A euro-area wide unemployment insurance as an automatic stabilizer: Who benefits and who pays?

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1 Introduction

Since the onset of the euro-crisis, a number of large institutional changes have been brought forward for the European Monetary Union, including a closer surveillance of national budgets, stricter deficit rules and a new procedure for the prevention and correction of macroeconomic balances. In addition, several road-maps and blueprints for a true economic federation in Europe and a political union have been proposed.

Many of these proposals contain or at least mention some kind of macroeconomic stabilization instrument. One possibility for this might be an E(M)U-wide unemployment insurance as discussed in Dullien (2007, 2008, 2012) or Deinzer (2004).

This paper is looking at some of the issues related with such an unemployment insurance. It will first contrast the working of such insurance with some other possibilities of regional shock absorption, namely the disbursement of funds towards national governments related to some labor market trigger such as the increase of unemployment by a certain amount. In a second step, the paper will simulate the working of a euro-area wide unemployment insurance and provide some estimates on the distribution of payments and benefits across countries and on the possible stabilization impact over the business cycle. It will thereby try to address some of the recently voiced criticism that an unemployment insurance is an unsuitable instrument for stabilization within EMU as it would either not stabilize or infer large permanent flows from a group of permanent net payers to permanent net recipients (i.e. Wolff 2012). This paper builds on Dullien (2012) and keeps details already covered in the companion paper rather short. Thus, it should be read in combination with that earlier paper.

2 Options recently discussed

While there is a large number of options conceivable for fiscal transfer systems bolstering idiosyncratic national shocks, this paper focuses on a relatively narrow set of proposals which are all linked to the labor market: Funds which are paid to individual countries which experience high and rising unemployment with and without conditionality on spending these funds on unemployment protection and a European basic unemployment insurance as discussed in Dullien (2007, 2008, 2012).

2.1 Preliminary thoughts on maximizing a system's macroeconomic stabilization properties

Before discussing the merits and problems of potential automatic stabilizers for the euro-area, it is necessary to first define the criteria for a good stabilizer. As Elmendorf and Fuhrmann (2008) argue, fiscal stabilization should be **timely, targeted and temporary**. While Elmendorf and Fuhrmann's argument is made in the context of discretionary fiscal stimulus, it certainly holds also for automatic stabilizers. These can only stabilize the business cycle if they work in a timely matter. While automatic stabilizers usually have other, additional goals beyond stabilization, the more targeted they are on macroeconomic stabilization, the larger the stabilization effect they can provide per euro transferred between the private and the public sector. Finally, by definition, their payments should only be temporary as by definition an economy will only be the downswing period for part of the business cycle and it is in the nature of automatic stabilizers not to further boost the economy in an upswing.

Politically, an automatic stabilizer on the EU level should be **transparent and robust** to attempts of manipulation by national governments. Transparent here means that it payment flows should be easy to understand and logical not only to insiders, but at

least to the interested public. Robust here means that it should not adversely affect the incentives of national governments for employment-friendly reforms and that it should not be possible by national governments to induce payment flows by altering minor details of their statistics or labor market legislation.

For the E(M)U, a further question has to be asked when constructing area-wide automatic stabilizers: Should the stabilizer be constructed as to only stabilize intra-regional deviations of the business cycle (**stabilization across space**) or should it also try to contribute to the stabilization of the area-wide business cycle (**stabilization across time**)? The answer is of central importance when it comes to the question whether any transfer scheme should be allowed to run surpluses or deficits: If only the system's revenue of any single year is redistributed in the same year, a stabilization of differences in the business cycles between countries might to a certain extent be achieved, but the system will not provide much stabilization for the region as a whole.

Only a few years back, the question on whether stabilization only across space or also across time should be aimed at would probably have been answered by most economists that any European scheme should mainly aim at stabilization across space. According to the macroeconomic consensus of the 2000s, within a monetary union, the common monetary policy would be responsible for stabilizing the overall business cycle while national automatic stabilizers (or national discretionary fiscal policy) should try to stabilize national deviations from the area-wide business cycle. Yet, with the experience of the past years, these conclusions need to be reconsidered: Especially in the downturn since 2009, monetary policy has proven to be less effective in stabilizing the business cycle than assumed in the past. First, with policy rates close to 0, the zero-bound of the interest rate has become an issue, preventing the central banks in industrialized countries to cut the interest rate as much as they would otherwise have done. Second, with a lot of non-performing loans in banks' balance sheet and many banks facing a shortage of regulatory capital in the wake of the transition from Basel II to Basel III, monetary policy does not seem to be as effective as in previous periods. Third, with the sovereign debt crisis in the euro area and the increase in spreads between countries, monetary policy transmission has been disturbed, especially in crisis countries (ECB 2012). Against this background, an area-wide automatic stabilizer which provides stabilization not only across space but also across time would have been preferable.

By its very nature, fiscal institutions which are supposed to stabilize the business cycle not only across space, but also across time, need to be able to transfer funds from times of buoyant economic activity to times with weak economic activity. When phased in at the beginning of an upswing, this would mean accumulating funds for the next downturn. However, as the timing of recessions cannot be predicted with certainty in advance for the following years, and sometimes crisis might be extraordinarily large, the full working of an E(M)U-wide automatic stabilizer which is supposed to help dampen economic fluctuations across time would necessitate the ability of this stabilizer to borrow funds in a downturn and pay them back in an upswing.

2.2 General budget transfers to countries with high and rising unemployment

In principle, one could imagine a very simple system under which countries receive funds if their national cyclical economic situation either is bad in absolute terms or deviates strongly from the economic cycle in the monetary union as a whole. In fact, proposals to this end have already been brought forward and discussed prior to the inception of EMU (i.e. Majocchi/Rey 1993 and Pisani-Ferry et al. 1993).

While a number of proposals focus on the output gap for determining the financial transfers for stabilization purposes (see i.e. Wolff 2012), this measure has significant shortcomings as the output gap cannot be measured or estimated with great precision in real time and first estimates are often strongly revised. One possibility would be, of course, to take the available data in one moment of time, estimate the output gap given this information (and with a previously defined methodology) and then fix the payments regardless of future revisions to the output gap estimate.

