

## Working Paper

Research Unit EU Integration  
Stiftung Wissenschaft und  
Politik  
German Institute for  
International  
and Security Affairs



*Ognian N. Hishov*

# Fiscal Federalism in the EMU

What makes the eurozone an OCA?

Working papers are papers in the subject area of a Research Unit, which are not officially published by SWP. These papers are either preliminary studies that later become papers published by SWP or papers that are published elsewhere. Your comments are always welcome.

Ludwigkirchplatz 3-4  
10719 Berlin  
Phone +49 30 880 07-0  
Fax +49 30 880 07-100  
[www.swp-berlin.org](http://www.swp-berlin.org)  
[swp@swp-berlin.org](mailto:swp@swp-berlin.org)

**Working Paper FG 1, 2007/ 15, August 2007  
SWP Berlin**

# Table of Content

**Abstract 3**

**1. Introduction 3**

**2. On the “European” Government 4**

2.1 The Model (I): Fiscal Expansion in the EMU 6

2.2 The Model (II): On the Equilibrium Scope of Fiscal Expansion 8

**3. On the size of the central budget 12**

**Appendix 1: Derivation of  $\mu$  16**

**4. Reference 17**

## Abstract

The paper discusses the necessity of some form of fiscal federalism in the Eurozone which is expected to remain a non-optimum currency area much longer. In the current economic and monetary union the bundle of shock absorption tools available is too small or too weak. A cycle smoothing central budget is suggested to support fiscal efforts on the national level. Although the size of the proposed budget is much bigger than the current one, it is however not huge if only automatic stabilizer functions are considered. By limiting the expenditure of the center only to shock absorption the political task of implementing a central budget can be solved.

## 1. Introduction

The advent of the common European currency, the euro, followed a political decision aimed at further solidifying the integration process across Europe. Yet within a cost-benefit framework currency unions only make sense if they meet the specific requirements of optimum currency area. The paper presented below claims Europe will not turn into an OCA soon but it could finally achieve similar quality. What must come to enable the economic and monetary union to better absorb asymmetric shocks? The prevalence of sticky real wages and the limited cross border mobility of labor tend to disable the EMU labor market and thus one crucial tool of adjustment. The result is that the Eurozone output is frequently stuck in a below potential equilibrium after a shock or it manages to adjust only slowly. Given the diminished shock-absorption capacity of the labor market another powerful tool must make-up. Required is a highly efficient fiscal response which on its part requires a kind of fiscal federalism in the currency union. Europe's specifics point out at the necessity to consider a new fiscal architecture in the EMU based on a large European budget managed by the Commission.<sup>1</sup> The underlying idea rests upon the traditional view that fiscal measures invigorate aggregate demand in downswing periods.

The article is organized around a formal model presented in the second section. It demonstrates that in the 8 trillion € EMU and 10 trillion € EU economy only a big-size European budget is an efficient tool to quickly pull the economy out of recession. Given the fiscal independence of the

<sup>1</sup> Here the now existing very small EU budget is ignored.

member states we show that national efforts to resume growth presuppose substantial fiscal response. Apart from the Stability and Growth Pact (SGP) it is the lack of policy mix in the Eurozone which reduces the spending effect, especially in big countries. In small countries, heavy taxation dampens incentives to work (“Laffer” effect) leaving the economy stuck in recession. In a last section the required size of a Community budget is gauged. To do so, a comparison between estimated income multipliers<sup>2</sup> by member state and a hypothetical pan-European multiplier comes to show the superiority of centralized fiscal measures over the national ones. We do not comment on the likelihood, or political enthusiasm, to set-up a common budget soon and to make the EMU more OCA-like. Rather the need for a highly efficient supplement to the existing - not so efficient tools - for shock accommodation is highlighted. The paper also includes some critical remarks on the asymmetric demand effects of a hypothetical central budget on the individual economies and thus on the output growth in Euroland/Europe given the fact that an OCA is only in making.

## 2. On the “European” Government

Back in the late 1980s the EU Commission launched the slogan “One market – one money” to mobilize Europe for a strong and internationally respected single European currency. Almost two decades later the time has come to think harder about the next step towards deeper economic integration – about a European budget. Why this urge? After all, the EU has the Stability and Growth Pact in place, allowing for some fiscal flexibility. But almost seven years after the launch of the euro, differences in the macroeconomic performance of the participating countries raise concern the single currency has been detrimental to the ambitious European goals of accelerating growth, job creation and achieving balanced national budgets. Rather, the EMU-region as a whole has been reporting for years lower output growth than other major competitors worldwide. Economic growth since the Euro introduction in 1999 has averaged 1.8% per year - well below the outcome of the US (3.1% yoy), but also less than some EU, yet non-EMU nations like Britain, Sweden and Central and Eastern Europe.

