and Bayoumi, 1993) or the size of the income risk that can be insured in Europe beyond the risk that is already insured by the capital markets and the structural funds (Forni and Reichlin, 1999).

(4) Pisani-Ferry *et al.* (*op.cit.*, p. 513); "*If stabilization mechanisms were needed for EMU, they should not be the by-product of a large public sector at Community level, but rather explicitly devised to serve the purpose of stabilization*". Nevertheless, Italianer e Vanheukelen (1993, p. 495) argue that: "*Due to the specific character of the Community, which would make the straightforward application of the Finanzausgleich impossible (such as the absence of harmonized tax rates and tax bases), a new system would have to be devised*".

(5) Wyplosz (*op.cit.*, p. 181): "*(…) we need to recognize that it is individuals who are hit, not States or regions. Unfortunately, identifying the individuals one by one is impossible. One way out could be to decentralize the insurance functions to States or regions, on the ground that identification is easier at the more decentralized level. This is one merit of the subsidiarity principle*".

(6) Those authors give a short but elucidative numerical example (1993, p. 86): suppose that in the context of the EC12, eleven member states transfer 1% of its GDP to the remaining member state. Such transfer will amount to more than 3% of that state GDP (even if it was Germany), which is a sufficient sum to cushion a large shock. So, they argue that, "*even an insurance fund collecting a fraction of one percent of GDP in the EC could, in principle, attenuate a formidable jolt to an individual member*".

(7) In case the considered variable is income per capita, the $w_i$ values will correspond to the national population proportion on the Union's total. In case it is used the unemployment rate, it will correspond to the national workforce in relation to the Union's total.

(8) In the case of the income per capita, the first would be: $\underline{Y}_{1it} = Y_{1it} - \sum_{i=1}^{12} n_{it} Y_{1it}$

with $n_{it}$ = percentage of the national population in the Union's population at moment t.

In the case of the unemployment rate, we would have: $\underline{U}_{1it} = U_{1it} - \sum_{i=1}^{12} l_{it} U_{1it}$

with $l_{it}$ = percentage of the national workforce in the Union's workforce at moment t.

(9) Mélitz e Vori (op.cit., p. 99): "*In the case of unemployment, the mere effort to avoid redistribution and offer only insurance cuts down the size of the possible program to something very small*". Hammond e von Hagen (1995, p. 4) also mention those authors' conclusion stating that "*an unemployment-based insurance would benefit only a very small number of European workers and only under very rare circumstances*".

(10) Bayoumi *et al.* (1997, p. 83): "*Hammond and Von Hagen (1996) pursue this issue further by considering an unemployment-based insurance mechanism. They show that there is a trade-off between interpersonal equity – giving all insured persons the same replacement rate on their incomes in previous employment – and insurance against asymmetric shocks. This further supports the conclusion that regional insurance mechanisms are not robust to deviations from the optimal design. Equipping EMU with an improperly designed insurance scheme may destabilise rather than stabilize*

*the monetary union*".

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# Table I

## Budget redistribution and stabilization between regions

| Budget redistribution between regions ( % ) | | | | | | |
|---|---|---|---|---|---|---|
| | USA | Canada | U. K. | Germany | France | Italy |
| Sachs and Sala-i-Martin (1991) | 38 | | | | | |
| von Hagen (1991) | 30 – 40 | | | | | |
| Goodhart and Smith (1993) | 15 | 13 – 24 | 21 | | | |
| Masson and Taylor (1993) | | | | | | |
| Pisani-Ferry *et al.* (1993) | | | | | | |
| Bayoumi and Masson (1995) | 21,9 | 39,2 | | | | |
| Asdrubali *et al.* (1996) | | | | | | |
| Obstfeld and Peri (1998) | 19 | 53 | | | | 8 |
| Mélitz and Zumer (1998) | 15,8 | 17,7 | 26 | | 38 | |
| Fatás (1998) | | | | | | |
| Decressin (1999) | | | | | | 30-35 |
| Budget stabilization between regions ( % ) | | | | | | |
| | USA | Canada | U. K. | Germany | France | Italy |
| Sachs and Sala-i-Martin (1991) | | | | | | |
| 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 |
| Mélitz and Zumer (1998) | 20,3 | 14,4 | 21 | | 19,4 | |
| Fatás (1998) | 11,1 | | 13,3 | 10 | 6,2 | |
| Decressin (1999) | | | | | | 20-30 |

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