However, while this approach would allow national governments some reliable planning, it has the short-coming that it would potentially destabilize economies further: The fact that estimates for the output gap are often *ex post* revised very strongly, with sometimes even the sign reversing, is an indication that this variable is not a good instrument for timely measuring an economy's position in the business cycle and therefore should not be used for deciding upon stabilization activities. If the contemporarily measured output gap shows a negative value (that is current output below potential) and would thus lead to transfers and additional public spending, but it turns later out that, the economy had already been operating above potential, this transfer would actually have boosted an already overheating economy. The revisions to the output gap in Spain are a case in point here: According to EU Commission estimates in spring 2007, the Spanish economy had been operating significantly below potential since 2004. According to the latest (autumn 2012) estimates, this has been completely wrong: Instead, the EU Commission now reports a significantly positive output gap for the same period (see table below).[1] Had one operated a stabilization scheme on this data, Spain would have received extra funds to boost the economy in these years – which would have been completely wrong according to more up-to-date data. These transfers would have had a pro-cyclical effect, actually making the construction and real estate boom of these years worse. In fact, the problems with the output gap are not restricted to single countries such as spain. As Kempkes (2012) demonstrates, large-scale revisions of output gaps with changes of the sign are a common feature with standard measurement methodology, not only for Spain, but for many EU countries.[2]

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[1] Note that this revision does not stem from mistakes by the EU Commission or by a revision of underlying DGP data, but just from the fact that estimates for the output gap are sensitive to what is assumed for the future. As the time after 2007 turned out to be much worse for the Spanish economy than anticipated, potential output for prior periods was revised downwards.

[2] One should note here, that this problem is not only relevant for the output gap as an indicator determining transfer payments, but for all variables which are estimated using econometric filter methodology. If one were to use, for example, the NAIRU (non-accelerating inflation rate of unemployment) which also cannot be directly measured but needs to be deferred from past and future unemployment trends, one would experience similar difficulties.

Table 1: Output gap estimates for Spain by the EU Commission in 2007 and 2012, in % of potential GDP

	Average 1997-01	Average 2002-06	2002	2003	2004	2005	2006	2007	2008
Spring 2007 forecast	0.4	-0.3	1.1	0.1	-0.6	-1.2	-1.1	-1.0	-1.3
Autumn 2012 forecast	1.0	1.2	1.5	0.9	0.8	1.0	1.8	2.1	0.5

Thus, a possibility would be to link transfer payments not to the output gap, but to some other measure which has a close correlation to the business cycle and to the need of public expenditure such as the number of short-term unemployed. Interestingly, such a link to directly measurable variables instead of the output gap is featured in the earlier contributions on the topic such as Majocchi/Rey (1993) and Pisani-Ferry et al. (1993).

In order not to create large transfers for every year, but only in times of recession, one could limit these transfers only to case in which unemployment has been rising from an already elevated level. Thus, a country would only receive funds from the EU stabilization budget if certain triggers are met. In the US unemployment insurance system (which is organized as a hybrid federal-state system), triggers are in place for special instrument such as the "extended benefits" (under which the period over which the unemployed can receive benefits is increased). According to US rules, these extended benefits are triggered if the state's insured unemployment is above 5 percent and this rate has increased by 20 percent relative to the past two years (Department of Labor 2012). Similar triggers could be used for determining whether a country receives funds from a stabilization fund, albeit one would need to take into account that European labor markets react less quickly than the US labor market.

For example, a sensible trigger for the euro-zone might be to pay transfers if unemployment has been above a certain threshold and has increased by at least one percentage point over the past 12 months. If the threshold were set at 5 percent, almost all EMU countries would have received pay-outs in some months over the past decades, with the euro crisis countries accounting for most months with payment. If the threshold were set at 7 percent, some of the countries with traditionally good labor market performance such as the Netherlands or Austria would not have received payments for any significant number of months. Alternatively, one could use a threshold of 7 percent, but require that the unemployment rate had increased by more than a certain percentage (as opposed to a percentage point). This approach would favor countries with a low absolute rate of unemployment over those with a high absolute rate and might thus be politically more acceptable.

Table 7 shows how many months each country would have received payments under these triggers. The appendix to this paper contains graphs showing which triggers would have been met in which months since 1993.

Table 2: Number of months in which certain trigger values for unemployment would have been met

	Trigger 1a: Unemployment rate above 7 %, increase of one percentage point over past 12 months		Trigger 1b: Unemployment rate above 5 %, increase of one percentage point over past 12 months		Trigger 2: Unemployment rate above 7 %, increase of 15 percent over past 12 months	
	Since 1993	Since 1999	Since 1993	Since 1999	Since 1993	Since 1999
Belgium	28	9	28	9	25	7
Germany	38	20	38	20	20	6
Estonia	23	23	25	25	22	22
Ireland	34	34	37	37	22	22
Greece	54	54	54	54	42	42
Spain	78	60	78	60	45	32
France	32	17	32	17	12	12
Italy	35	24	36	25	27	23
Luxembourg	0	0	14	14	0	0
Malta	11	11	13	13	11	11
Netherlands	1	0	5	3	4	0
Austria	0	0	6	6	0	0
Portugal	46	46	74	54	42	38
Slovenia	11	11	23	23	9	9
Slovakia	44	44	44	44	33	33
Finland	29	12	29	12	27	13
Source: Own computations based on Eurostat data; endpoint of data: October 2012						

However, linking some transfers to national budgets to the development of short-term unemployment has still a number of shortcomings. The biggest problem is that such a transfer would almost certainly not have a timely stabilization impact on the economy. While unemployment data is available relatively timely[3], it would take at least a few weeks before transfers from the EU level have been calculated and paid. This problem might get worse if the transfer is subject to reaching certain trigger values. Before any trigger for "high and rising unemployment" is reached, several months of deteriorating economic conditions will have passed.

The next problem is that national budget processes, especially in interaction with the European semester, are not geared towards spending additional funds quickly. Usually, at least a supplementary budget has to be formulated and passed by the national parliament. In as far as a downturn has not been forecast at the time of the original budget, this might pose less of a problem as then transfers can just be used to pay the new expenditure not projected in the budget. If in contrast, a deterioration in labor market conditions short of meeting the trigger had been forecast and budgets had been set up with a projected increase in the expenditure for unemployment benefits, additional funds from the EU level might not be used in a timely manner, but would only reduce the overall budget deficit.

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[3] Many national statistical authorities publish unemployment data as soon as at the end of the month of the reporting period.

If the transfers are not spent by the government, but just used to bring the deficit down in the current year, the stabilization impact will be much muted. While there might be still some positive confidence effects in financial markets from transfers to the general national budget from the EU level (especially if the country concerned is faced with financial markets participants questioning the sustainability of its public finance), there will be no direct and timely impact on aggregate demand in the crisis country.