Not surprisingly, economists are so far divided about the right way out of Europe’s woes. Such a heavy weight like Robert Solow tends to identify product market policies in Europe as the culprit responsible for its current poor growth performance compared to the US. According to him, blaming, say, labor market rigidities alone for low German GDP dynamics is as if the

<sup>2</sup> In the basic form  $(1-c(1-t))^{-1}$

hole in a flat tire must always be on the bottom, because that is where the tire is flat (Solow, 2000).

But in a currency area adjustment must not take place within a single country alone. Rather, shock absorption and correlation of shocks should occur across the entire EMU. Moreover, it is desirable for the EMU to be more OCA-like and less a loose union of countries. Unfortunately, one cannot expect Europe to become an OCA soon. One important reason are history, culture and variety of languages that make labor market in the EMU to fall short of its role as adjustment tool. For that reasons real wage flexibility and labor mobility across Euroland borders will remain limited. Unlike the US, there is even greater fragmentation of wage bargaining in Europe. This is inevitable in a market made up of 27 nations, and the resulting problem of asymmetric information is harder to overcome. If the EU labor market was organized, i.e. centralized throughout all participating countries, the negotiators would oversee perfectly the economy and set wages close to equilibrium and zero employment gap. In the reverse case of fully decentralized markets the wage setting would be left to the market forces. Yet in reality there are dozens of poorly coordinated labor and employers unions across Europe trying to increase their own members’ utility only while ignoring aggregate-demand externalities. With other words, isolated bargaining may be serving just individual organizations but they are undesirable for the economy as a whole (Mankiw, 1985).

Critics of the Eurozone economic performance have been trying to attract attention to aggregate demand: Rather studying just European institutions, one should look harder at the weakness of the demand for labor, goods, etc. (Trichet, 2004). Here the budget shows up. In Euroland, which is non-optimum currency area, shock absorption is left to only a few policies which should be broadened. Fiscal federalism should stay high on the list of candidates. Within a centralized fiscal framework decentralization of expenditures and a system of subsidies and transfers between countries might work well (Alesina et al., 2001).

Especially when assuming European integration will translate into a better developed internal market the plea for single Community budget appears realistic: centralized tax cuts or spending increases will be more effective.

In this respect the specifics of the current budget are instructive:

- i) Conceived back in the 1950 to serve the “Six” (founding members).
- ii) Redistributive functions between industrialized West Germany (and Belgium, the Netherlands) and more rural France (and Italy).
- iii) Insufficient to serve a single currency area.

As Europe is left with myriad individual budgets the following question is raised: How efficient is a multitude of budgets complying with the Stability and Growth Pact (which implies restricted action to restore equilibrium)? A quick reality check of the long term macroeconomic

outcome across the EMU/EU reveals lasting differences, gaps. The truth is that despite a “free” fiscal response by the individual governments various natural rates of unemployment (NAIRU) have persisted for years, even decades, across the EU. The very obvious reason is – ironically – the European commitment to low inflation. Hereby the result is a stabilization of the actual rate close to the natural rate<sup>3</sup>. Some nations – Spain, France, Germany, Finland, Italy, Belgium – report much higher unemployment than others, notwithstanding whether EMU member states like Ireland, the Netherlands and Austria or non members – the UK, Denmark, Sweden etc. Obviously restricted intervention fails to bring the economy back to equilibrium fast<sup>4</sup>, and this finding is not new (Akerlof et al., 1996). Early studies on the European currency union have expressed doubt national fiscal policy alone will suffice to stabilize the economy (see Kiandra et al., 2000 for overview) but they have been dismissed later. More current research appears to stick to the belief in a small budget (Heinemann, 2003).

## 2.1 The Model (I): Fiscal Expansion in the EMU

To assess the importance of aggregate demand for growth in an economic union with centralized money supply we employ the Robert Hall small macroeconomic model (Krugman, 1998), explaining why monetary policy alone cannot affect sufficiently aggregate demand fluctuations. In the model the price level is directly determined by the wage level since the output is a homogenous good produced only by labor. Intuitively, in Euroland too, GDP is produced by employing labor as input (also capital, but it can be thought of as labor employed in past periods). Households enjoy utility not just from consumption, but also from the expected purchasing power of money they hold. That is, the utility of money is in providing future consumption. Because the Central bank is actively fighting inflation, future, i.e. expected, price level is unchanged:

$$P^e = P,$$

with  $P^e$  the expected (future) price level and  $P$  the current price level.

Utility is provided by real balances saved out of the households’ income and by consumption with marginal propensity to save ( $s$ ) and to consume ( $1-s$ ) as the respective shares:

$$U = (M/P)^s C^{1-s}$$

The utility function implies households will spend their wealth on goods and the rest on money.

