An Unemployment Insurance Scheme for the Euro Area: Evidence at the Micro Level

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Abstract

The Great Recession and the resulting European debt crisis revived a debate about deeper fiscal integration in the Eurozone. We discuss different alternatives how an unemployment insurance system for the euro area could be designed and run counterfactual simulations based on micro data to analyze the effectiveness of a basic scheme to act as an insurance device in the presence of asymmetric macroeconomic shocks. We find that such a scheme could be implemented with a relatively small annual budget of roughly 61 billion euros over the period 2008-2013. Net benefits would have stabilized incomes in particular in Cyprus, Estonia, Greece, Ireland, Portugal and Spain whereas Austria, Germany and the Netherlands would have been the largest net contributors. With a predicted increase in output of only up to 0.2 per cent relative to a situation with existing pre-crisis national unemployment insurance systems, our results suggest that a basic euro area unemployment insurance scheme would have had only moderate growth-enhancing effects at the euro area level.

JEL codes: F55, H23, J65
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1. Introduction

The Great Recession and the resulting European debt crisis revived a debate about deeper fiscal integration in the Economic and Monetary Union (EMU). Not least since the EMU is atypical as a monetary union because monetary policy is decided at the central (European) level while fiscal policy is carried out at the sub-central (member state) level (Bordo et al., 2011). Some observers argue that the ongoing economic crisis in the euro area (EA)[5] where some member states lost access to private capital markets and could not let their national automatic stabilizers work has shown that the European currency union will not survive unless it is complemented by a 'fiscal union'. Options discussed range from enforced budget rules to the development of an own 'fiscal capacity' for the EMU. In December 2012, the President of the European Council, Herman van Rompuy, argued: *"An EMU fiscal capacity with a limited asymmetric shock absorption function could take the form of an insurance-type system between euro area countries. […] The specific design of such a function could follow two broad approaches. The first would be a macroeconomic approach, where contributions and disbursements would be based on fluctuations in cyclical revenue and expenditure items…. The second could be based on a microeconomic approach, and be more directly linked to a specific public function sensitive to the economic cycle, such as unemployment insurance."*[6] The European Commission built upon these initiatives when launching its official report entitled *"A blueprint for a deep and genuine economic and monetary union - Launching a European Debate"* (European Commission 2012).

Since then, the perspectives of a European fiscal union and different reform proposals have been analyzed and discussed in various studies (see, e.g., Fuest and Peichl 2012, Bargain et al. 2013, Dolls et al. 2013, Dullien 2013, Enderlein et al. 2013, Furceri and Zdzienicka 2013 and IMF 2013a). The question of how to optimally design a (European) fiscal union has also gained renewed interest in the more theoretical literature (see e.g., Forni and Reichlin 1999, Evers 2012, Drèze and Durré 2013, Engler and Voigts 2013, Farhi and Werning 2012, Fidrmuc 2013 and Luque et al. 2014). While the main argument in favor of integrated fiscal mechanisms in the EMU is that they should act as insurance devices in the presence of asymmetric macroeconomic shocks, the main concerns in the debate relate to negative incentive effects inducing national governments to refrain from structural reforms and permanent transfer flows within the currency union.

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[5] In the following we equivalently use "EA", "EMU" and "Eurozone" to refer to the current 17 member states of the European Currency Union (except Latvia, which joined the EA on January 1st, 2014) and thus, only to those EMU members who have already introduced the Euro.

[6] 'Towards a genuine Economic and Monetary Union', Final Report, The President of the European Council, Brussels, 5 December 2012, p.11.

In this paper, we run a counterfactual experiment and assess the effectiveness of a basic euro area unemployment insurance scheme which partly replaces national systems to work as an automatic stabilizer during the recent economic crisis.[7] To the best of our knowledge, this paper is the first which provides micro data estimates of the redistributive and stabilizing effects of an unemployment insurance scheme for the euro area.[8] Our micro-data based counterfactual experiment allows us to take individual household heterogeneity across and within Eurozone countries into account. This is of particular importance when assessing the macroeconomic stabilization effect of an euro area unemployment insurance scheme since there is ample empirical evidence that households can differ significantly regarding their propensity to consume and hence to adjust their consumption expenditure after shocks to disposable income.

Our main results are as follows. We find that a significant unemployment insurance scheme for the euro area which provides a basic level of income insurance in terms of its replacement rate (50 per cent) and maximum benefit duration (12 months) but which has a broad coverage (all new unemployed with previous employment or self-employment income) could be implemented with a relatively small budget. Over the period 2008-2013, the total volume would have been 365 billion euros, i.e. the average yearly benefits and contributions would have amounted to 61 billion euros. While the scheme analyzed in this study does not lead to permanent redistribution per se as only short-term unemployment is insured at the central level, our simulations show that (net) transfers from the euro area unemployment insurance scheme would have been unevenly distributed due to a substantial divergence in unemployment rates within the Eurozone in recent years. Largest (net) contributors would have been Austria, Germany and the Netherlands with yearly contributions up to 0.6 per cent of GDP in the Netherlands in 2008. Households in Cyprus, Estonia, Greece, Ireland, Portugal and in particular Spain would have benefited most with yearly (net) benefits reaching their highest level in Spain in 2009 (1.4 per cent of GDP).

We find that household incomes would have been stabilized by a considerable degree, in particular in those countries most affected by rising unemployment. Our measure for automatic stabilization, the income stabilization coefficient, is close to

[7] Note that the aim of this paper is to conduct an analysis of possible scenarios for an EMU-unemployment insurance system. We do not aim at designing an optimal system which is beyond the scope of this paper. Still, the scenarios analyzed in this paper provide useful guidance for design of such policies and also show potential for future research in this area.

[8] Jara and Sutherland (2014) also use micro data to analyze to what extent an EMU-unemployment insurance system would top-up national unemployment insurance systems in the euro area in terms of coverage and income protection. Their analysis is conceptually different from ours as they compare stabilization gaps of existing national systems which would be filled by the centralized unemployment insurance scheme while we focus on the economic effects of the latter ignoring potential top-ups of national unemployment insurance systems. Both studies are thus complementary to each other.

50 per cent in Greece, Ireland and Portugal in 2009, and in Italy in 2012. However, coverage rates of the euro area unemployment insurance scheme would have declined from 2009 onwards as the share of long-term unemployed was rising in recent years. We show to what extent output would have been raised if pre-crisis national unemployment insurance systems would have been replaced by the euro area scheme. Assuming a plausible range of estimates for the fiscal multiplier which are in line with the recent literature (see e.g. Ramey 2011), we find that growth effects would have been moderate at the euro area level raising output by up to 0.20 per cent in 2009 and up to 0.08 per cent in 2012. The euro area unemployment insurance scheme would have unfolded largest macro stabilization effects in Estonia, Ireland and Spain where our upper bound estimates suggest that output would have been raised by 1.9, 0.8 and 0.6 per cent in 2009, respectively. The additional stabilization effect would have been small in those member states where national unemployment insurance systems provide strong automatic stabilizers, in particular in Austria, Belgium, France, Germany and Luxembourg.

The reminder of this paper is structured as follows. The framework for our empirical analysis, i.e. the data, models and methods used, is described in section 2. The effectiveness of national unemployment insurance systems in the euro area to act as an automatic stabilizer as well as discretionary policy changes in national unemployment insurance systems implemented in recent years are documented in section 3. Different alternatives how a supranational unemployment insurance scheme for the euro area could be designed as well as their stabilization effects, the risks of permanent redistribution and moral hazard are discussed in section 4. Results of our empirical analysis are presented in section 5. Section 6 concludes.

2. Data and Methodology

2.1 Data: EU-SILC and EUROMOD

In order to analyze the impact of a European unemployment insurance system, several approaches are possible. While previous research has mainly used aggregated macro level data, we rely on representative household micro data for the EA17 from 2008 covering income and population characteristics from 2007 and use EUROMOD, a static tax-benefit calculator for the European Union countries, for counterfactual simulations. The key advantage of using a micro data approach in the present context is that it allows accounting for heterogeneity in various characteristics of the populations in different countries which macro data approaches cannot capture.

EUROMOD allows for comparative analysis of tax-benefit systems and their impact on the income distribution in a consistent way through a common framework. Most

importantly, the micro data are harmonized across countries with common variable definitions. EUROMOD input-data are mainly based on the European Union Statistics on Income and Living Conditions (EU-SILC) released by Eurostat (cf. Eurostat 2012). The simulated components include most direct taxes (especially income taxes on all sources of income including tax credits, payroll taxes and social insurance contributions) and benefits (e.g. welfare benefits, social assistance and some transfers based on previous contributions, e.g. unemployment benefits). Information on consumption is missing in the data; hence indirect taxes and taxes on corporate profits are not included in the model, likewise in-kind benefits. Also, EUROMOD assumes full benefit take-up and tax compliance focusing on the intended effects of tax-benefit systems.

The main stages of the simulations are as follows. First, a representative micro-data sample of households (including information on all gross income components as well as demographic characteristics that are relevant to determine taxes and benefits such as age, number of children or marital status) and the respective tax benefit rules are read into the model. Subsequently, the model constructs corresponding assessment units (for instance the individual or household) for each tax and benefit instrument according to the underlying eligibility rules. On that basis, all taxes and benefits are simulated and disposable income is calculated. For more detailed information on the current version of EUROMOD and the underlying input data, see Sutherland and Figari (2013).

2.2 Simulation experiment

An important feature of EUROMOD is that it allows for counterfactual ex-ante simulations. In our empirical analysis, we introduce an unemployment insurance scheme for the euro area and ask what would have happened if such a scheme had been in place before the start of the recent crisis. In order to shed light on this question, we take our base year household micro data reflecting incomes, labour market status and socio-demographic characteristics from 2007 and simulate unemployment shocks as observed in the period 2008-2013 for each member state of the euro area. Given that there are no harmonized panel data available for the EA17 spanning such a recent time period, we simulate a sample of repeated cross-sections for each country reflecting changes in unemployment and incomes. In each year of our sample period, unemployment shocks are modelled such that unemployment rates in our cross-country data precisely follow real trends in unemployment, i.e. they correspond to those reported in the IMF World Economic Outlook Database October 2013 (cf. IMF 2013b).[9] Gross earnings are adjusted by average growth in nominal compensation per employee for earnings changes along

[9] Note that unemployment rates in our base year micro data deviate from official statistics in some countries. Therefore, we adjust our base year data such that actual unemployment rates in 2007 are fully reflected in the data. Hence, changes in unemployment from 2007 to 2008 are not biased by data inconsistencies.

the intensive margin[10], while employees entering the labour market (i.e. extensive margin changes due to a reduction in the unemployment rate) are assumed to earn average gross earnings.

For the simulation of entries into and exits out of unemployment, we need to make assumptions about the structure of the new unemployed and employed, respectively. One possibility is to assume that the structure of the new (un)employed is equal to the existing pool of (un)employed.[11] Alternatively, one can assume that new (un)employed are similar to the total population[12]. We opt for the latter approach which seems to be the more realistic scenario in the period under consideration.