2.3 General budget transfers with additional conditionality

Another option would be to pay transfers to countries as described above, but under the condition that these transfers are earmarked for unemployment benefit expenditure and that the country would follow some harmonized provisions, conditionality and minimum standards, e.g. of social protection and labor activation.

The stabilization impact of such transfers would depend crucially on the details on how the transfers are determined. Two basic options could be imagined here: First, one could set the transfers by using a simple formula in which the number of unemployed enters, possibly in relation to the average unemployment over the past years and just pay out an amount proportional to this number. A second option would be to pay these transfers only if certain triggers were reached (as discussed in the previous section).

Were the transfers determined by a formula including the national number of unemployed receiving benefits, but no triggers, the stabilization impact could be similar to that of a common E(M)U-unemployment insurance. National governments could then include expected payments from the European level into their own budgets forecasts. In case of a projected economic slow-down with increasing unemployment, national funds would not be needed for paying the unemployment benefits and labor market policies and hence the overall stance of the budget could remain more expansionary. Any unexpected deterioration of the number of unemployed would then lead to higher transfers and again make less of additional savings in other national budget lines necessary than it were otherwise the case.

Were the transfers only paid when certain triggers are met, however, the stabilization impact might be seriously impaired by the logic of national budgeting. If, for example, a deterioration in labor market conditions is forecast which just falls short of a situation in which a trigger threshold is met, national government would have to make provisions in the national budgets for increased unemployment costs, with cuts in other budget lines. If, then, the trigger is met because of a minor further deterioration of the labor market situation, the country receives transfers, but has already cut other national budget lines to finance the larger part of the labor market deterioration.

2.4 E(M)U-wide unemployment insurance

A third option discussed recently is the introduction of an E(M)U-wide unemployment insurance as has been debated in Dullien (2007, 2008 and 2012). Under such a scheme, eligible unemployed in the member states would receive individual benefits from a European unemployment insurance, financed by contribution paid on the wage sum of covered workers. The level of benefits would be set at a common minimum level (relative to a country's wage level) and could be topped up by national insurance systems. The pro and cons of such a proposal is discussed in Dullien (2012). The following section will look into some selected issues more in detail.

3 Financial flows and net benefits of an E(M)U wide unemployment insurance

The appeal of an E(M)U unemployment insurance would be its simplicity in communicative terms: The unemployment insurance would be modeled along the lines of national unemployment schemes known to citizens in most countries. They would have a true insurance character: Contributions would be set in relation to current income with a certain threshold and – after having paid in for a sufficient number of months – individuals can claim benefits also in relation to the height of the insurance contribution made earlier.

3.1 Considerations on contributions and benefits

Of course, one could imagine different specifications of such an insurance system. However, some of the configurations might bring disadvantages both in the stabilization properties as well as in the political acceptance of the insurance system.

First, it seems most sensible to extend benefits to all unemployed in all member states who have made sufficient contributions to the insurance prior to their individual stint of unemployment. This would bring the system in line with the logic of existing national unemployment insurance systems. Including all unemployed regardless of prior contributions would lead to a permanent transfer from countries with low long-term and youth unemployment to those with high long-term and youth unemployment and would thus not only undermine the acceptance in the former, but might also create incentives not to reform labor market institutions adverse to creating jobs for the young and long-term unemployed. Limiting benefit payments only to employees in countries which have seen high and rising unemployment breaks the link between contributions and payments and might cause contributors in low-unemployment countries to question whether they will ever be able to benefit from the system.

Second, it also seems to make sense to link benefits to past (insured) earnings and link the upper limits both for contribution payments as well as for benefits to the average or median national wage. This is not only a widely used concept in national unemployment insurances and preserves the benefits principle of insurance contracts, but also allows for a larger stabilization impact. The alternative, paying a fixed amount, would be suboptimal both from a macroeconomic and an incentives perspective: Any fixed amount which would be large enough to allow stabilization also in high-income countries such as France or Germany would create adverse incentives in low-income countries such as Estonia or Slovakia as the replacement payments then would be very high relative to the general wage level. Any fixed amount being low enough to be in line with wages in Estonia or Slovakia would be too low to have a significant relevance both for the unemployed and for the general governments' budget in countries such as Germany or France.

Third, the number of covered workers should be as large as possible to maximize the stabilization impact. Thus, all dependent workers (except possibly those with government life-time employment[4]) should be included in the scheme.

Fourth, the system should run on the contributions paid by the employed. While one could also imagine using other funds for the insurance system, it is difficult to imagine a stable financing source independent from contributions which does not burden the national budgets at a time of already stretched public finances.

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[4] Including this group of workers would violate the benefits principle as they do not have the risk of becoming unemployed.

3.2 Deficits

In principle, one could design such an E(M)U-wide unemployment insurance either with macroeconomic stabilization effects only across space or with such effects across space *and* across time. Stabilizing only across space (that is between countries) would mean that all revenue collected in one year is also disbursed in the same year. This would require rather frequent adjustment of the contribution rate. Moreover, in cases of synchronized, deep recessions in the euro area as a whole, this might prove pro-cyclical in some of the (relatively) better performing member states. For example, during the fall-out of the US subprime crisis in 2008/9, such a set-up would have led to an increase in the contributions in all member states, but to only a strong increase of disbursements in some (badly performing) member states. Thus, while the business cycle might have been stabilized in Spain (which experienced a large increase in unemployment), it would have been destabilized in Germany (which experienced a relatively small increase in unemployment). While such a stabilization would have prevented further divergence in the business cycle between countries, it would have probably been received as rather dysfunctional overall – and might politically not be popular and hence unsustainable.

Thus, a set-up of the unemployment insurance which allows for stabilization over time as well as across space seems to be more sensible. However, this would imply the right of the insurance system to run surpluses in economically good times (to accumulate reserves) and deficits in years with synchronized recessions, which ideally would have to be covered by some financial market borrowing (either directly by the system itself or indirectly, i.e. through the European Commission or the EIB).