While households’ consumption is  $C$ , households are endowed with  $L$  units of labor; thus if there is no unemployment, the budget constraint is

$$C + M'/P = L + M/P$$

with  $M'/P$  real balances at the end of the period. Because the money supply

<sup>3</sup> According to the Phillips curve in the form  $U_n = 1/\alpha(\pi - \pi^e) + U$  the natural rate of unemployment  $U_n$  is close to the actual unemployment when there is no change in inflation.

<sup>4</sup> In the strong sense we should care about transitory shocks only. But with slow response transitory shocks turn into permanent ones, which is often the case in Europe.

is assumed constant ( $M = M'$ ), real balances at the start and the end of the period are the same, i.e.  $C = L$ .

Given the condition that demand for money equals supply, the price level is a linear function of the money supply:

$$P = ((1-s)/s)M/L.^5$$

The problem resulting from a price level strait linked to money supply is what happens if prices are sticky. In Europe, the reason for sticky price levels is usually rigid nominal wages, which are subject to a complicated and often highly centralized process of wage bargaining (Deroose et al., 2004). But if the wage level is higher than the equilibrium level consistent with full employment the result is that the real balances in the economy stay below equilibrium. In a currency area made up of quite different economies – Germany on the one side, Spain and Ireland on the other, Italy in between – real balances disequilibria may quickly show up. Some European economies may end up suffering money supply falling short of their demand at full employment. The mirror picture is output at full employment that falls short of demand.

We have assumed constant price levels in the future (no inflation expectations); therefore, agents continue to hold the same amount of money at the end of each period they held at the beginning. The labor compensation is fully spent on consumption, which means consumption depends on the real balances:

$$C = ((1-s)/s)M/P.^6$$

We have established that prices are sticky and the money supply is due to the independence of the European Central Bank exogenous, i.e. not subject of political manipulation. Then the only opportunity to raise  $C$  is by increasing government spending. Put other way, because in Europe the price level can not fall, expenditure must rise.

This model captures in simplified form some typical European realities. It foremost mirrors

- i) Rigid labor markets and – in the medium term - sticky wages and prices
- ii) As well as an independent ECB, aggressively guarding price stability.

At the same time the model’s concentration on demand issues oversimplifies Europe’s complex reality, where two dozens of individual nations with their different preferences, experiences and stages of development add up their economies to the EU economy as a whole. This complexity produces a complicated mix of labor market, fiscal and monetary outcomes and makes the single monetary policy, as well as the coordination of myriad fiscal policies less straightforward than in the US, the only OCA comparable to Euroland. Yet in America the centralized – Federal – budget

<sup>5</sup> In equilibrium, either demand for goods equal supply  $L = (1-s)(L+M/P)$ , or demand for money equal supply  $M/P = s(L+M/P)$ . Solving for  $P$  delivers the above equation.

<sup>6</sup> Having related  $L$  to  $M/P$  in the form  $L = (1-s)(L+M/P)$ , and assuming  $L = C$ , obviously  $C = (1-s)(C+M/P)$ . Consequently,  $M/P = s(C+M/P)$ . Solving for  $C$  delivers  $C = ((1-s)/s)M/P$ .

is crucial to lift federal states in economic woes out of crisis. Their own fiscal efforts are at best supplementary. This is even clearer visible when compared with the American economy featuring high degree of adaptability, cross-border (between federal states) labor mobility and highly integrated financial markets (Hein et al., 2006). Since these prerequisites of a smoothly working OCA are far from being in place in Europe, it is even more difficult for individual EU governments to adjust to demand shocks relying in the first place on the own fiscal response. Put differently, output gaps can be treated better by a big pan-European budget. Hereby a highly relevant player can be a “central” government, i.e. Brussels.

## 2.2 The Model (II): On the Equilibrium Scope of Fiscal Expansion

Such a suggestion stands apart from the bulk of considerations regarding the finances of the EU member states. Usually the flaws of the Stability and Growth Pact (more specifically its inability to allow for fiscal flexibility) are studied and most proposals for remedy are in line with the view there is no prospect for another budgetary regime than the one in place (for an extended overview see especially EU Commission, 2005). So it is time to rethink the resulting dichotomy between a centralized monetary policy and decentralized fiscal management in the euro area or, what is the mirror picture, the predestined lack of a standard policy mix to fight recessions, stimulate growth and deal with unemployment.

To explain why a centralized budget is superior to the many individual national budgets we draw on a model by Cooper and Kempf (Cooper et al., 2002), where stabilization is based on risk sharing between employed and unemployed. However, we slightly depart from the original model which envisages inflation tax as a redistributive tool the fiscal authorities have on hand, but which is unrealistic in the real world of Europe’s EMU. By eliminating the opportunity of creating money to finance benefits and transfers to stabilize aggregate demand the model is better tailored to mirror the independence of the ECB and the limitations of the –national -fiscal efforts during downswing periods.