Note that in our simulations we do not account for behavioural responses such as migration, changes in hours worked or entries into and exits out of the labour force which are certainly all important channels. However, modelling all these responses would add considerable complexity to our analysis which instead focuses on the economic effects in terms of stabilization and distribution of an unemployment insurance scheme for the euro area.

2.3 Descriptive information

In this section we report descriptive information on gross income levels in the euro area in 2007 which is the base year of our simulations and show how per capita compensation has changed over the simulation period. We report this information at the overall EMU level and for individual countries. Column 1 of Table 1 shows the population share of each Eurozone country. Average monthly employment income (in 2007 EURO) which is the basis for contributions into and transfer payments out of the simulated euro area unemployment insurance scheme is reported in column 2. Growth in nominal compensation per employee (in per cent) from 2007 to 2013 is reported in columns 3-9.

Table 1 reveals considerable differences across individual countries with respect to income levels in 2007. Average monthly employment income ranges from 3729 Euros in Luxembourg, 187 per cent of the EMU average of 1996 Euros, to a value of 493 Euros in Slovakia, roughly 25 per cent of the EMU average. However, one should note that these income levels are not adjusted for differences in purchasing power, which would render income differentials somewhat smaller.

Columns 3-9 show that growth in nominal compensation per employee differed significantly within the euro area leading to a divergence rather than a convergence

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[10] Cf. AMECO database: http://ec.europa.eu/economy_finance/db_indicators/ameco/index_en.htm.

[11] This can be modelled by reweighting the micro data (see Immervoll et al. 2006 and Dolls et al. 2012) or by estimating probabilities of becoming unemployment (Bell and Blanchflower 2010).

[12] Cf. Bargain et al. (2012).

process in income levels (cf. Bertola 2013). Those countries most affected by the recent crisis have seen largest losses in employment income, albeit at different points in time. Countries such as Estonia (in 2009) and Ireland (2009-2011) experienced negative growth in average earnings early on in the crisis, whereas others in more recent years (Greece from 2010-2013, Portugal 2011-2012, Cyprus and Slovenia from 2012-2013). These income changes, together with changes in unemployment, do have an important impact on the stabilizing and redistributive effect of the euro area unemployment insurance scheme analyzed below.

Table 1: Average monthly gross income (2007 EUR) and growth in nominal compensation per employee (in per cent)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	POP	GI	ΔGI07	ΔGI08	ΔGI09	ΔGI10	ΔGI11	ΔGI12	ΔGI13
EMU	1	1996	2.60	3.48	1.81	1.96	2.17	2.03	1.51
AT	0.027	2320	2.62	3.14	2.49	1.18	2.38	2.55	2.34
BE	0.033	2476	3.41	3.56	1.16	1.37	3.08	3.73	2.25
CY	0.002	1742	2.78	3.36	2.59	2.56	2.49	-0.95	-9.45
EE	0.004	636	25.02	9.67	-3.11	2.31	0.55	5.95	6.74
FI	0.018	2054	3.65	4.36	2.31	1.76	3.24	3.53	2.39
FR	0.188	1953	2.60	2.77	2.04	2.46	2.50	2.19	1.41
GE	0.279	2417	0.78	2.11	0.14	2.36	2.96	2.64	1.93
GR	0.03	1514	4.70	3.58	3.53	-2.57	-3.38	-4.21	-7.00
IE	0.012	2612	5.56	5.19	-1.06	-3.81	-0.12	0.78	0.00
IT	0.173	1844	2.27	3.81	1.71	2.79	1.29	0.99	1.32
LU	0.001	3729	3.70	3.37	1.78	2.64	2.38	2.01	0.83
MT	0.001	1219	3.07	4.21	3.23	1.55	0.63	2.18	2.05
NL	0.054	2379	3.44	3.25	2.52	1.49	1.59	1.87	-0.15
PT	0.028	1113	3.59	3.02	2.79	2.03	-0.57	-2.04	2.48
SI	0.05	1139	6.16	7.21	1.85	3.89	1.63	-0.97	-0.25
SK	0.014	493	8.73	7.01	2.48	5.11	1.97	2.79	2.03
SP	0.129	1507	4.68	6.86	4.16	0.42	1.33	0.24	1.02

Note: POP, GI: Population share and gross income in 2007. ΔGI: Growth in nominal compensation per employee (in per cent). Source: Own calculations based on EUROMOD and European Commission (DG ECFIN), AMECO.

2.4 Automatic stabilization effects

2.4.1 Risk-sharing in federations

A key argument of proponents of enhanced fiscal integration in Europe is an increase in macroeconomic stability, both at the level of individual countries and the Eurozone as a whole. An important early discussion of the key issues can be found in the MacDougall Report (1977), which had the broad objective to analyze the role of public finances for European monetary integration. One of the key findings of the report is that "public finance in existing economic unions plays a major role in cushioning short term and cyclical fluctuations … there is no such mechanism in

place … between member countries and this is an important reason why in present circumstances monetary union is impracticable" (p. 12).[13] This view has been confirmed by most of the later literature on the implications of EMU for fiscal policy in Europe. Eichengreen (1990) compares Europe to the US, emphasizing that the federal income tax in the US provides significant insurance against asymmetric macroeconomic shocks. Since regional problems are likely to be greater in Europe than in the US, he argues that fiscal shock absorbers would have to be significantly larger. A huge literature has estimated the degree of risk sharing through fiscal transfers in existing federations (see e.g., the early contributions by Bayoumi and Masson 1995 and Asdrubali et al. 1996 and the more recent contributions of Andersson 2008 and Balli et al. 2012). Estimates for consumption smoothing through risk sharing across regional jurisdictions vary substantially across countries and time periods, but the majority of studies finds that less than 25 per cent of a shock is absorbed by federal fiscal transfers. Capital and credit markets are often more important than fiscal transfers in smoothing regional shocks.

Related to these studies are contributions which assess the potential insurance effects which could be achieved in EMU if Europe were more fiscally integrated (cf. Fatás 1998, Forni and Reichlin 1999, Bargain et al. 2013, Dolls et al. 2013, Feyrer and Sacerdote 2013, Furceri and Zdzienicka 2013). Depending on the policy considered and scenarios analyzed, these studies reach very different conclusions regarding the insurable component of income and unemployment risk in EMU.[14] A general consensus of the studies cited above is, though, that the current federal system in EMU does not provide significant insurance against idiosyncratic country-level shocks and that some degree of risk sharing could be achieved by more fiscal integration in Europe. Dolls et al. 2013 show that a partly integrated tax and transfer system in EMU where 10 per cent of national tax and transfer systems are replaced by a common EMU system would indeed improve fiscal stabilizers in the Eurozone and reduce the vulnerability of individual member states to income shocks. Yet, their analysis concludes that a significant degree of risk-sharing can only be achieved by much higher levels of fiscal integration which implies more income redistribution across countries when considering a joint tax and transfer system and a fiscal equalization mechanism at EMU level. The aim of this paper is to shed light on the automatic stabilization effects of a common unemployment insurance system

[13] See also Delors (1989), p. 89: "In all federations the different combinations of federal budgetary mechanisms have powerful 'shock-absorber' effects dampening the amplitude either of economic difficulties or of surges in prosperity of individual states. This is both the product of and the source of the sense of national solidarity which all relevant economic and monetary unions share."

[14] Some of these studies solely focus on the extent of risk-sharing which could be achieved in EMU. Bargain et al. 2013 and Dolls et al. 2013 also analyze redistributive and incentive effects (in terms of labor supply) which would arise under a fiscally more integrated framework. The latter dimensions are important when evaluating the political feasibility of any reforms steps towards more fiscal integration in Europe.

for the euro area which has the advantage that ex-ante redistributive effects are not pre-determined as it is the case with a simple equalization mechanism based on taxing capacity and expenditure needs or a joint income tax system, for instance.

2.4.2 Automatic stabilization by taxes and transfers

Automatic fiscal stabilization is associated with the ability of taxes and transfers to automatically stabilize disposable income and consequently consumption in the event of macroeconomic shocks. This relies on a simple mechanism: in the presence of a given negative shock to gross income, taxes decline and transfers increase, with the decline in disposable income being smaller than the shock to gross income (see e.g., Auerbach and Feenberg 2000, Kniesner and Ziliak 2002, Mabbett and Schelkle 2007, Dolls et al., 2012). Several components of government budgets are affected by the macroeconomic situation in ways that operate to smooth the business cycle, with progressive income taxes and unemployment benefits being the most prominent examples. Automatic stabilization might not only have effects on disposable income but also on GDP itself (cf. Fatás and Mihov 2001). If fewer taxes are collected and more transfers are paid in a recession, this should support private incomes and dampen adverse movements in aggregate demand. We can expect this stabilizing property to be stronger if the tax system is more progressive (van den Noord, 2000).

Naturally, cushioning shocks through taxes and transfers comes at the cost of an increase in the government budget deficit. The usual assumption is for this gap to be closed through debt financing. However, in the current Eurozone debt crisis, some countries have lost access to private capital markets and thus need outside help to close this gap. We will return to the issue of debt financing of the euro area unemployment scheme further below.

The extent to which automatic stabilizers mitigate the impact of income shocks on household demand essentially depends on two factors. Firstly, the tax and transfer system determines the way in which a given shock to gross income translates into a change in disposable income. For instance, in the presence of a proportional income tax with a tax rate of 40%, a shock on gross income of one hundred Euros leads to a decline in disposable income of 60 Euros. In this case, the tax absorbs 40% of the shock to gross income. A progressive tax, in turn, would have a stronger stabilizing effect. Alternatively, in the presence of an unemployment insurance system with a replacement ratio of 60%, a shock on gross income at the extensive margin of 1000 Euros leads to a decline in disposable income of 400 Euros. In this case, the unemployment insurance system absorbs 60% of the shock to gross income. The second factor is the link between current disposable income and current demand for goods and services. If the income shock is perceived as transitory and current demand depends on some concept of permanent income, and if households can

borrow or use accumulated savings, their demand will not change. In this case, the impact of automatic stabilizers on current demand would be equal to zero. Things are different, though, if households are liquidity constrained. In this case, their current expenditures do depend on disposable income so that automatic stabilizers play a role.

A common measure for estimating automatic stabilization based on micro data is the "*normalized tax change*" used by Auerbach and Feenberg (2000) which can be interpreted as *"the tax system's built-in flexibility"* (Pechman 1973, 1987). Based on this idea, Dolls et al. (2012) define the *"income stabilization coefficient"*, τ, that shows how changes in market income X (defined as the sum of all incomes from market activities such as (self)-employment, business and property income) translate into changes in disposable income Y (market income minus taxes plus benefits) through changes in net tax payments *T*. They extend the concept of normalized tax change to include other taxes as well as SIC and transfers.