3.3 Simulation: Some complications

Even after settling on the issues discussed above, running a simulation still has to deal with some complications. A first simulation to gauge the broad stabilization impact of such a EMU-wide unemployment insurance (Dullien 2007, 2008, 2012) assumed that in all countries, a uniform 50 percent of the short-term unemployed would be eligible for the new unemployment insurance. However, even with uniform criteria for eligibility across Europe, this is probably an overly simplistic assumption: If we look at the data on which share of current short-term unemployed receive benefits (figure 1 below), we see that these rates vary strongly not only across countries, but also over the cycle. In Spain, for example, prior to the crisis, only around 30 percent of the short-term unemployed received benefits. This share climbed to 50 percent in 2009 and 2010. Similar pictures can be seen in Portugal and Greece: With the increase of unemployment in the crisis, the share of those receiving benefits while being short-term unemployed increased strongly. Moreover, the share of short-term unemployed receiving benefits does not seem to depend solely on the generosity of the national social security system. For example, in Spain, the unemployed need to have contributed to the unemployment insurance only in 360 days over the past six years to be eligible for replacement payments while in Germany, the requirement is having worked (and paid contributions) for 12 months out of the past 24. Even though German criteria are stricter, a larger number of short-term unemployed there receives benefits. This hints that other labour market characteristics (as possibly the rate of youth unemployment) also play a role in determining the potential number of those eligible for unemployment benefits.

Figure 1: Share of short-term unemployed receiving unemployment benefits for selected countries

Source: Eurostat
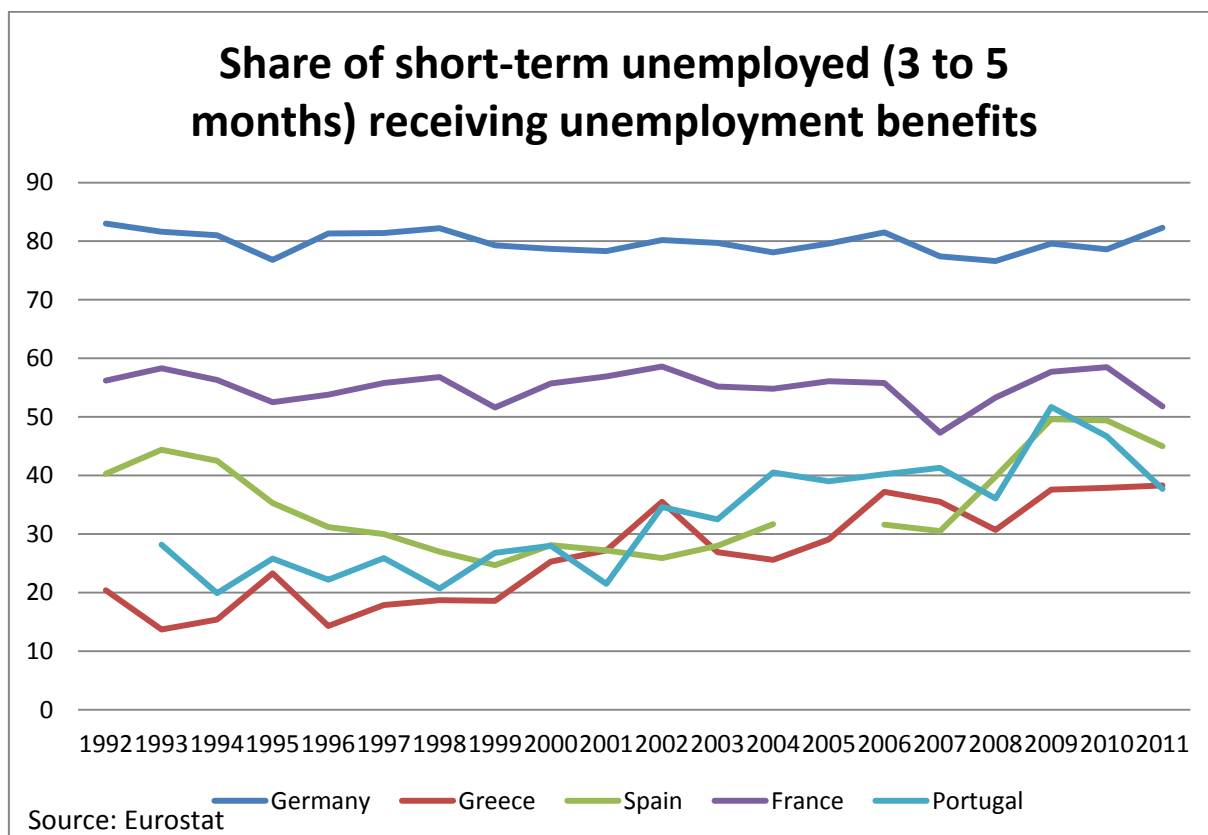
Unfortunately, simulating the number of potential recipients for a E(M)U-wide unemployment insurance with a great degree of precision is not possible with the available data. In order to properly compute which share of the short-term unemployed in each country could become eligible for the payments, one would need detailed data about the jobless' past work history. Given that the national systems' data collection is aimed at administrating their own benefit payments to the unemployed and the national eligibility criteria are very different between countries, this data is unfortunately not (publicly) available.

Given these shortcomings in the available data, the simulation for this paper has tried to work with two different estimates of pick-up rates. In both cases, it has been assumed that the pick-up rate is a function of the increase in short-term unemployment in the recent past. The logic here is that the more people enter unemployment out of a former (insured) employment, the higher the number of short-term unemployed and the higher the share of the short-term unemployed being eligible for replacement payments. In addition, it has been alternatively assumed that the pick-up rate is a function (a) of overall employment and (b) of overall short-term unemployment. While both assumptions have some plausibility,[5] the limited amount of

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[5] On the one hand, one could argue that a certain share of employment will turn up as search unemployment over a year as always some companies lay off workers and others are hiring. This argument would support the notion that the number of insured short-term unemployed is a function of overall employment in an economy. On the other hand, one could also think that a high overall rate of short-term unemployment is a sign of more turnover in a given economy, making it likely that the number of insured short-term unemployed is a function of the short-term unemployment rate.

data does not allow us to test which one is empirically more relevant. Hence, both assumptions have entered the simulation alternatively.

One can expect that the specific assumptions on the number of eligible unemployed in relation to the national unemployment rate has a significant impact on the national distributive consequences of such a scheme. For example, if it is assumed that always a fixed share of short-term unemployed fall under the scheme, countries with a traditionally high number of short-term unemployed (i.e. Spain, Finland, France) benefit more than when assuming that the absolute number of unemployed being eligible is a function also of overall employment in a country.