The model posits that the optimal non-cooperative government policies perfectly insure agents from the current risk of unemployment; consumption levels are independent of employment status in youth. Cooper and Kempf stress the use of money creation to ensure that the nominal incomes of agents within a country are equal ( $I_{Et} = I_{Ut}$ ) in any period of time  $t$ , regardless of their employment status (E or U). Consumption does not vary with shocks. For simplicity the model assumes that in this monetary union each government imposes a proportional income tax. The income tax provides a basis for financing unemployment insurance. In this case, a monetary union is welfare improving regardless of the correlation of shocks among member economies, but there is no guarantee this is superior to a centralized budget:

Income tax revenues affect the budget constraint of the home fiscal authority. It is given by

$$(1 - q_t)b_t^s = \tau_t^s p_t n q_t + \Delta S_t \quad (1)$$

where  $1-q$  is the unemployment rate ( $u = (1-q)/1$ ),  $b_t^s$  are the provided unemployment benefits,  $\tau^s$  is the tax rate,  $n$  is the level of output per worker and  $p_t n q_t$  is the output in “Home” priced at the prevailing price level in period  $t$ . Also, the monetary transfers to the fiscal authorities are  $\Delta S_t$ .

To study stabilization within the European EMU, we must realistically suppose that the ECB keeps the nominal stock of money fixed, regardless of a shock to an individual country. This leaves the affected national government with a simple fiscal policy: taxation of the nominal income of the employed which is transferred to the old and unemployed home agents who consume the home good. Given only the nominal labor income is taxed at a rate  $\tau$ , then the government collects nominal revenue of

$$T = \tau p q n. \quad (2)$$

Maximal nominal government spending on domestic goods is given by  $M + T$  so that goods market clearing is

$$(M + T) = (1-f)p q n. \quad (3)$$

where  $T$  is a nominal transfer made to home agents who consume the home good,  $M$  is the fraction of the aggregate money stock  $\Delta S_t$  spent on the home market and  $f$  is the share of foreign goods in the domestic market. Inserting (2), this condition becomes

$$(M + \tau p q n) = (1-f)p q n. \quad (4)$$

In the case of a shock the government is endeavoring to keep output close to potential; this translates into maximizing the employment rate (or, what is the same, reducing the unemployment rate). We do so by differentiating (4) with respect to  $q$  which after rearrangement yields

$$dM/dq = p n - \tau p n - f p n. \quad (5)$$

Bearing in mind there is no bail out in the EMU due to the independence of the ECB we set  $dM$  at zero which is also the first order condition for maximization. This implies (after some manipulation)

$$p n (1 - \tau - f) = 0; \quad (6)$$

Division of both sides by  $p n$  leaves

$$1 - \tau - f = 0 \quad (7a)$$

and hence

$\tau = 1 - f. \quad (7b)$
----------------------------

The result is that it is the tax rate and therefore the burden of taxation which determines the ability of an individual government to act efficiently to close the potential gap soon. On its part it depends on the degree of openness of the economy. Small and more open countries would better respond to a sudden shock, whereas big and more closed ones will need a greater amount of fiscal intervention. This is an important conclusion, since the EMU is quite heterogeneous with respect of the variance of the countries’ size – from tiny Malta to big Germany. The historically evolved European variety makes it distinct from national states and other opti-

<sup>7</sup> For convenience we hereafter omit the time subscripts.

num currency areas (Table 1). At the same time it helps to understand why it is difficult for the EMU to fight recessions as effectively as national states with national budgets. Hence the finding that fiscal restraint in Europe is unnecessary as long as the EMU retains a high degree of fiscal decentralization (Eichengreen et. Al., 1995) is problematic.

**Table 1: The EMU 13 Variety in Comparison to National States**

Country/Area	Population, mn	NUTS-0/1 Regions	Standard deviation of population, mn
EMU	313	13	26.1
US	300	50	6.5
Germany	82	16	4.4

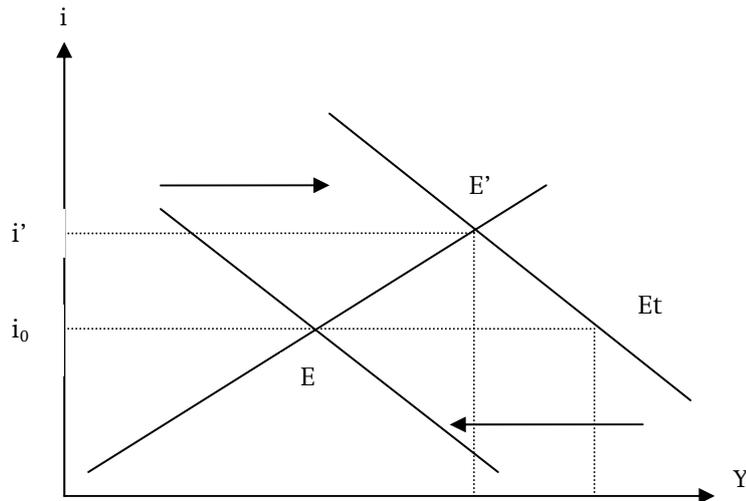
Source: CBO; EU Commission (2006)