In our simulations, we follow their approach and calculate the income stabilization effects of a euro area unemployment insurance system in year t if such a system had been in place in the period 2008-2013. τ is computed using arithmetic changes in benefit and contribution payments from/to the common euro area unemployment insurance system ($\sum_i \Delta B_i$ *and* $\sum_i \Delta SIC_i$) and employment income changes along the extensive ($\sum_i \Delta X_i$) and intensive ($\sum_i \Delta Y_i$) margin between year t and t-1 based on household micro level information:

$$\tau_{BEN} = \frac{\sum_i \Delta B_i}{\sum_i \Delta X_i}. \quad (1)$$

$$\tau_{SIC} = \frac{\sum_i \Delta SIC_i}{\sum_i \Delta Y_i}. \quad (2)$$

τ is positive if the sum of euro area unemployment insurance benefit (contribution) payments in year t is higher (lower) than in the previous year given a reduction in gross income and zero otherwise.

2.4.3 Discussion on pros and cons of a euro area UI system

What are the arguments for having an unemployment insurance scheme at the euro area level partly replacing or complementing national unemployment insurance schemes? Some observers argue that the recent recession during which some euro area member states lost access to capital markets and couldn't let their national automatic stabilizers sufficiently work has shown that a sustainable architecture of the Eurozone includes some form of supranational automatic stabilizers. Under the assumption that a fiscal capacity at the euro area level were able to run deficits in

bad times when some member states have lost access to capital markets, asymmetric shocks could to some extent be cushioned by supranational automatic stabilizers. Further arguments for more fiscal integration in the euro area are that there is no lender of last resort for national governments in the event of fiscal crises and no national monetary policy and no exchange rate adjustments to deal with asymmetric shocks. Another view is that a centralized unemployment insurance scheme would enhance labour mobility in the euro area and that a "race to the bottom" between euro area member states in terms of social protection standards could be prevented. The latter two arguments are open empirical questions which are hard to answer ex-ante. However, the level of social expenditure in Europe which is still high in a global perspective does not point to a potential race-to-the bottom problem which could be prevented by a common euro area unemployment insurance system. Labour mobility is comparably low in Europe compared with the US, for instance, but there is first evidence that it has increased in recent years as a consequence of the weak labour markets in those countries most severely affected by the economic crisis.

The concerns most often expressed are that a common unemployment insurance scheme would induce permanent transfer flows within the Eurozone, undermine incentives of national governments to address structural weaknesses in the economy and come with a high risk of administrative manipulation. For example, one argument is that a common unemployment insurance scheme which primarily targets cyclical rather than structural unemployment in the euro area member states could affect cyclical unemployment patterns. In Germany a large part of the 2008-2009 shock was cushioned by labour market institutions such as short-time work or working time accounts and thus mainly affected the intensive rather than the extensive margin. A concern of some observers is that a common euro area unemployment insurance would have adverse incentives to absorb shocks at the intensive margin because the 'costs' to keep people in employment are borne by the national government whereas unemployment benefits are financed by the common pool. Other observers argue that the European Stability Mechanism (ESM) already serves as a crisis mechanism and that there is no need for further fiscal integration in the Eurozone.

This report focuses on the automatic stabilization effects of a common unemployment insurance system for the euro area which in our view is the crucial argument for more fiscal integration in Europe, while moral hazard and the risk of permanent transfers which can have adverse incentives at the level of individual member states are the most important concerns which should be taken into account. The most important challenges for policy-makers with regard to the design of a potential common unemployment insurance scheme are critically assessed in section 4. There different variants of a common scheme are presented, namely a

basic common unemployment insurance system which partly replaces national systems, a benefit extension program which complements national systems and which is close to the US model of benefit extensions and a fully centralized unemployment insurance system at EMU-level. We show that the alternatives thoroughly discussed in section 4 have very different implications in terms of automatic stabilization and redistribution effects.

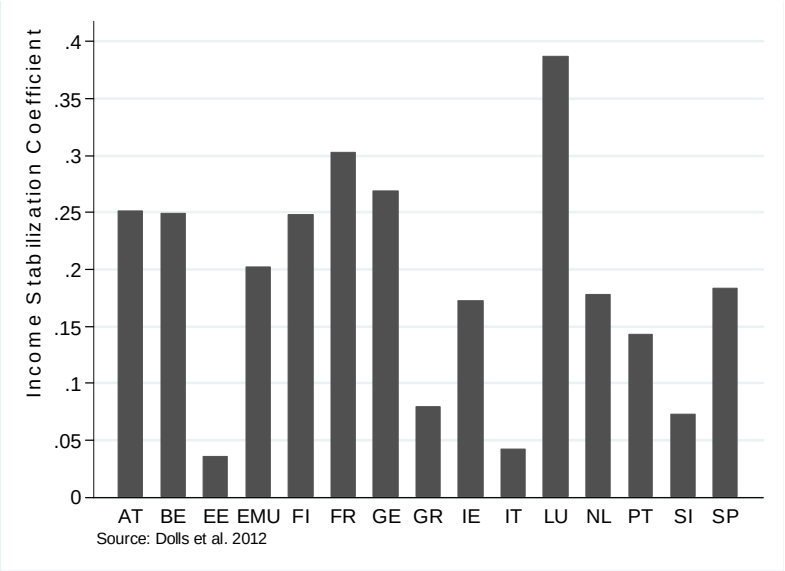
3. National unemployment insurance systems in the crisis

Unemployment benefits are supposed to work as an automatic stabilizer in economic crises when economies are hit by rising unemployment rates. Before discussing potential costs and benefits of a centralized unemployment insurance system at the Eurozone level, it is therefore important to investigate the effectiveness of national unemployment insurance systems to cushion unemployment shocks. In this section, we review existing evidence on the shock-absorption capacity of national unemployment insurance systems in Europe in the event of unemployment shocks. Moreover, we document discretionary policy changes regarding unemployment insurance in euro area countries during the crisis.

Dolls et al. (2012) use the same pre-crisis micro data as we do and run a controlled experiment in which the unemployment rate in each Eurozone country is increased such that total household income decreases by 5 per cent. They calculate income stabilization coefficients described above for 14 Eurozone countries which are shown in Figure 1.[15] Their main findings can be summarized as follows. The extent to which unemployment shocks are absorbed by pre-crisis unemployment insurance systems differs substantially within the euro area. In most of the continental European and Nordic countries, at least 25 per cent of the shock is cushioned whereas there is very little stabilization in particular in Eastern and Southern European countries. Lowest values are found for Estonia, Greece, Italy and Slovenia. This finding is surprising from an insurance point of view since countries with low stabilization tend to be those with low incomes on average implying that households in these countries are particularly vulnerable to income losses.

[15] Conceptionally, the unemployment shock modelled in their paper differs slightly from our modelling approach. While they assume that the socio-demographic characteristics of the new unemployed are equal to those of the existing pool of unemployed, we assume in our simulations that the characteristics of the new (un)employed correspond to those of the full population (in terms of age, gender, marital status, household size, education and region). Income stabilization coefficients are very similar for both approaches and we opt for the latter approach as it is computationally more flexible.

Figure 1: Income stabilization for unemployment shock scenario[16]



Given the heterogeneity of national unemployment insurance systems within the euro area regarding their automatic stabilization effects before the start of the crisis[17], it is instructive to scrutinize policy changes regarding national unemployment insurance systems during the crisis and to assess whether these policy changes led to a convergence or divergence process in the degree of income protection. Table 2 reveals that in 2009 total unemployment expenditure increased by roughly 28% in the euro area and remained on a comparatively high level in the following years. Bontout and Lokajickova (2013) decompose these changes into the main factors influencing unemployment expenditure. They show that in 2009, the increase was mainly driven by rising numbers of short- and long-term unemployed and only to a minor extent due to higher average unemployment expenditure per unemployed. In 2010, the latter even declined by more than 5 per cent (cf. Bontout and Lokajickova 2013, p. 23). These numbers document the budgetary effect of rising unemployment in the euro area in recent years, but do not give an indication whether changes in average expenditure per unemployed were caused by more or less generous unemployment insurance systems or by a changing structure of the new unemployed. In order to assess whether the stabilizing effect of national unemployment insurance systems has changed in recent years, we focus on changes

[16] Data for Cyprus, Malta and Slovakia was not available at the time of writing of that paper.

[17] See Figari et al. (2011) for further evidence on differences in the degree of income protection offered by tax-benefit systems in Europe in the event of income shocks.

Table 2: Unemployment expenditure in million euros

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
EMU	126,640.83	127,958.88	139,234.70	147,458.12	148,570.42	145,755.31	138,586.97	129,383.56	131,248.10	167,773.18	166,209.51	155,606.69
AT	3,051.11	3,139.97	3,583.64	4,002.45	4,087.08	3,963.05	4,057.32	3,754.90	3,632.94	4,423.43	4,391.02	3,987.28
BE	8,122.73	8,248.24	9,153.42	9,978.55	10,333.75	10,453.56	10,554.03	10,351.80	10,459.45	12,015.11	12,190.78	11,994.05
CY	120.97	119.57	106.42	106.25	129.73	148.83	174.42	137.78	163.50	153.78	164.65	185.97
EE	12.87	13.68	11.57	20.90	20.59	18.28	13.74	19.55	40.16	138.79	86.84	57.89
FL	3,549.21	3,407.74	3,528.49	3,750.45	3,879.84	3,768.18	3,572.26	3,307.87	3,124.66	3,818.49	3,945.74	3,384.63
FR	31,507.63	31,807.61	35,366.09	38,243.34	38,499.30	38,239.18	36,215.58	34,724.47	33,492.61	38,033.85	39,508.22	38,296.65
GE	47,277.93	46,976.88	50,323.54	51,478.66	50,513.81	46,770.41	42,371.92	36,713.37	34,244.97	43,230.15	39,854.25	31,613.99
GR	2,117.60	2,227.92	2,445.40	2,280.87	2,489.78	2,398.61	2,238.96	2,272.82	2,692.69	3,332.17	3,269.37	3,717.71
IE	1,581.97	1,612.99	1,839.07	1,912.07	2,015.93	2,048.40	2,226.89	2,445.25	3,026.58	4,953.07	5,618.63	5,336.63
IT	5,751.99	5,506.65	6,163.79	6,468.00	6,931.49	7,242.00	7,363.55	6,603.43	7,360.78	11,154.63	11,911.50	11,384.21
LU	148.23	180.93	197.45	248.32	289.84	322.80	325.47	331.57	330.85	433.20	449.90	432.33
MA	18.68	19.32	39.48	33.12	30.77	30.08	30.63	26.61	27.35	31.29	29.80	30.31
NL	6,027.24	6,014.13	6,626.58	8,016.49	8,240.82	8,150.00	7,177.10	6,259.62	5,854.56	7,895.79	8,641.24	8,054.28
PT	1,016.01	1,047.64	1,249.82	1,787.60	1,939.99	2,051.95	1,981.61	1,826.23	1,656.29	2,162.02	2,311.00	2,125.03
SI	238.46	216.52	192.24	188.84	197.39	211.50	185.72	138.09	125.46	184.65	207.49	249.65
SK	281.79	212.98	255.00	346.75	371.31	211.16	217.47	249.94	280.34	453.11	449.98	383.38
SP	14,822.52	16,320.05	17,662.72	18,350.57	18,583.55	19,727.33	19,995.05	20,293.13	24,625.97	35,343.22	33,359.14	34,233.24

Source: Eurostat

in replacement ratios, the maximum duration of benefit receipt, qualifying conditions and contribution rates and document discretionary policy changes during the crisis along these dimensions.