3.4 Stabilization properties

In the literature, the question on possible stabilization effects of an unemployment insurance in federal systems is strongly disputed. Most research is done for the United States' federal-state system of unemployment insurance, yet no consensus has emerged. While some authors such as von Hagen (1992) or Asdrubali et al. (1996) claim the stabilization impact to be very small (Asdrubali et al. claim that only less than 2 percent of a state-specific income shock is bolstered by the federal unemployment insurance), simulation studies usually come to a much bigger effect: Chimerine et al. (1999) put the overall stabilization effect of the US unemployment insurance at between 15 and 20 percent of the initial drop in GDP; Vroman (2010) finds a stabilizing effect of almost 30 percent of which - depending on measurement methods – up to half can be attributed to the federal transfer system of extended and emergency unemployment benefits[6] and the rest to the state-level unemployment insurance.

While the studies employ different methodologies and are hence not completely comparable, three main differences can explain the huge differences in estimating the stabilization impact: First, von Hagen and Asdrubali examine the stabilization effect over the whole business cycle and thus analyse *average stabilization* while Chimerine et al. (1999) as well as Vroman (2010) focus on the impact during a recession which can be seen as an analysis of *marginal stabilization* in times when it is most needed. As unemployment tends to increase strongly only in a recession and therefore large swings in net payments from the system can be observed mostly during these times, it is only logical that analyzing marginal stabilization should find a larger effect than analyzing average stabilization.

In addition, some studies such as von Hagen (1992) explicitly exclude extended and emergency benefits (of which the federal level picks up the larger share) since he argues that these elements of the program have some "discretionary nature". Such a selective analysis of course further lowers the stabilization effect measured.

Third, some studies analyze only the part of the US unemployment system which constitutes a transfer between states or between states and the federal level while other studies include the overall stabilization effect of the unemployment insurance. The latter usually comes to clearly larger stabilization properties.

Fourth, stabilization can be measured relative to a drop in GDP in a recession (peak-to-trough analysis) or relative to the GDP trend (shortfall from steady-growth GDP).[7] As trend GDP increases even during a recession, the peak-to-trough analysis usually

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[6] In the US system, extended unemployment benefits are paid in case of high and rising unemployment. Emergency unemployment benefits are paid in case of a recession and are enacted discretionarily by the Congress. In the past recession, both extended and emergency benefits were paid for out of the federal budget.

[7] See for a discussion of these measures Vroman (2010).

finds a larger stabilization impact than the analysis of the shortfall from steady-growth GDP.

For the relevant policy question how much the system really helps stabilization, some of these approaches make less sense than others: If one wants to analyze the stabilization effects of the system in a recession, one definitely should analyze the *marginal* stabilization (instead of *average* stabilization) and should also include the extended and emergency benefits as these are the only true transfer elements in the US unemployment system (as in normal times, each state unemployment insurance is supposed to work without net transfers).

Moreover, one has to remember that transferring lessons from the US to Europe, the results can only be of indicative nature: The US system has been designed to minimize transfers between the federal system and the state level through the unemployment insurance in normal times (by the requirement that the standard unemployment insurance of each state should finance itself over the cycle). If one were to set up a system for the E(M)U with the specific goal of stabilization in mind, one would not impose restrictions which overly limit the stabilization impact and might hence easily get a larger impact.

3.5 The simulation

Given the data restrictions discussed above, net transfers and stabilization properties of an EMU unemployment insurance has been analyzed for the past under the following assumptions:

- All employees in EMU are insured; they contribute a share of their wage sum up to a certain threshold, linked to each country's average income
- Average insured wage is 80 percent of the average wage in each country
- Replacement payment is 50 percent of the insured wage
- Over the cycle, contributions to the scheme cover all payouts
- The unemployment insurance can build up reserves and borrow in the capital market
- Unemployment benefits are paid for 12 months
- The macroeconomic multiplier of disbursed unemployment benefits by the European scheme is 1[8]

As it has been discussed above, the simulation was run with two different assumptions about the actual pick-up rates among the short-term unemployed. Assumption A assumes that all the increase in short-term unemployment over the past 12 months is covered plus 3 percent of the total employment in a country. Assumption B assumes

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[8] Generally, one could expect a higher multiplier from unemployment insurance payments as is documented in Congressional Budget Office (2012) or Zandi (2008) and can also be shown in the IMF's multi-country macroeconomic model (Freedman et al. 2009). However, the multiplier for a European scheme as proposed here would work slightly differently: As the E(M)U unemployment insurance replaces (part of) national expenses, it allows governments to spend its funds differently. As it is not clear from the outset how the national governments will use this degree of freedom, the actual multiplier might be smaller than from targeted transfers alone. Hence, a multiplier of 1 seems to be an adequate estimate.

that all of the increase in the short-term unemployment over the past 12 months is covered plus 20 percent of the remaining short-term unemployment.[9]

In contrast to Dullien (2007, 2008), the working of the scheme has been simulated from 1995 onwards. Prior to this date, data limitations make simulation extremely difficult. Even from 1995 to 1998, data is patchy as relevant data for Greece is not available prior to 1999. For countries that have joined the euro area after Greece such as Slovenia, Slovakia or Estonia, the data situation is even more difficult. As a work-around, it has been assumed that Greece only joined the scheme in 1999, but that the scheme had been in place for the other countries from 1995 onwards. Members beyond the original 11 euro area members plus Greece have been neglected.

Data on short term unemployment has been taken from the Eurostat database, data on aggregate employment, GDP, mean wages and the output gap have been taken from the EU Commission's AMECO database. The simulation has been run with annual data.

Table 5 and 6 (in the appendix because of their large size) summarize the main characteristics of the two simulated assumptions. In terms of overall funds moved, the insurance system under assumption A is about twice as large, with a little more than €50bn moved through the system annually.[10] Note, however, that this is not the amount of net payments to the system, but the amount of total revenues and payouts. The sum of net payments would be much smaller. To finance the unemployment insurance, a payroll tax of 1.66 percent under assumption A and of 0.65 percent under assumption B would have been necessary.

Tables 7 and 8 (in the appendix because of their large size) summarize the payments by country in terms of respective GDP and table 3 summarizes the hypothetical net payments by country over the whole period from 1995 to 2011.

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[9] These parameters are arbitrary settings which try to get the pattern in the time series of covered unemployed close to the numbers we have for national unemployment schemes. Again, a formal estimation of these parameters is not possible as national systems differ to much in eligibility criteria.

[10] In an earlier published version of this study, some of the unemployed had been counted twice, resulting in larger payment flows, higher contribution rates and a higher stabilization impact.