Yet not only is the SGP limiting the room for fiscal maneuver in Europe. Also shock accommodation lasts obviously longer in the bigger economies of the EMU. This produces the negative statistical effect of making the European economy less flexible than, say, the US economy, which is unlike the EU an optimum currency area. When only a restricted fiscal intervention is in place the economy is stuck in a “wrong” equilibrium with employment gap mirroring the shock and no-escape is – at least in the medium run - the undesired outcome. Moreover, the size of the participating country decides how increased spending by the national government translates into output gains. This may better work for a small country which is an interest rate taker. In contrast, a big country is very much able to influence the interest rate level in Europe’s monetary union and this highlights the need for policy mix. Basically it would imply some monetary response to a fiscal expansion in the big country: in order to avoid credit crunch and recession elsewhere, the ECB would allow for credit growth. Yet by virtue of her independence and for stability considerations applied to the EMU as a whole the ECB hardly will be willing to monetize individual fiscal efforts. Again, in the case of very small and small member states of the EMU this will be less harmful; in the case of the big economies of Germany, France, Italy (and perhaps Spain) it would be detrimental, as demonstrated by a standard IS-LM schedule interaction (see Figure 1).

In the figure the initial level of output is determined at the first equilibrium point E; an initial interest rate  $i_0$  is attributed to it. Spending increase by the government of a big country would move the economy to point Et if there was a policy mix resulting in a subsequent action by the ECB to expand the money supply. Otherwise the greater demand for real balances (as a consequence of now higher income in the country) would require interest rate to rise. If the ECB would not act, higher interest rates (up to  $i'$ )

would cause the output to fully or partly return to point E. Thus the separation between monetary and fiscal policy in Europe makes it in the case of large countries unlikely that national spending efforts are very successful in bringing actual output back to potential. With the Central bank standing at the sidelines a crowding out unleashed by the expansionary policy of the national government is expected to reduce private spending, especially investment, and to prolong the recovery process.<sup>8</sup>

**Figure 1: Government Spending in Big Member States at Fixed Interest Rate**

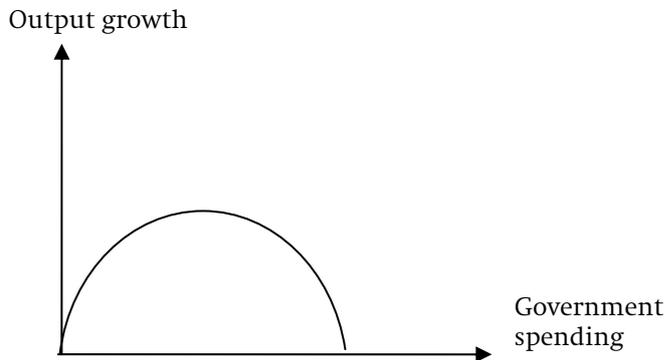


Source: Author

Yet this does not indicate the small member states do not face constraints to pull themselves out of recession (Figure 2). Models tend to prove that the impact of taxation and government spending on marginal costs and aggregate supply can be considerable. Because both income and consumption taxes lower the real wage they at the same time increase marginal production costs. As a result labor supply is reduced. Then the effect of an increase in government spending is the reduction of private wealth and lifetime private consumption. With consumption decreasing, the marginal utility of consumption relative to leisure increases. To restore consumption and wealth private households must increase their labor supply. Obviously, if the tax burden is heavy the incentives to work harder eventually will subside which tends to make small member states less bouncy too (Herz et al., 2006).

<sup>8</sup> Here the degree of crowding out is important. It will be smaller at first and bigger later, as the LM-schedule becomes increasingly vertical.

Figure 2: Government Spending and Output Response in Small EMU Countries



Source: Author

### 3. On the size of the central budget

How big should be our envisaged EMU budget? The others' experience – USA, Canada, Australia, Germany – all federal states enjoying fiscal redistribution, may provide first tentative rule of thumb. In all these countries the size of their general government is between one third and half the nominal GDP. Fiscal federalism allows for payment reductions to the federal/central government during downswing periods and at the same time for increased center-periphery transfer receipts. Across nine big US regions the estimated tax elasticity of budget payments in recession averages 0.35, i.e. payments to the center are cut by more than one third. Conversely, receipts from the Federal government swell up to 8 percent. As a result the amplitude of the business cycle in the region is strongly smoothed: on average 40 percent of the income loss due to the recession is offset this way (S.-i-Martin et al., 1992). This is a considerable result and although more recent research has revised the net effect downward (Mélitz et al., 1998) the question remains how to cushion permanent shocks in the absence of a redistributive system. Again, the EMU differs from European national states organized on federal principle as, say, Germany: In that country the so called horizontal inter-Laender (inter-regional) fiscal redistribution makes one fifth to one fourth of the total of some local budgets. Yet in Germany the aim of the redistribution is a permanent almost-equalization the spending power of the federal Laender. This is not to be confused with the cycle smoothing purpose of the Community budget. Moreover, for political reasons any permanent scheme of direct

inter-state redistribution is hardly applicable to the EMU.