Table 3 shows average replacement rates in the initial phase of unemployment for the period 2007-2011. In 2007, average replacement rates for the first year of unemployment across two income situations (100 percent and 67 percent of average earnings) and three family situations (single, one-earner married couple, two-earner married couple) ranged from 50 percent in Greece to 85 percent in Luxemburg. Focusing on the so-called GIIPS countries (Greece, Ireland, Italy, Portugal and Spain) which were especially hit by rising unemployment in that period (see chapter 5), one can conclude that initial conditions regarding average replacement rates were quite heterogeneous. With a ratio of 83 percent in 2007, Portugal had the most generous replacement rate among the GIIPS countries. Greece, on the other hand, only provided an average replacement rate of 50 percent in. With the beginning of the crisis in 2008, Greece, Ireland and Italy increased replacement rates by three to five percentage points. In the more recent years of the economic downturn, however, replacement ratios became somewhat less generous with rates falling to 61 percent in Ireland, 69 percent in Italy and to 52 percent in Greece, which was the second lowest value in the Eurozone after Malta (47.5 per cent). There was no increase in the average replacement rate in Portugal during the first years of the crisis, but it was lowered to 81 percent in 2011 and thus below its 2007 value, as the economic downturn continued. Only in Spain average replacement rates remained relatively constant during this period with values around 73-74 per cent.

Table 3: Unemployment benefit replacement rates

	2007	2008	2009	2010	2011
AT	63.50	63.50	63.33	63.33	63.00
BE	66.67	66.67	74.83	74.17	72.00
CY	67.83	n.a.	n.a.	n.a.	n.a.
EE	61.83	61.83	61.17	62.00	62.33
FI	61.50	61.17	60.83	61.83	61.83
FR	72.00	71.83	71.83	71.83	71.83
GE	68.50	68.33	68.50	68.83	67.67
GR	50.50	55.00	55.67	50.83	52.17
IE	59.50	60.33	64.33	61.83	60.50
IT	67.17	70.50	71.00	69.67	68.67
LU	85.00	85.00	84.33	84.33	85.33
MT	51.17	50.33	50.33	49.83	47.50
NL	78.50	78.67	78.17	77.83	78.83
PT	83.17	83.00	83.00	80.17	80.50
SI	72.00	74.00	74.50	77.67	83.17
SK	68.00	68.50	67.33	67.50	68.50
SP	74.00	73.33	73.00	73.50	72.83

Definition: Average unemployment benefit replacement rate during the first year of unemployment across two income situations (100% and 67% of average earnings) and three family situations (single, one-earner married couple, two-earner married couple). The initial net replacement rates measure is defined: Initial phase of unemployment but following any waiting period (excluding social assistance, covering two earning levels and three family situations, as mentioned above). Any income taxes payable on unemployment benefits are determined in relation to annualized benefit values (i.e. monthly values multiplied by 12) even if the maximum benefit duration is shorter than 12 months. For married couples the percentage of AW relates to the previous earnings of the "unemployed" spouse only; the second spouse is assumed to be "inactive" with no earnings and no recent employment history. Where receipt of social assistance or other minimum-income benefits is subject to activity tests (such as active job-search or being "available" for work), these requirements are assumed to be met. AW: Average Worker; an adult full-time worker in the covered industry sectors whose wage earnings are equal to the average wage earnings of such workers.
Source: CESifo DICE

Another way of changing the generosity of unemployment insurance schemes is to alter the qualifying conditions for access to the system. While Ireland and Portugal changed their qualifying conditions, Greece, Italy and Spain kept access to their unemployment insurance systems constant during the crisis (cf. Table A.1). Ireland tightened the requirements for access to the unemployment insurance system, while Portugal eased qualifying conditions. More precisely, qualifying conditions became stricter in Ireland from 2009 onwards, then requiring 104 weeks of contributions instead of 39. Portugal alleviated the minimum qualification requirements in order to qualify for unemployment insurance benefits from 450 days of employed work

and contribution payment in the 24 months preceding commencement of unemployment to 360 in 2013.

Closely related to the qualifying conditions for unemployment benefits is the duration of payments, as it may depend on the contribution period to the unemployment insurance system (cf. Table A.2). The benefit duration was lowered in Ireland and Portugal, while Italy rather extended the benefit time implicitly. In Ireland, the permitted maximum duration of benefit receipt was reduced from 390 days in 2007 to 312 days in 2009. In 2013, there was a further decrease to 234 days of benefit allowance. Over the entire period, proportionally lower rates apply if applicants have paid less than 260 weekly contributions since first entering insurance. Until 2011, Portugal's UI system was rather generous especially for senior employees, with the maximum benefit duration depending on the age and length of contribution. Starting in 2013, the maximum benefit duration for all age groups decreased significantly depending on the months of contribution payments. The decrease was particularly strong for older employees. Italy increased the benefit duration from 210 days in 2009 to 240 days in 2011. Starting in 2013, a benefit duration scheme depending on the age of the unemployed applied. The reform essentially implied a longer maximum period of benefit duration for older employees. In Greece and Spain, the maximum benefit duration was neither extended nor shortened during the crisis.

Finally, policy changes also affected contribution rates and ceilings up to which contributions have to be paid. Table A.3 shows that in Greece the lower monthly ceiling of 2,432 Euros for employees who had been insured since 1993 or before was raised to the general ceiling of 5,546 Euros which broadened the tax base for the national unemployment insurance system, but increased the tax wedge for the working population. The total contribution rate to the unemployment insurance system ranged from 4-5 percent from 2007-2013, with an increase in the contribution share of employees from 1.33 per cent to 1.83 per cent and a decrease in the contribution share of employers from 3.67 per cent to 3.17 per cent. In Ireland, the ceiling for employees increased from 48,000 Euros in 2007 to 75,036 Euros in 2009 and was completely abolished afterwards. At the same time, costs for employers were reduced by lowering the employer contribution rate from 8.5 per cent in 2011 to 4.25 per cent in 2013. The contribution in Italy is only paid by the employer, who pays a share of 1.61 per cent. In Portugal, contributions to the unemployment insurance system are included in the overall social security contributions. In Spain, the contribution rate for employees was decreased from 5.75 per cent in 2007 to 5.5 per cent in 2009.

All in all, this short overview suggests that the stabilizing effect of unemployment insurance systems in those countries which were strongest affected by rising

unemployment during the crisis has not been strengthened by discretionary policy changes in the last few years.

4. Possible characteristics of a Eurozone-wide unemployment insurance scheme

We identify three main options how an unemployment insurance scheme for the Eurozone could be designed. For all variants, specific choices need to be made regarding eligibility rules, replacement ratios and duration of benefit receipt. Additionally, the interaction between the euro area and the national unemployment insurance systems needs to be considered. For instance, the common system could partly replace national systems by providing a minimum benefit level for a limited duration or complement national systems by providing additional transfers in economic downturns. Closely related is the question when transfers from the common insurance system should kick in. They could be conditioned on macroeconomic indicators such as the unemployment rate and would be triggered if certain thresholds are reached or, alternatively, kick in automatically if an eligible person becomes unemployed. Finally, there are different options for its financing. It can take place at the national level or be pooled at the Eurozone level. In the following, we discuss the characteristics of three possible variants of a common unemployment insurance scheme for the euro area: a minimum insurance scheme, a benefit extension program and a scheme that fully replaces national systems.

4.1 A basic unemployment insurance scheme

An unemployment insurance scheme for the euro area which provides a basic level of insurance has first been proposed by Deinzer (2004) and Dullien (2007, 2013). By providing a minimum insurance for a limited time period, such a scheme would partly replace national unemployment insurance systems which could top up benefits from the euro area system. When designing such an unemployment insurance system, several options in various dimensions need to be discussed. All unemployed with previous employment (and possibly self-employment) income would be eligible for benefits, depending on the duration of previous employment (potentially including a certain minimum duration for the employment spell such as 12 month). Benefit payments from the common scheme could kick in directly at the beginning of the unemployment spell or after a (short) 'waiting period'. The maximum duration of benefit receipt would be limited to a certain time period, for example 12 months. This could be prolonged by national unemployment insurance systems. Such a system would leave room for diversity between member states. Differences with regard to replacement rates and benefit duration could be maintained by additional transfers from national unemployment insurance systems.

How much stabilization is provided by the common system and when does the stabilization from the central level kick in?

Transfers from the central level are timely as unemployment benefits are paid at the start of the unemployment spell (or after a short waiting period). In contrast to a benefit extension program (as in the United States), which is triggered if certain thresholds are crossed, all new unemployed who fulfil the eligibility criteria (mainly in terms of previous employment) receive transfers from the common euro area unemployment insurance system.

However, given that the common system provides only a minimum level of insurance in terms of its replacement rate, the stabilization effect of the common system is limited by construction but could be enhanced by national systems. As benefits from the common system expire after a certain time period, stabilization from the central level decreases in the share of long-term unemployed in an economy. In sum, at least part of the stabilization in the presence of unemployment shocks is provided by the euro area unemployment insurance system which might help avoiding pro-cyclical fiscal policy in severe economic downturns if countries have lost access to capital markets.

How large is the risk of permanent redistribution?

Given that the scheme conditions on job losses, i.e. on *changes* in employment status rather than on unemployment *levels*, the risk of permanent transfers is limited. Differences in unemployment rates alone do not lead to permanent redistribution because benefits expire. It may nevertheless happen that (net) transfers from the euro area unemployment insurance system are unevenly distributed across countries if flows into unemployment diverge permanently.

Therefore a key factor determining redistributive effects of such a minimum insurance scheme is the share of short-term unemployed. If countries A and B are characterized by the same income distribution, the unemployment rates do not deviate over time, but the share of short-term unemployed is constantly higher in country A relative to country B, the former will receive a higher share of transfers from the common unemployment insurance system. The reason is that there are more people entering (and leaving) unemployment, and those entering unemployment receive benefits.[18]

[18] Economies where seasonal employment like in tourism, for instance, plays an important role, would be likely to have larger flows into and out of unemployment.

Would such a scheme undermine the incentives of national governments to address structural weaknesses? How large is the risk of administrative manipulation?

This risk is an unavoidable feature of insurance mechanisms. At the national level, it can be present if unemployment benefits are paid by the federal level, but activation policies are the responsibility of the regional level (Vandenbroucke 2014), for instance. Therefore, a close cooperation between the federal and local level is of crucial importance. The risk that a common basic unemployment insurance system undermines the incentives of national governments to implement structural reforms is likely to be limited, though. Structural weaknesses usually affect medium to long term growth and employment perspectives. Transfers from the common system expire after a certain time period. After this time period, national governments will have to bear the full costs of unemployment. Therefore the common unemployment insurance system would undermine incentives to address structural weaknesses much less than a system of permanent transfers.