Table 3: Net overall payment flows EMU unemployment insurance by country, in billion €, 1995 to 2011

	Net payment flows in bn €, 1995-2011, assumption A*	Net payment flows in bn €, 1995-2011, assumption B*
Belgium	1.1	3.1
Germany	11.2	21.1
Spain	-17.4	-45.5
France	7.7	3.2
Ireland	-1.3	-0.9
Italy	7.2	7.4
Luxemburg	0.0	0.2
Netherlands	1.8	11.3
Austria	-0.5	2.1
Portugal	-0.6	0.2
Finland	-1.6	-3.9
Greece	-1.6	-3.1
*Negative numbers denote overall net recipient position, positive numbers overall net payer position

Here, a few stylized facts are worth noting:

- In general, no single country is always net receiver or net payer[11]
- While almost all countries would have received payments in the large recession of 2009, almost every country would have received funds also in at least one period of idiosyncratic economic weakness
- For most of the large net recipients (and especially Spain), the large net transfers do not originate from permanent large net transfers, but from very large transfers during the large recession 2008-9

Based on these payment flows, in a next step, potential stabilization properties have been evaluated. To this end, in a first step, recessionary periods in which net payments for a single country have turned positive have been selected.

For each of these periods, the change in the payment balance between a country and the hypothetical EMU unemployment insurance has been computed and put in relation with the change in the output gap during the same period.[12] The resulting number is the percentage share of the deterioration in the output gap over the period examined which would have been prevented with the EMU unemployment insurance under the above stated assumption. To use the above introduced terms, with this methodology,

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[11] A single exception is the Netherlands under scenario B which would have been a net payer in all years. However, this probably would have changed had one extended the simulation into 2012 and 2013, as unemployment then increased strongly in the Netherlands.

[12] The logic here is that for the macroeconomic impact, the change in a country's net payments from one year to another is relevant. If a country used to pay in €3bn before the recession and receives €2bn in the recession, the net change in its national payments amount to €5bn and this is the potential impact on GDP (if the multiplier is 1 as assumed).

marginal stabilization is measured with the trend growth as a reference (shortfall from steady-growth analysis). The results are reported in table 4.

Table 4: Stabilization properties of EMU unemployment insurance for selected recessionary periods

Country	Years	Change in net payments to/from unemploy-ment insurance, assumption A, in % of GDP	Change in net payments to/from unemploy-ment insurance, assumption B, in % of GDP	Change in Output Gap in percentage points	Stabilization in % assumption A	Stabilization in % assumption B
Belgium	2001-3	-0.16%	-0.19%	-1.6%	10.1%	12.1%
Belgium	2008-9	-0.19%	-0.18%	-3.9%	4.9%	4.8%
Germany	2001-3	-0.11%	-0.14%	-3.0%	3.7%	4.7%
Germany	2008-9	-0.13%	-0.12%	-5.9%	2.2%	2.1%
Spain	2007-9	-1.33%	-1.51%	-6.3%	21.3%	24.0%
France	1995-6	-0.19%	-0.15%	-0.7%	26.3%	20.1%
France	2008-9	-0.32%	-0.32%	-4.2%	7.7%	7.6%
Ireland	2007-9	-1.08%	-1.14%	-7.7%	14.0%	14.8%
Italy	2001-2	-0.07%	-0.04%	-0.9%	7.7%	3.9%
Italy	2008-9	-0.10%	-0.10%	-5.3%	1.8%	1.8%
Netherlands	2002-4	-0.19%	-0.23%	-1.1%	18.0%	21.7%
Austria	2001-2	-0.30%	-0.28%	-0.5%	55.8%	51.7%
Austria	2008-9	-0.23%	-0.21%	-4.8%	4.7%	4.4%
Portugal	2001-3	-0.28%	-0.31%	-3.8%	7.5%	8.2%
Portugal	2008-9	-0.31%	-0.30%	-2.9%	10.5%	10.2%
Finland	2001-2	-0.15%	-0.11%	-1.5%	9.8%	7.8%
Finland	2008-9	-0.37%	-0.36%	-9.4%	3.9%	3.8%
Greece	2001-2	-0.01%	0.00%	-1.3%	0.8%	0.2%
Greece	2008-11	-0.44%	-0.57%	-11.6%	3.8%	4.9%
Source: Own simulations						

While the positive impact of the scheme differs very strongly between countries, the table shows that for a number of serious downturns in a relatively large number of countries, the stabilization impact would have been sizable. In a number cases where stabilization has been weak, a closer analysis of the macroeconomic data actually shows that this is warranted. For example, the EMU unemployment scheme would not have provided much stabilization for Germany in the Great Recession of 2008/9. However, this has to do with the fact that the German labor market did not deteriorate much during this recession and output actually rebounded very quickly. Here, the disproportionate fall in GDP relative to the increase in unemployment explains the low stabilization value.

4 Conclusions

This paper has further clarified some of the questions on the institutional design of an E(M)U wide unemployment insurance. While more empirical research at the national level is necessary to simulate the net financial flows of such a system with greater precision, the paper has shown that such a scheme can be set up without causing large permanent transfer flows between countries and in a way that all countries benefit from potential stabilization.