Hence, to consider the viable size of the European budget we first assume that it will still differ from a national budget in the sense that only the automatic stabilizers will be in place. This is in line with other proposals who envisage budgets with limited functions, precisely only for stabilization purpose. An active discretion is for uncertainty and lag reasons ruled out. It can be feared that any hypothetical European government (made up by various nationals with varying cultural and historical background) would be prone to more volatility in its fiscal policy than a typical national administration. If, for example, “Brussels” has typically cut taxes in recessions and now it decided not to do so, aggregate demand can fall further since the public had expected tax cuts which do not occur. Also, because the link from spending to growth does not work instantaneously, stabilization policy may eventually be destabilizing in a complex Europe. However, even stripped off other functions but stabilization the remaining volume of the future European budget would still be much bigger than the one-percent current budget.

Next, one should compare the fiscal policy multiplier with and without policy mix. Typically, the latter is smaller while the former is bigger. In the IS-LM model employed above this is due to the restrictive effect of rising interest rates with a fiscal expansion. The respective multiplier is<sup>9</sup>

$$\mu = ah/(h+kb\alpha) \quad (8)$$

with  $\mu$  the multiplier with interest rate adjustment and  $\alpha$  the multiplier without interest rate adjustment.  $b$ ,  $h$ , and  $k$  is the responsiveness of investment to the interest rate, of demand for real balances to interest rate and of real balances to output growth, respectively. Importantly,  $\mu$  is less than unity<sup>10</sup> while  $\alpha$ , the multiplier in the form  $(1-c(1-t))^{-1}$  is usually bigger than 1. For political acceptance we establish the central budget is used only for stabilization reasons, hence there are no other expenditures (on agriculture or structural measures) than transfers to depressed member states.

In an EMU with automatic stabilizers only, there is no  $\mu$ , rather just  $\alpha$ . As explained, the ECB cares about the aggregate economy of the EMU. Therefore any attempt by individual government to invigorate growth by additional spending does not affect EMU’s monetary indicators like short term interest rate and real balances. The effect of the fiscal federalism is then a function of the transfers by the central government to the respective national government  $i$ :

$$Y_i = Tr/\alpha. \quad (9)$$

This presupposes a European tax and unemployment insurance paid to the supra-national budget. Other authors come to the same conclusion: The EC has to increase the size of its budget dramatically (since the SGP prevents to increase the stabilisation burden of the national governments), through the creation of a EC-wide tax-transfer system (Governatori, 2003).

<sup>9</sup> For derivation see Appendix 1.

<sup>10</sup> By setting  $\alpha$  at 1 and division of the numerator and denominator by  $h$  we obtain:  $1/(1+kb\alpha/h)$  which is less than 1. But even for greater values of  $\alpha$  the result is similar.

Depending on the marginal propensity to consume and the “European” tax rate a Euro transferred to the suffering economy would cause the output to rise by more. We further assume the EU budgeted legislation is changed in the future to allow governments of distressed countries for transitory reduction of the rate of the “European” tax as a form of demand stimulus. In this case the effect would be even bigger because of an enhanced multiplier. So the question how big the European government must be must be linked to a workable fiscal support. While technically the government share of the economy can vary between one (total centralism) and zero (no taxes collected) we believe it is sufficient to keep the EMU budget closer to the minimum. After all, the small (by European standards) US Federal government budget is about one fifth of America’s GDP, yet it contains the not so negligible amount of the government purchases. Net of purchases the expenditure is mostly reduced to various transfers of some 15 percent of the US GDP. The US multiplier is due to the greater propensity to consume and the lower tax burden much bigger than in the most European countries.

This gives an idea about the design of Europe’s own future budget set up exclusively for stabilization purposes. It will be therefore an economic insurance against output disturbances and will be sized upon the assumption that not the entire EMU will fall into recession simultaneously. Insurance work properly if only some member states suffer a slowdown, otherwise the “insurance company” would collapse, unless the “premium”, in this case the taxation, is expanded to cover more spending. What is reasonable, then? To prepare for sufficient capacities we assume a worst case with the three biggest economies – Germany, France and Italy - responsible for roughly two third the EMU GDP to slide simultaneously into recession, while the rest of the member economies is in good condition. How big should the European budget be to meet the requirement to provide relief? Research result suggests that the standard deviation of the budget deficit by country in the EMU is -under normal circumstances- about 2.5 percentage points (Kiander et al., 2000). This is backed by the finding that at least one-third of the initial shock to the US regions is absorbed by the Federal Government. In Europe, where national governments are unlike the US Federal states allowed to run deficits, the figure would be even smaller. In extraordinary situations, it may double to 5 percent of the national GDP. This translates into an estimated volume of the EMU’s budget of roughly 3-4 percent of the total EMU output. If the tax base is 50 percent of the GDP, a tax rate of 6-8 percent will be required to finance the budget.