Administrative manipulation might be a more important issue. This risk might also be present within national frameworks and it is unclear ex-ante if it is higher at the euro area level. A common euro area unemployment insurance system which is (only) targeted at short-term unemployment could be exploited by using administrative discretion to increase the number of transfer recipients, essentially by raising the number of unemployed that can be classified as newly unemployed. Incentives to manipulate and costs of this manipulation would depend on the characteristics of the system like the required employment period and the length of the waiting period for eligibility to euro area unemployment benefits.

In 2009-2010, the qualifying period for national unemployment insurance programs ranged from 4 – 36 months in the euro area with the majority of systems requiring 6 - 12 months of contributions. Further differences across member states exist with regard to the period in which the contributions to the unemployment insurance schemes have to be made (see Table A.1 and Esser et al. 2013). A conceivable approach for the set-up of a basic euro area unemployment insurance scheme would be to align the scheme with national systems with a required employment period between 6 – 12 months. In order to further reduce the risk of administrative manipulation as well as the effect of seasonable unemployment, a waiting period of 3 – 4 months could be established. Policy-makers face a trade-off between insurance effects of unemployment insurance schemes and the risk of moral hazard and administrative manipulation. The longer both periods are, the more costly is administrative manipulation, but longer periods also reduce the desired insurance effect.

To what extent is individual behaviour distorted, i.e. how strong are moral hazard concerns?

Whether distortions at the individual level change would depend on whether overall benefits (national and European benefits combined) change, relative to the status quo, given that the euro area unemployment insurance system would partly replace existing national systems. As it would be in the discretion of national governments to top up benefits of the euro area unemployment insurance scheme, it is unclear ex-ante to what extent individual behaviour would be distorted relative to the status-quo.

4.2 A benefit extension program

An alternative option for a euro area unemployment insurance scheme would be to complement national systems by providing additional benefits which could either top-up national benefits or kick-in if national benefits expire. The pay-out rules would be trigger-based, i.e. benefits from the common system would be paid if the level and/or change in unemployment reached pre-determined thresholds. Contributions to the scheme could be lowered or suspended in those countries where transfer payments had been triggered in order to increase the stabilizing effect of the program. Such a system would be broadly comparable with various benefit extension programs in the US. There, regular unemployment insurance benefits can be extended through a combination of permanent and temporary legislation. The federal Extended Benefits (EB) program provides additional 13-20 weeks of benefits to workers in states where the level and change in the state unemployment rate is above a specified threshold. The EB program has been supplemented by temporary programs, most recently by the Emergency Unemployment Compensation (EUC) program which provides up to 47 weeks of additional unemployment benefits to jobless workers who have exhausted their regular benefits (see e.g. Center on Budget and Policy Priorities 2013, CBO 2012, Farber and Valletta 2013 or the overview in Nicholson et al. 2014 for more information on US federal legislation and further literature).

How much stabilization is provided by the common system and when does the stabilization from the central level kick in?

A euro area unemployment benefit extension program would not provide benefits in normal times but would only kick-in in deep recessions when certain indicators such as the unemployment rate reach pre-defined thresholds. Estimates for the US suggest that additional weeks of benefits through Emergency Unemployment Compensation (EUC) provided significant income and output stabilization. For example, CBO (2012) and CBO (2013) both ex-ante projected an increase in the fourth quarter GDP in 2013 and 2014 of 0.2 percent, respectively, if the EUC program and temporary provisions of the EB program were fully extended for one year. Applying output stabilization estimates of benefit extension programs in the US to euro area member states is problematic, however, since regular unemployment benefits only last for 26 weeks in most states in the US (an in some

states only for 19 weeks), whereas unemployment benefits are paid for longer time periods in the majority of euro area member states (see Table A. 2 and Esser et al. 2013).

How large is the risk of permanent redistribution?
This depends on the exact rules and specifications of such a scheme. If the scheme only conditions on the level of the unemployment rate, the probability that there is permanent redistribution from low to high unemployment countries is high. This risk could be reduced by additionally conditioning on other factors such as changes in unemployment.

Further important factors would be if the triggers are country-specific or not and, closely related, the link between contributions and benefits. In contrast to the basic euro area unemployment insurance system which pays benefits to all unemployed who previously contributed to the scheme, a benefit extension program could break the link between contributions and benefits, e.g. if pay-outs from the common system are trigger-based. Hence, contribution and pay-out rules would need to be carefully chosen so that the general acceptance of the scheme would not be undermined by a perceived unbalancedness of transfer payments.

Would such a scheme undermine the incentives of national governments to address structural weaknesses? How large is the risk of administrative manipulation?
The risk that national governments do not address structural weaknesses of the economy could be higher than under a minimum insurance scheme given that the extended benefit program would not only cover cyclical but potentially also structural unemployment. There is also a risk of administrative manipulation, for example if previous unemployed not actively seeking for work and therefore not part of the labour force any more are still classified as unemployed and hence are eligible to extended euro area unemployment benefits.

To what extent is individual behaviour distorted, i.e. how strong are moral hazard concerns?
Extended unemployment insurance benefits which prolong the period of unemployment insurance receipt can have adverse incentive effects. For example, Farber and Valletta (2013) and Rothstein (2011) find a small but statistically significant reduction in unemployment exit rates in the US in the Great Recession caused by extended unemployment benefits. However, the social costs may be overestimated when market externalities of unemployment insurance extension programs are not properly accounted for (Lalive et al. 2013). Such externalities occur if those not eligible to unemployment benefits have higher job finding probabilities because those covered by unemployment insurance reduce their job search effort.

4.3 A fully centralized unemployment insurance system

A third option would be to introduce a full euro area unemployment insurance scheme. This reform would be far-reaching as national unemployment insurance systems would be *fully* replaced by a euro area unemployment insurance system, in contrast to alternatives 1 and 2 where the euro area system would either partly replace or complement national unemployment insurance systems. Several options for designing such a system are possible – such as choosing a specific system among the existing ones or simply some kind of average system. The latter approach has the (political economy) advantage that one does not have to make a choice in favour of one and against all other countries. Such an average euro area unemployment insurance system could be estimated along the lines of Bargain et al. (2013) and Dolls et al. (2013) who use the European tax-benefit calculator EUROMOD and representative household micro data to estimate a joint tax and transfer system for 11 Eurozone countries (Austria, Belgium, Finland, France, Germany, Greece, Ireland, Italy, Netherlands, Portugal and Spain) and the EA17, respectively.

How much stabilization is provided by the common system and when does the stabilization from the central level kick in?

By construction, those member states whose national unemployment insurance systems provide below-average stabilization, e.g. because of below-average replacement rates, duration of benefit receipt or low coverage rates, would experience a gain in stabilization whereas the opposite would be true for member states with above-average stabilization effects of their national systems. Automatic stabilization effects would only be provided by the central level as contributions and benefits would be paid into/from the common system.

How large is the risk of permanent redistribution?

The risk of permanent redistribution from low to high unemployment member states is substantially higher than under alternatives 1 and 2, in particular if there are permanent differences in the level of unemployment across the euro area.

Would such a scheme undermine the incentives of national governments to address structural weaknesses? How large is the risk of administrative manipulation?

The incentives of national governments to implement structural (labour market) reforms could be severely affected by a euro area unemployment insurance system that fully replaces national systems since (direct) costs of unemployment would be completely borne by the central level. Similar to a euro area benefit extension program, there is also a risk of administrative manipulation if those out of work and

not actively seeking for work are classified as unemployed and hence are eligible to euro area unemployment benefits.

To what extent is individual behaviour distorted, i.e. how strong are moral hazard concerns?

As with the basic unemployment insurance system, the extent to which distortions at the individual level change would depend on whether benefits change relative to the status quo. Higher unemployment benefits can reduce job search efforts and hence prolong the unemployment spell.

4.4 Summary

Table 4 summarizes the three alternative options for a euro area unemployment insurance scheme according to the issues discussed above.

Table 4: Alternative options for a euro area UI scheme

Option	Stabilization effects	Redistributive effects	Moral hazard	Rational for euro area UI scheme regarding its stabilization function
Basic UI scheme	Stabilization effects timely, but decrease in the share of *long-term* unemployed. National UI systems could top up euro area system.	Redistributive effects significantly affected by changes in *short-term* unemployment. Differences in unemployment rates alone do not lead to permanent redistribution.	Only short-term unemployment covered, national governments bear costs of long-term unemployment. Administrative discretion could be used to increase the number of transfer recipients. Distortions at the individual level depend on overall benefit level (national and European combined).	Under the condition that a basic euro area UI scheme is not restricted in its capacity to run deficits, it could ensure that a minimum level of insurance is guaranteed even if a member state loses access to private capital markets so that the working of national automatic stabilizers is restricted.
Benefit extension program	Stabilization by the central level (only) in severe economic crisis, pay-out-rules trigger-based. Additional stabilization by extending the coverage and/or the generosity of national UI systems.	Risk of permanent redistribution depends on the specification of the triggers. If pay-out-rules condition only on unemployment levels rather than levels and changes in unemployment, the risk of permanent redistribution would be high.	Risk that scheme undermines incentives of national governments to address structural weaknesses of the labour market is higher than under a basic UI scheme if it covers both cyclical and structural unemployment . Extended period of benefit receipt can have adverse incentive effects at the individual level.	A benefit extension program administered at the euro area level could increase the insurance effect of national UI schemes in severe economic downturns.
Fully centralized UI system	Timely stabilization, exclusively provided by the centralized UI system which fully replaces national UI systems.	High risk of permanent redistribution if there are permanent differences in unemployment levels across the euro area.	Direct costs of unemployment fully borne by the central level which gives rise to severe moral hazard concerns.	To establish automatic stabilizers at the central level that are more effective than in member states with weak automatic stabilizers.

5. Economic effects of an unemployment insurance scheme for the euro area

5.1 Key features of a basic unemployment insurance scheme for the Euro area

Given the three broad alternatives for a euro area unemployment insurance scheme presented above, the key question is which scheme would best serve its purpose of improving economic resilience of the EMU by cushioning asymmetric shocks without leading to permanent transfers across member states and without undermining incentives of national governments to implement structural reforms. These criteria are explicitly emphasized in the van Rompuy report *"Towards a Genuine Economic and Monetary Union"* and in the report *"A blueprint for a deep and genuine economic and monetary union – Launching a European Debate"* both outlining a roadmap for the (potential) further institutional development of EMU (see van Rompuy et al. 2012 and European Commission 2012).

In our empirical analysis, we consider the economic effects of a basic unemployment insurance scheme as a benchmark case. Clearly, the basic euro area unemployment insurance system could be combined with elements of an extended benefit program, e.g. transfers could be activated once unemployment rates are above a certain threshold and continue rising. Other characteristics would be similar, for example the general requirement of active job search to be eligible for unemployment insurance benefits from the common system. Our simulations provide a useful starting point to illustrate the economic effects of a common unemployment insurance system in the euro area.