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6 Appendix

Figure 2: Months in which the unemployment rate was above 7 percent and had increased by 1 percentage point or more in the preceeding 12 months
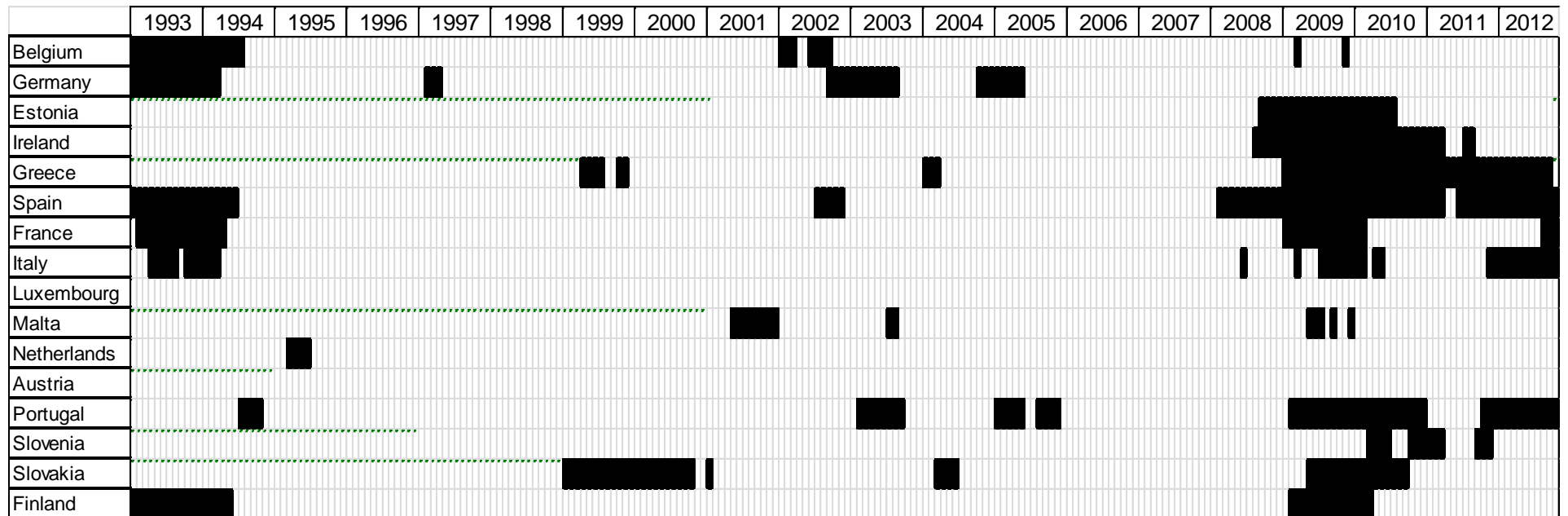
Figure 3: Months in which the unemployment rate was above 7 percent and had increased by 15 percent or more in the preceeding 12 months
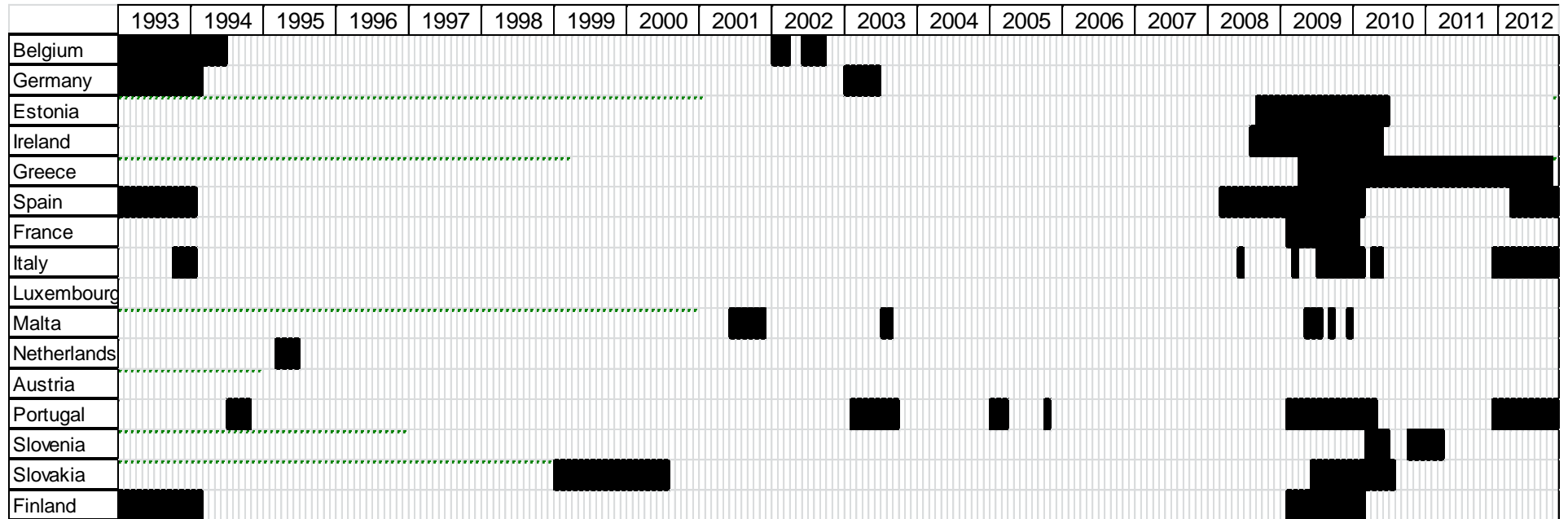
Table 5: Characteristics of EMU unemployment insurance under assumption A

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Payouts																	
Short-Term Unemployed (million)	5.94	6.36	6.28	6.17	5.84	5.21	4.72	5.56	5.90	6.07	5.79	5.29	4.90	5.48	7.60	7.17	6.76
Assumed Insured Unemployed (million)	3.41	3.60	3.27	3.30	3.41	3.37	3.45	4.17	3.91	3.77	3.65	3.61	3.72	4.43	5.85	3.75	3.82
Total Payouts (billion €)	38.0	41.1	38.0	38.5	40.8	41.4	43.4	53.4	51.5	51.4	50.4	51.2	53.8	65.2	88.0	58.1	59.5
Revenue																	
Employees (million)	102.7	103.4	104.7	106.9	109.5	112.4	114.2	115.5	116.3	117.1	118.4	120.4	122.7	123.9	121.8	121.3	121.6
Total Revenue (billion €)*	37.5	38.6	39.8	41.1	43.5	45.8	47.8	49.6	51.3	52.7	54.4	56.6	59.2	61.7	61.8	62.5	64.1
Total Balance (billion €)	-0.6	-2.4	1.8	2.7	2.7	4.4	4.4	-3.8	-0.3	1.3	4.0	5.5	5.4	-3.6	-26.3	4.4	4.6
*Note: A payroll tax of 1.66 percent has been assumed for this scenario																	

Table 6: Characteristics of EMU unemployment insurance under assumption B

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Payouts																	
Short-Term Unemployed (million)	5.94	6.36	6.28	6.17	5.84	5.21	4.72	5.56	5.90	6.07	5.79	5.29	4.90	5.48	7.60	7.17	6.76
Assumed Insured Unemployed (million)	1.61	1.72	1.44	1.38	1.40	1.21	1.13	1.71	1.57	1.48	1.35	1.20	1.13	1.73	3.33	1.68	1.66
Total Payouts (billion €)	17.2	19.0	16.0	15.1	16.3	14.5	13.7	21.3	20.1	19.8	18.2	16.6	15.9	24.4	48.9	25.1	24.2
Revenue																	
Employees (million)	102.7	103.4	104.7	106.9	109.5	112.4	114.2	115.5	116.3	117.1	118.4	120.4	122.7	123.9	121.8	121.3	121.6
Total Revenue (billion €)	14.8	15.2	15.7	16.2	17.1	18.0	18.8	19.5	20.2	20.8	21.4	22.3	23.3	24.3	24.3	24.6	25.2
Total Balance (billion €)	-2.5	-3.8	-0.4	1.1	0.9	3.5	5.1	-1.8	0.1	1.0	3.2	5.7	7.4	-0.1	-24.6	-0.5	1.0
*Note: A payroll tax of 0.65 percent has been assumed for this scenario																	