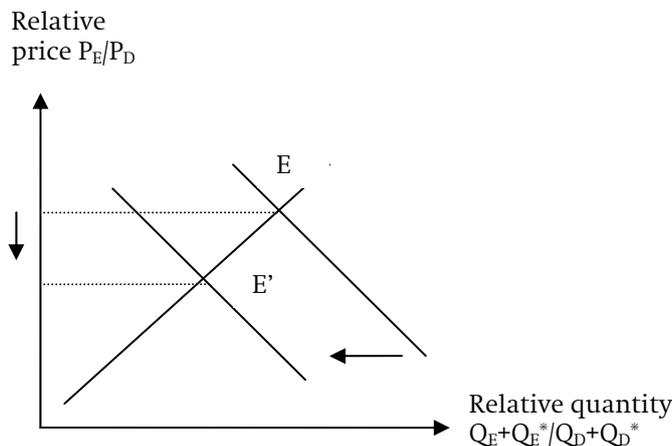
Other proposals come to similar figures, e.g. 2 or 3 percent of countries GDP, although they may vary depending on the agreed amount transferred (Italianer et al., 1994; Mélitz et al., 1993). In the case of a simultaneous slump in the biggest economies and when the fiscal expansion is more generously sized (4 percent), roughly 2.4 percent of the EMU GDP will be required.

For simplicity, again, we treat member countries as economic agents

paying taxes to Brussels and receiving benefits from there. Then in the case of an adverse shock a reduction of tax payments is expected to increase the multiplier. More transfers will keep the marginal propensity to consume closer to potential with a cushioning result. The stabilizing effect is significant due to the low tax rate of less than 0.1: at the current marginal propensity to consume of approximately 0.65 in Europe the resulting would be some 2.5. This is well ahead of the most national multipliers.

Some side effects of a Community budget arise, however. Firstly, the existence of built-in automatic stabilizers will require abandoning the idea of a balanced European budget. This is politically a hard issue in Europe. Secondly, large transfers in favor of big countries like Germany will cause the terms-of-trade to shift within the EMU giving the recipient additional competitive edge (Figure 3). If the Community (E) makes a transfer to Germany D (or France, Italy), income in E is reduced, causing expenditure to shrink while the recipient nation D correspondingly increases its expenditure. This shift in the EMU's spending structure entails shift in the relative demand and relative price, i.e. the terms of trade. The reason is countries usually allocate higher proportion of a marginal shift in expenditure to home made goods (as a rule services) which at any initial relative price level increases the quantity supplied by D. The relative supply falls, causing the relative supply curve to shift to the left from equilibrium point E to a new equilibrium E'. This is associated with a new, lower, relative price in favor of Germany. The conclusion is, large countries (who affect relative prices) may gain twofold: by receiving transfers from Brussels and by boosting their competitiveness.

Figure 3: Effect of a Budget Transfer on Competitiveness



Source: Author

There are even more considerations related to the different size of the EMU member economies. Big countries - Germany, France and Italy which count for roughly 30, 20 and 17 percent of the EMU economy - respond differ-

ently to changes in spending or to automatic stabilizers than smaller members. Since they are less open, even small depreciation in real terms may work. Therefore the proposed central budget must not be too large.

The opposite may occur to small, i.e. very open economies. They feature lower elasticity of import with respect to prices for imported goods and tend to end up with higher price level but with little growth after depreciation. Fortunately, they can rely on the big countries' demand picking-up and providing incentives to growth.

The propagation effects of central stabilization measures during a recession in big and small countries differ, too. Large countries are less sensitive to tax cuts elsewhere, while the smaller and peripheral members might be strongly influenced by tax changes in large and central ones. The direction of the effect is however ambiguous: tax reductions by the big may force the small to follow. Alternatively, by returning to growth the big can pull the small out of crisis, etc. In any case lacking a supportive central budget and within a low inflation environment the adjustment of the real exchange rate in the EMU will continue to fall on employment and unemployment.