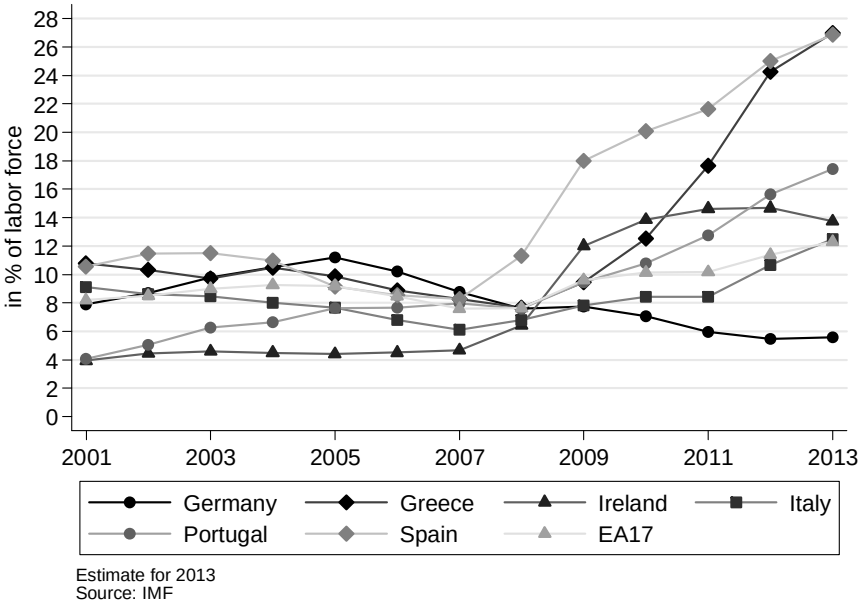
In our set-up, the common system has a replacement rate of 50 per cent of previous (gross) wages which corresponds to the lowest replacement rate of national unemployment insurance systems in the euro area in 2007 (Greece, see Table 3). All new unemployed with previous income (as well as self-employment income) are eligible for benefits from the euro area unemployment insurance system for up to 12 months. As outlined in section 2, we simulate unemployment shocks for the period 2008-2013 reflecting real trends in unemployment as well as short-term unemployment in the euro area in order to match the share of unemployed who would have been eligible for the basic unemployment insurance scheme. The scheme is financed by a proportional payroll tax and is calibrated (ex-post) so that it is revenue neutral over the simulation period, i.e., it can run deficits in single years, but needs to be balanced over a longer time period. The total contribution rate (sum of employer and employee social insurance contributions) is 1.9% on all

employment income. The total volume of this scheme at the EMU-level would have amounted to 365 billion euros over the whole simulation period (2008-2013), i.e. the average yearly budget is roughly 61 billion euros.

5.2 Changes in (short-term) unemployment and coverage rates

Before assessing the redistributive and stabilizing effects of a euro area unemployment insurance system, it is instructive to consider how unemployment rates in EMU have developed since the start of the common currency and, in particular, during the recent deep recession which had a tremendous impact on labour markets in Europe. Figure 2 shows unemployment rates in Germany, the so-called GIIPS countries (Greece, Italy, Ireland, Portugal and Spain) as well as in the EA17 since 2001.

Figure 2: Unemployment rates in selected EA member states 2001-2013



The figure reveals that unemployment rates have followed different cycles within the euro area. In Germany, it was increasing from 2001 onwards reaching its peak in 2005 with a rate of 11.2% (see also Table 5 and Figure 7 for unemployment rates of all EA member states). In that year, the German unemployment rate was above the EA17 average and also higher than in the GIIPS countries. In contrast unemployment was declining from 2003-2007 in Spain and from 2004-2008 in Greece indicating that these two countries were in a different position of the business cycle in these

years. Since then, unemployment has been rising in Spain and Greece up to a rate of 27% in 2013. Unemployment has also been increasing in Portugal, Ireland, and Italy since 2007, but, compared with growth rates in Spain and Greece, to a much smaller extent. IMF forecasts for the coming years suggest, however, that in Ireland the peak was reached in 2012. Against this trend in the GIIPS countries, Germany's unemployment rate has been declining in recent years, despite a huge drop in its GDP of almost 5% in 2008.

For an assessment of an unemployment insurance scheme that only insures the first 12 months of unemployment, it is equally important to consider the share and absolute number of short-term unemployed which is depicted in Figures 3 and 4 for Germany and the GIIPS countries (see also Table 6 and Figure 8 for shares and absolute numbers of short-term unemployment for all EA member states).

Figure 3: Share short-term unemployment rates in selected EA member states 2001-2012

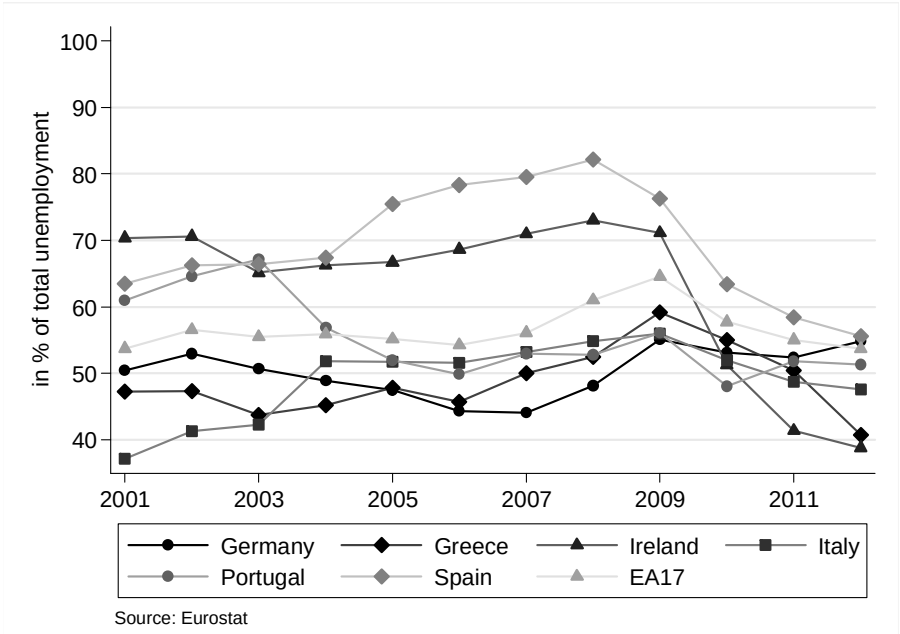


Figure 4: Absolute number short-term unemployed in selected EA member states 2001-2012

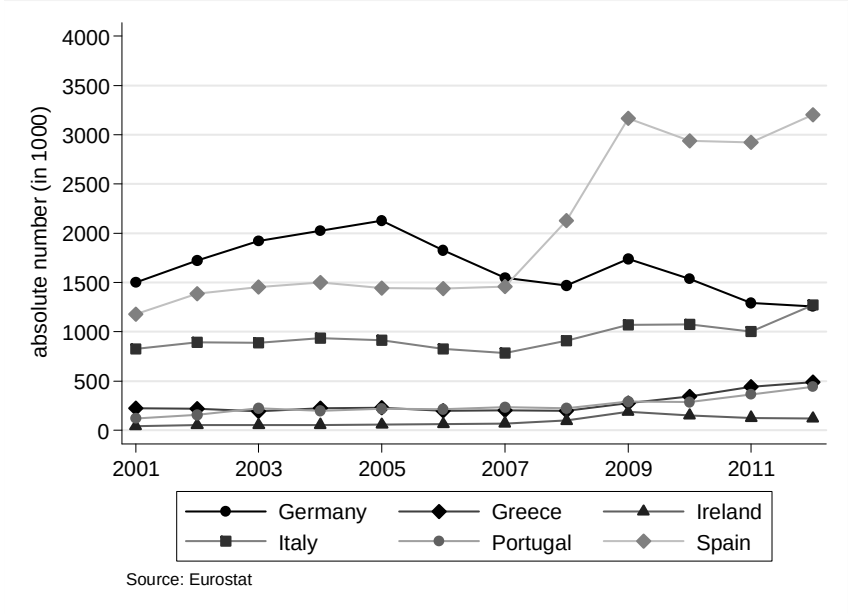


Figure 3 shows that fluctuations in the share of short-term unemployment are rather large. In the recent recession, the share of short-term unemployed increased in the majority of euro area member states from 2007 to 2008 and at the Eurozone level also from 2008 to 2009 (Table 6), but fell afterwards, in particular in those countries which were severely affected by rising unemployment (see e.g. Spain, Ireland and Greece in Figure 3). Figure 4 reveals that absolute numbers of short-term unemployed were still rising up to 2012 (the last year for which data on short-term unemployment is available) in Spain, Italy, Greece and Portugal which can be explained by the ongoing rise in unemployment in these countries.

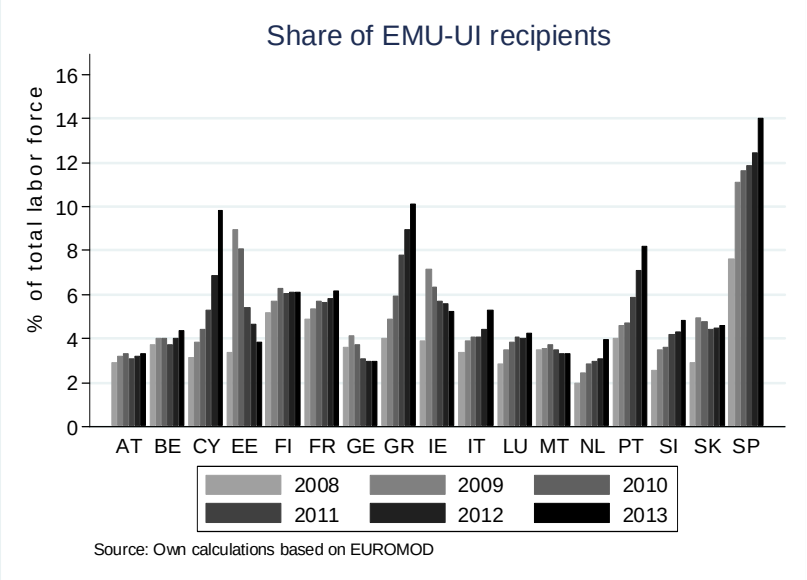
These patterns have important implications for the coverage and hence the stabilizing effect of the basic euro area unemployment insurance scheme. In a deep economic crisis such as in 2008-2009, a scheme which covers (only) short-term unemployment has its strongest stabilizing effect when the rise in short-term unemployment is largest. This effect diminishes the more the share of the long-term unemployed is growing. Contrary, a benefit extension program would unfold its stabilizing effects when certain thresholds of macro-indicators such as the unemployment rate are reached which might come with some time lag.

Our simulations confirm these implications for the basic euro area unemployment insurance scheme. Figure 5 shows that the share of benefit recipients from the euro area unemployment insurance system (relative to the total labour force) would have increased in the majority of member states from 2008-2013. The largest increases would have occurred in Cyprus (from 3.1 per cent in 2008 to 9.8 in 2013), Greece

(from 4.0 per cent to 10 per cent), Portugal (from 4.0 per cent to 8.2 per cent) and Spain (from 7.6 per cent to 14 per cent), countries with huge inflows into unemployment.