Table 7: Net payments into the EMU unemployment insurance by country relative to its GDP, 1992 to 2011 (negative numbers denote net payouts), assumption A

	BEL	DEU	ESP	FRA	IRL	ITA	LUX	NLD	AUT	PRT	FIN	GRC
1995	0.07%	0.07%	0.07%	0.07%	0.06%	0.04%	0.05%	-0.06%	-0.75%	0.06%	-1.86%	
1996	-0.01%	-0.03%	-0.14%	-0.12%	0.02%	0.05%	0.00%	0.08%	-0.10%	0.06%	-0.13%	
1997	0.07%	0.00%	0.07%	0.07%	0.05%	0.05%	0.05%	0.08%	0.08%	0.06%	-0.10%	
1998	0.06%	0.07%	0.01%	0.07%	0.05%	0.05%	0.04%	0.08%	-0.07%	0.06%	0.06%	
1999	0.05%	0.07%	0.07%	-0.02%	0.05%	0.05%	0.04%	0.08%	0.08%	0.02%	0.06%	-0.06%
2000	0.07%	0.07%	0.07%	0.07%	0.05%	0.05%	0.03%	0.08%	0.06%	0.06%	0.06%	0.04%
2001	0.03%	0.06%	0.07%	0.07%	0.05%	0.05%	0.04%	0.08%	0.08%	0.04%	0.06%	0.04%
2002	-0.05%	-0.07%	-0.23%	0.01%	-0.06%	-0.02%	-0.07%	0.08%	-0.23%	-0.07%	-0.08%	0.03%
2003	-0.13%	-0.05%	-0.03%	0.07%	0.05%	0.05%	-0.04%	-0.10%	0.08%	-0.25%	0.00%	0.05%
2004	0.07%	0.02%	0.05%	-0.01%	0.04%	0.05%	-0.12%	-0.11%	0.07%	0.06%	0.06%	-0.08%
2005	-0.03%	0.03%	0.07%	0.07%	0.02%	0.05%	0.04%	0.08%	0.05%	-0.01%	0.06%	0.05%
2006	0.06%	0.06%	0.07%	0.07%	0.05%	0.06%	-0.01%	0.08%	0.07%	0.06%	0.06%	0.04%
2007	0.07%	0.06%	0.05%	0.07%	0.02%	0.06%	0.03%	0.08%	0.07%	-0.03%	0.06%	0.05%
2008	0.07%	0.06%	-0.63%	0.07%	-0.15%	-0.04%	0.01%	0.08%	0.07%	0.06%	0.06%	0.05%
2009	-0.12%	-0.07%	-1.28%	-0.25%	-1.06%	-0.10%	-0.09%	-0.14%	-0.15%	-0.25%	-0.31%	-0.29%
2010	0.06%	0.07%	0.07%	0.07%	0.06%	0.06%	0.04%	-0.09%	0.08%	0.07%	0.07%	-0.23%
2011	0.07%	0.07%	0.06%	0.07%	0.06%	0.06%	-0.05%	0.08%	0.07%	-0.29%	0.06%	-0.39%

Table 8: Net payments into the EMU unemployment insurance by country relative to its GDP, 1992 to 2011 (negative numbers denote net payouts), assumption B

	BEL	DEU	ESP	FRA	IRL	ITA	LUX	NLD	AUT	PRT	FIN	GRC
1995	0.10%	0.09%	-0.33%	-0.03%	0.01%	-0.03%	0.19%	0.03%	-0.51%	0.10%	-1.66%	
1996	0.06%	0.01%	-0.44%	-0.17%	0.01%	-0.01%	0.08%	0.14%	-0.02%	0.11%	-0.31%	
1997	0.12%	0.01%	-0.25%	-0.02%	0.05%	0.00%	0.12%	0.17%	0.11%	0.12%	-0.30%	
1998	0.12%	0.07%	-0.26%	0.00%	0.07%	0.00%	0.18%	0.18%	-0.02%	0.14%	-0.16%	
1999	0.11%	0.09%	-0.18%	-0.08%	0.08%	0.01%	0.12%	0.22%	0.10%	0.11%	-0.14%	-0.13%
2000	0.13%	0.11%	-0.12%	0.01%	0.10%	0.03%	0.11%	0.23%	0.11%	0.14%	-0.11%	-0.05%
2001	0.12%	0.12%	-0.10%	0.06%	0.12%	0.04%	0.13%	0.23%	0.13%	0.13%	-0.09%	-0.03%
2002	0.03%	-0.02%	-0.32%	0.02%	0.01%	0.01%	0.03%	0.23%	-0.15%	0.03%	-0.20%	-0.03%
2003	-0.07%	-0.02%	-0.16%	0.07%	0.10%	0.07%	0.04%	0.05%	0.09%	-0.18%	-0.15%	-0.02%
2004	0.09%	0.02%	-0.09%	-0.01%	0.10%	0.07%	-0.06%	0.01%	0.12%	0.07%	-0.10%	-0.11%
2005	0.00%	0.02%	-0.06%	0.06%	0.09%	0.08%	0.06%	0.15%	0.10%	0.02%	-0.08%	0.00%
2006	0.09%	0.05%	-0.01%	0.09%	0.12%	0.08%	0.04%	0.17%	0.13%	0.09%	0.02%	0.00%
2007	0.09%	0.08%	0.00%	0.09%	0.10%	0.10%	0.07%	0.20%	0.13%	0.00%	0.04%	0.02%
2008	0.11%	0.11%	-0.68%	0.11%	-0.07%	0.01%	0.05%	0.22%	0.15%	0.08%	0.06%	0.03%
2009	-0.08%	-0.01%	-1.51%	-0.21%	-1.03%	-0.07%	-0.05%	0.02%	-0.06%	-0.23%	-0.30%	-0.30%
2010	0.07%	0.10%	-0.43%	0.05%	-0.14%	0.06%	0.05%	0.02%	0.12%	0.02%	0.00%	-0.32%
2011	0.07%	0.12%	-0.39%	0.07%	-0.08%	0.06%	-0.01%	0.16%	0.14%	-0.33%	0.02%	-0.55%