## Appendix 1: Derivation of $\mu$

The investment spending function is  $I = \hat{I} - bi$  with  $b > 0$  the responsiveness of investment spending to the interest rate.  $Y = AD = \bar{A} + c(1-t)Y - bi$ , with  $AD$  and  $\bar{A}$  the aggregate and autonomous demand, respectively. Then  $Y = (1/(1-c(1-t)))(\bar{A} - bi)$ , or

$$Y = \alpha(\bar{A} - bi) \quad (1).$$

The demand for real balances,  $L$ , is expressed as  $L = kY - hi$ , with  $k$  and  $h$  the sensitivity of the demand for real balances to the level of income and the interest rate, respectively. The real money supply is  $M/P$ , hence in equilibrium  $M/P = kY - hi$ . By solving for  $i$  we obtain:

$$i = 1/h(kY - M/P) \quad (2).$$

Inserting  $i$  in (1) gives  $Y = \alpha(\bar{A} - b/h(kY - M/P))$  or,  
 $Y = (h\alpha/(h + kb\alpha))\bar{A} + (b\alpha/h + kb\alpha)M/P$ , which can be simplified to  
 $Y = \mu \bar{A} + \mu(b/h)(M/P)$ , as

$$\mu = \alpha/(1 + (kab/h)).$$

## 4. Reference

Alesina, A., Angeloni, I. and F. Etro (2001): Institutional rules for federations, NBER working paper 8646, Cambridge, Mass.

Akerlof, G., Dickens, W. and G. Perry (1996): The macroeconomics of low inflation. Brookings Papers on Economic Activity, No 1, pp. 1-76.

Cooper, R. and Kempf, H. (2002): Overturning Mundell: Fiscal Policy in a Monetary Union, Federal Reserve Bank of Minneapolis, Research Department Staff Report 311, September 2002, available at: <http://minneapolisfed.org/research/SR/SR311.pdf>

Eichengreen, B. and von Hagen, J. (1995): Fiscal Policy and Monetary Union: Federalism,

Fiscal Restrictions and the No-Bailout Rule, CEPR Discussion Paper 1247.

EU Commission, DG EcFin: Public finances in the EMU 2005, Brussels 2005.

Governatori, M. (2003): A fiscal federalism perspective of the economic policy framework in the Euro-zone, Instituto de Estudios Económicos de Galicia, Working paper No. 69, available at: [www.fbarrie.org/fundacion/jsp/workingPaper/wpapers/wpn69.pdf](http://www.fbarrie.org/fundacion/jsp/workingPaper/wpapers/wpn69.pdf)

Hein E., and Truger, A. (2006): Fiscal Policy and Macroeconomic Performance in the Euro area – Lessons for the Future, Macroeconomic Policy Institute (IMK) in the Hans Boeckler Foundation, Working Paper Series, available at: [http://www.boeckler.de/pdf/p\\_imk\\_wp\\_07\\_2006.pdf](http://www.boeckler.de/pdf/p_imk_wp_07_2006.pdf)

Herz, B., Roeger, W. and L. Vogel (2006): Optimal simple rules for fiscal policy in a monetary union, Beyreuth University discussion paper 07-06, May 2006.

Heinemann, F. (2003): Perspektiven einer zukünftigen EU-Finanzverfassung, Integration (26), Nr. 3/2003, S. 228-243.

Kiander, J. and Viren, M. (2000): Do automatic stabilisers take care of asymmetric shocks in the euro area? Finish Institute for Economic Research, Helsinki, available at: [http://en.vatt.fi/file/vatt\\_publication\\_pdf/k234.pdf](http://en.vatt.fi/file/vatt_publication_pdf/k234.pdf)

Krugman, P. (1998): The world's smallest macroeconomic model, Web Page, available at: <http://web.mit.edu/krugman/www/MINIMAC.html>

Italianer, A. and Vanheuleken, M. (1993): Proposals for Community Stabilization Mechanisms: Some Historical Applications, in: European Economy Series, Public Finance, No. 5/1993, pp. 493-510.

Mankiw, N. G. (1985): Small menu costs and large business cycles: a macroeconomic model of a monopoly, Quarterly Journal of Economics 100 (May 1985), pp. 529-537.

Méltiz, J. and Vori, S. (1993): National insurance against unevenly distributed shocks in a European monetary union, Recherches Economiques de Louvain, 59, 1-

2/1993, pp. 81-104.

Melitz, J. and Zumer, F. (1998): Regional redistribution and stabilization by the center in Canada, France, the UK, and the US, Centre for economic policy research, Discussion paper 1829, December 1998.

Sala-I-Martin, X. and Sachs, J. (1992): Fiscal Federalism and Optimum Currency Areas: Evidence for Europe from the United States, in: Canzoneri, M., Grilli, V. and P. Masson (eds.): Establishing a Central Bank: Issues in Europe and Lessons from the US, Cambridge University Press, 1992, Cambridge, UK.

Solow, R. (2000): Unemployment in the United States and in Europe. A Contrast and The Reasons. Cesifo Working Paper No. 231, Munich, 2000.

Trichet, J.-C. (2004): Structural reforms and growth, as highlighted by the Irish case, Keynote address delivered at the Whitaker lecture organised by the Central Bank and Financial Services Authority of Ireland, Dublin, 31 May 2004, available at: <http://www.ecb.int/press/key/date/2004/html/sp040531.en.html>.