Notable exceptions would have been Estonia, Germany and Slovakia where the share of recipients would have gone down after 2009 (from 8.9 per cent in 2009 to 3.8 per cent in 2013 in Estonia, from 4.1 per cent to 3.0 per cent in Germany, from 4.9 per cent to 4.6 per cent in Slovakia) due to declining unemployment rates (Estonia and Germany) and lower shares of short-term unemployed (Estonia and Slovakia).

Figure 5: Share of recipients of EMU-UI, 2007-2013



However, in spite of rising shares of benefit recipients from the euro area unemployment insurance system, the coverage ratios, i.e. the share of unemployed who would have received transfers from the common euro area unemployment insurance system, would have declined significantly in those countries most affected by rising unemployment. In Spain, the ratio would have declined from 67% in 2008 to 52% in 2013, in Greece from 53% to 38%, in Ireland from 61% to 38% and in Portugal from 53% to 47%. For the EA17, the share would have decreased from 57% to 51% (see Figure 6 and Table 10).

Figure 6: Coverage rate of EMU-UI, 2008-2013

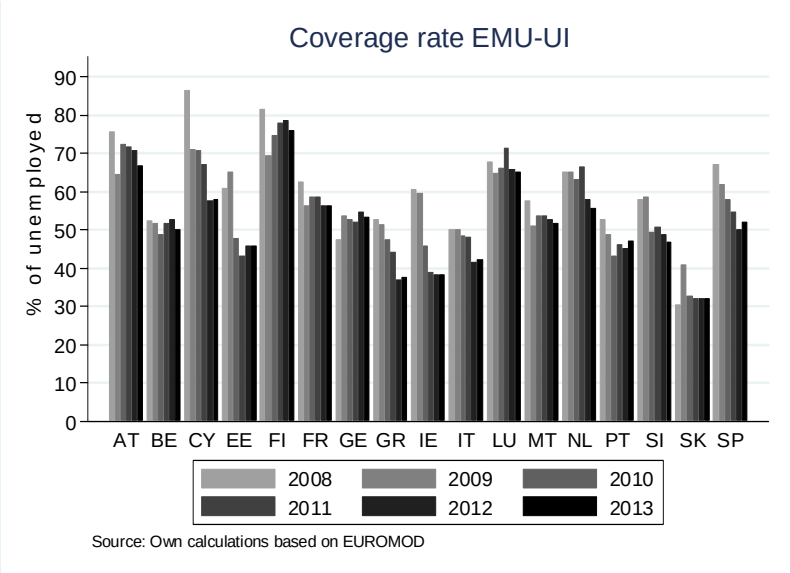


Figure 7: Unemployment rates in the EA17, 2007-2013

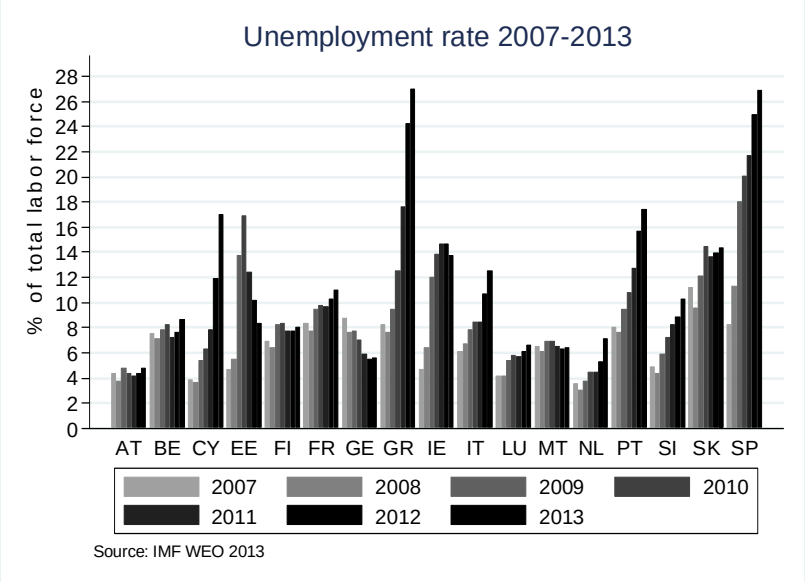
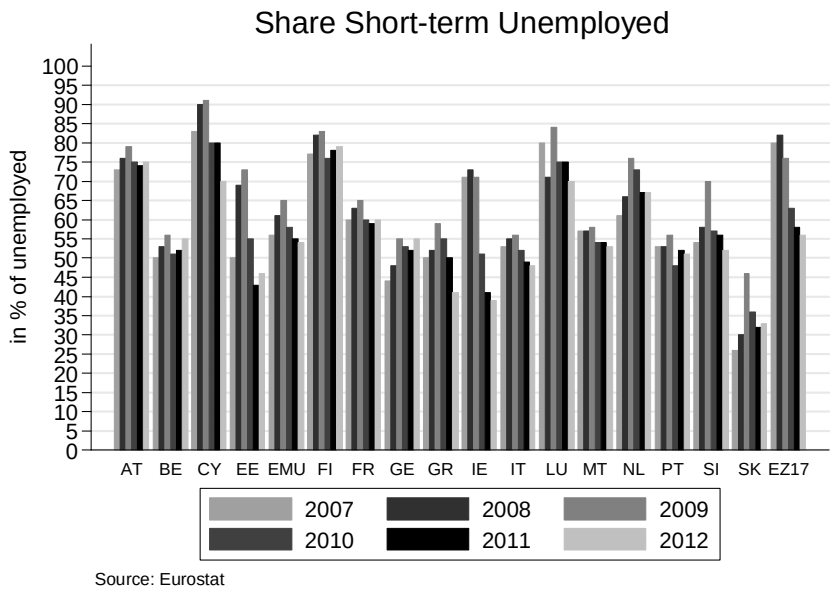


Figure 8: Share short-term unemployed, 2007-2013



Source: Eurostat

Table 5: Unemployment rates (in % of total labour force) in the EA17, 2000-2013

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
EMU	8.7	8.2	8.5	9.0	9.3	9.2	8.5	7.6	7.6	9.6	10.1	10.2	11.4	12.3
AT	3.6	3.6	4.2	4.3	4.9	5.2	4.8	4.4	3.8	4.8	4.4	4.2	4.3	4.8
BE	6.9	6.7	7.6	8.2	8.3	8.4	8.2	7.5	7.1	7.8	8.2	7.2	7.6	8.7
CY	4.8	3.9	3.5	4.1	4.6	5.3	4.5	3.9	3.6	5.4	6.3	7.9	11.9	17
EE	13.7	12.6	10.3	10.0	9.7	7.9	5.9	4.7	5.5	13.8	16.9	12.5	10.2	8.3
FI	9.8	9.1	9.1	9.0	8.8	8.4	7.7	6.9	6.4	8.2	8.4	7.8	7.8	8.0
FR	9.0	8.2	8.3	8.9	9.3	9.3	9.2	8.4	7.8	9.5	9.7	9.6	10.3	11.0
GE	8.0	7.9	8.7	9.8	10.5	11.2	10.2	8.8	7.6	7.7	7.1	6.0	5.5	5.6
GR	11.4	10.8	10.3	9.7	10.5	9.9	8.9	8.3	7.7	9.5	12.5	17.7	24.2	27.0
IE	4.3	3.9	4.4	4.6	4.5	4.4	4.5	4.7	6.4	12.0	13.9	14.6	14.7	13.7
IT	10.1	9.1	8.6	8.5	8.0	7.7	6.8	6.1	6.8	7.8	8.4	8.4	10.7	12.5
LU	2.4	2.2	2.5	3.3	3.7	4.1	4.2	4.2	4.2	5.4	5.8	5.7	6.1	6.6
MT	6.8	7.6	7.4	7.7	7.2	7.3	6.9	6.5	6.1	6.9	6.9	6.5	6.3	6.4
NL	3.1	2.5	3.1	4.2	5.1	5.3	4.4	3.6	3.1	3.7	4.5	4.4	5.3	5.3
PT	4.0	4.1	5.1	6.3	6.7	7.6	7.7	8.0	7.6	9.5	10.8	12.7	15.7	17.4
SI	6.7	6.2	6.3	6.7	6.3	6.5	6.0	4.9	4.4	5.9	7.3	8.2	8.9	10.3
SK	18.9	19.5	18.8	17.7	18.4	16.4	13.5	11.2	9.6	12.1	14.5	13.7	14.0	14.4
SP	13.9	10.6	11.5	11.5	11.0	9.2	8.5	8.3	11.3	18.0	20.1	21.7	25.0	26.9

Source: IMF World Economic Outlook, October 2013, Estimate for 2013

Table 6: Share of short-term unemployment (less than 12 months, in % of total unemployment) in the EA17, 2000-2012

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
EMU	53	54	57	56	56	55	54	56	61	65	58	55	54
AT	72	74	85	77	72	75	73	73	76	79	75	74	75
BE	44	48	51	54	50	48	49	50	53	56	51	52	55
CY	77	80	83	82	74	78	82	83	90	91	80	80	70
EE	53	59	54	64	47	47	52	50	69	73	55	43	46
FI	76	77	79	79	79	74	75	77	82	83	76	78	79
FR	60	63	67	64	61	59	59	60	63	65	60	59	60
GE	50	50	53	51	49	47	44	44	48	55	53	52	55
GR	43	47	47	44	45	48	46	50	52	59	55	50	41
IE	62	70	71	65	66	67	69	71	73	71	51	41	39
IT	39	37	41	42	52	52	52	53	55	56	52	49	48
LU	100	100	84	89	85	77	74	80	71	84	75	75	70
MT	72	86	86	100	70	54	60	57	57	58	54	54	53
NL	100	100	74	72	68	60	58	61	66	76	73	67	67
PT	57	61	65	67	57	52	50	53	53	56	48	52	51
SI	37	37	45	43	47	53	51	54	58	70	57	56	52
SK	46	42	35	34	36	28	24	26	30	46	36	32	33
SP	58	63	66	66	67	75	78	80	82	76	63	58	56

Source: Eurostat, 2013 values not available yet

Table 7: Absolute number short-term unemployed (less than 12 months) in 1000 in the EA17, 2000-2012

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
EMU	6626.3	6047.9	6882.8	7100.9	7462.2	7359.4	6793	6371.9	7049.3	9463.9	8969.3	8638.1	9520
AT	129.6	112.8	156.1	144.6	146.2	154.4	141.7	135.4	122.6	160.6	140.7	132.5	142.2
BE	126.9	128.5	151	180.6	166.1	188.2	186.6	174.7	174.3	211.6	207.4	179.1	203.7
CY	11.4	10.2	8.6	10.8	10.8	14.6	13.4	12.5	12.3	19.2	20.9	26.7	36.1
EE	45.2	40.2	26.7	40.8	31.5	24.3	21	16.2	26.5	69	63.3	37.4	32.4
FI	217.5	204.9	218.7	218.5	214.2	161.4	151.1	139.8	137.4	181.4	167.4	159.5	159.4
FR	1586	1408.9	1530.9	1386.1	1487.7	1417	1394.9	1313.4	1272.3	1644.8	1562	1516.1	1669.3
GE	1479.8	1501.6	1722.4	1921.1	2023.5	2129.7	1829.7	1546.7	1469.5	1738	1536.4	1293.2	1255.6
GR	225	226.2	218.6	191.8	222.6	228.3	198.5	203.5	198.3	278.6	345.6	442.2	489.7
IE	46.2	43.1	54.4	53.3	55.5	58.8	64.3	70.4	97.7	188.3	152.8	127.4	119.9
IT	976.2	825	893.8	887.2	936.7	914.2	823.9	782.9	908.2	1072.5	1073	1003.3	1274.7
LU	3.1	2.4	3.2	5.3	7.9	6.6	6.8	6.2	7.1	9	6.9	8.3	8.7
MT	1.6	4.2	6.9	7.8	4.2	6.2	6.7	6.2	5.9	6.7	6.4	6.3	6.2
NL	0	0	151.3	209.2	262.1	237.3	187.8	164.5	154.9	225.1	278	254.2	304.2
PT	102.7	122.7	156.5	223.7	197.2	218.2	212.7	236.5	223.6	293.5	286	366	441.1
SI	24.9	19.4	26.3	27	28.4	34.8	30.8	27	26.3	42.7	42.7	46.5	46.7
SK	218.8	211.9	168.8	151.4	177.1	120.8	84	76.3	77.8	149	139.9	117.1	123.8
SP	1421.1	1178	1384.9	1455.1	1500.3	1443.4	1438.5	1459.2	2127.6	3165.3	2937.7	2920.7	3204

Source: Eurostat, 2013 values not available yet

Table 8: Absolute number long-term unemployed (more than 12 months) in 1000 in the EA17, 2000-2012

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
EMU	6259.8	5424.7	5363	5838	6033.6	6100.4	5836.3	5064.1	4565	5243	6632.9	7122.9	8277.5
AT	51.5	40.3	28.7	43.3	56.4	52.7	53.6	49.8	39.5	43.6	47.5	46.6	46.8
BE	163.6	137.4	148.6	155.8	163.2	201.5	195.8	177.3	158.1	167.7	197.4	167.4	164.7
CY	2.5	1.8	2.6	4	4.2	3	2.6	1.4	1.9	5.3	6.8	15.7	15.7
EE	40.3	33.7	27.6	25.6	34.8	27.9	19.5	15.9	11.9	26.1	52.6	49.4	38.1
FI	70.8	63.3	59	59.3	57.2	56.3	50.9	41.5	31.4	36.8	53.4	45.9	43.8
FR	1045.3	822.1	745.4	838.6	959.7	987.9	1008	882.3	764.7	898.3	1050.8	1073.5	1128.4
GE	1570.4	1526.9	1580.8	1921.6	2176.8	2399.8	2365	2015.5	1626	1450.2	1381.7	1192.1	1046.4
GR	294	252.3	243.3	248.5	270	249	236	203.5	179.6	192.4	283.1	434.7	714
IE	28.6	19.5	22.8	29.3	29.1	29.5	29.6	29.4	36.3	77.2	147.6	185.7	193.4
IT	1545.4	1426.7	1296.3	1239.5	926.2	911.8	810.9	704.3	763.9	857	1009.8	1081	1439.1
LU	0	0	0.8	0.8	1.5	2.1	2.5	1.7	3.1	1.9	2.5	2.9	3.9
MT	2.7	1.6	1.5	0	3.5	5.4	4.5	4.6	4.4	5.1	5.6	5.4	5.6
NL	0	0	55.1	86.3	126.1	159.3	141.9	107	82.6	74.2	105.7	128	156.4
PT	86	79.2	86	109.4	149.9	202.8	214.4	210.9	201.5	232.3	313.2	340.1	418.9
SI	41.6	34.9	31.8	35.1	32.1	31.3	29.9	22.9	19.2	18.3	32.6	36.8	42.9
SK	264.1	296.3	317.2	296.2	314	309.2	271.1	219.5	177.9	174.6	249.1	247.9	254.3
SP	1047.6	677.6	707	736.1	726.2	469.1	398.5	374.6	463.1	984	1694.6	2078.2	2564.9

Source: Eurostat, 2013 values not available yet

Table 9: Total number unemployed in 1000 in the EA17, 2000-2012

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
EMU	13,218.6	11,723.7	12,334.1	13,121.1	13,683.1	13,600.6	12,758.0	11,532.9	11,708.6	14,798.7	15,691.6	15,835.4	17,881.5
AT	181.1	154.3	187.0	188.0	203.4	207.7	195.6	185.6	162.3	204.4	188.2	179.0	189.1
BE	290.5	265.9	300.8	337.3	329.4	390.4	383.2	353.0	333.4	379.6	405.9	346.7	369.0
CY	15.4	12.8	10.8	14.1	15.2	19.5	17.0	15.4	14.5	21.7	26.4	34.0	52.0
EE	85.5	81.5	60.6	70.7	66.2	52.2	40.5	32.0	38.4	95.1	115.9	86.8	70.5
FI	296.6	275.6	280.0	280.7	275.5	219.7	204.4	183.3	172.1	220.9	224.3	208.7	206.8
FR	2,631.4	2,230.8	2,276.5	2,308.4	2,487.7	2,432.0	2,431.9	2,223.0	2,064.4	2,575.2	2,640.0	2,612.1	2,824.3
GE	3,122.9	3,078.5	3,362.0	3,894.0	4,261.1	4,570.8	4,245.4	3,601.0	3,136.0	3,228.2	2,945.5	2,501.4	2,316.5
GR	519.1	478.4	462.1	441.7	492.6	477.3	434.5	406.9	377.9	471.1	628.7	876.9	1,203.8
IE	75.4	65.8	77.6	84.1	86.3	88.6	94.4	101.4	134.7	267.7	302.7	316.7	316.0
IT	2,542.4	2,268.4	2,206.4	2,145.8	1,923.3	1,888.6	1,673.4	1,506.0	1,691.9	1,944.9	2,102.4	2,107.8	2,743.6
LU	4.3	3.4	5.1	7.1	10.2	9.1	9.7	8.6	10.8	11.7	10.1	11.6	12.8
MT	9.7	11.3	11.0	12.0	11.5	11.7	11.2	10.8	10.3	12.0	12.2	11.7	11.8
NL	220.2	174.6	214.3	302.9	394.8	402.1	335.7	277.9	243.0	303.7	389.9	388.6	468.5
PT	198.5	202.9	243.1	333.4	347.3	422.3	427.8	448.6	427.1	528.6	602.6	706.1	860.1
SI	66.4	55.1	58.1	62.1	60.5	66.0	60.8	49.9	45.5	61.0	75.4	83.2	89.6
SK	490.5	508.7	486.3	447.7	491.0	430.0	355.4	295.7	255.7	323.5	389.2	365.0	378.0
SP	2,468.8	1,855.6	2,092.6	2,191.2	2,227.2	1,912.5	1,837.1	1,833.9	2,590.6	4,149.5	4,632.4	4,999.0	5,769.0

Source: Eurostat, 2013 values not available yet

Table 10: Coverage rate of EMU-UI, 2008-2013

	2008	2009	2010	2011	2012	2013
EMU	56.7	56.1	54.3	53.3	49.9	50.9
AT	75.7	64.5	72.4	71.7	70.7	66.8
BE	52.4	51.6	48.9	51.7	52.6	50.0
CY	86.4	70.9	70.7	67.1	57.7	57.9
EE	60.7	65.0	47.9	43.2	45.9	45.9
FI	81.6	69.4	74.7	77.8	78.6	75.9
FR	62.5	56.3	58.5	58.5	56.4	56.3
GE	47.5	53.5	52.7	52.0	54.5	53.3
GR	52.5	51.5	47.5	44.2	37.0	37.6
IE	60.5	59.6	45.9	38.8	38.2	38.3
IT	49.9	50.0	48.3	48.1	41.5	42.3
LU	67.6	64.7	66.3	71.2	65.8	65.0
MT	57.7	51.1	53.5	53.7	52.6	51.8
NL	65.2	65.0	63.2	66.5	58.0	55.6
PT	52.6	48.7	43.3	46.2	45.2	47.1
SI	57.8	58.6	49.6	50.7	48.7	46.9
SK	30.4	40.8	32.8	32.1	32.1	31.9
SP	67.3	61.8	57.9	54.7	49.9	52.1

Note: Coverage Rate in % of all unemployed
Source: Own calculations based on EUROMOD.

5.3 Budgetary effects and financial flows

As stated above, the euro area unemployment insurance scheme analyzed in our simulations can run deficits and surpluses in single years, but is balanced over the whole simulation period. In order to achieve revenue neutrality, a proportional payroll tax of 1.9 per cent on all employment income is required. Figure 9 shows the sum of contributions into and pay-outs from the scheme at the Eurozone level. While contributions are relatively stable over the six year period, increasing from 59 billion euros in 2008 to 62 billion in 2013, benefit payments fluctuate to a much larger extent (see also Table 11). They reach their peak in 2009 and 2013 (68 and 71 billion euros), i.e. in those years when aggregate growth in unemployment was highest, and have their lowest level in 2008 (46 billion euros) when the aggregate unemployment rate in the Eurozone did not change relative to the previous year (see Table 5). Consequently, the scheme would run surpluses in 2008 (13.7 billion euros), 2010 (1.7 billion euros) and 2011 (6.2 billion euros) and deficits in 2009 (8.5 billion euros), 2012 (4.7 billion euros) and 2013 (8.4 billion euros, see also Figure 10). Over the period 2008-2013, the total volume of the scheme would have amounted to 365 billion euros at the Eurozone level.

Figure 9: Contributions and benefits euro area UI scheme 2008-2013

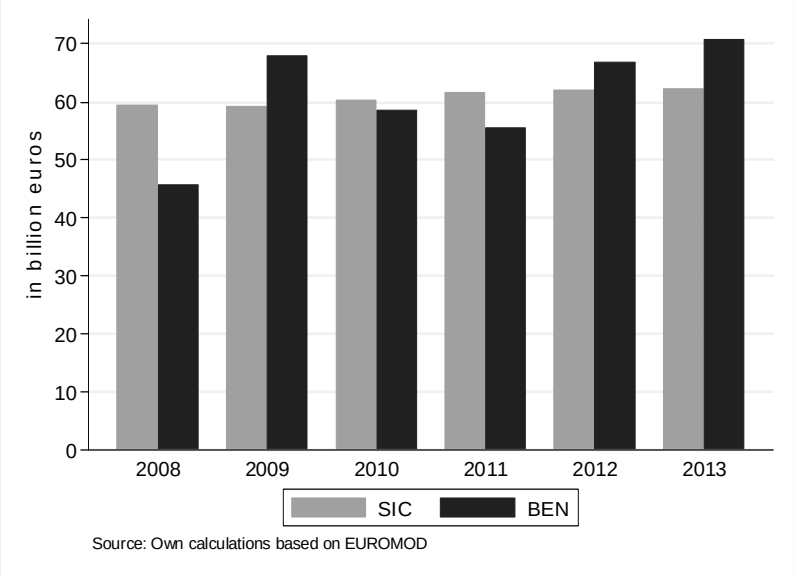
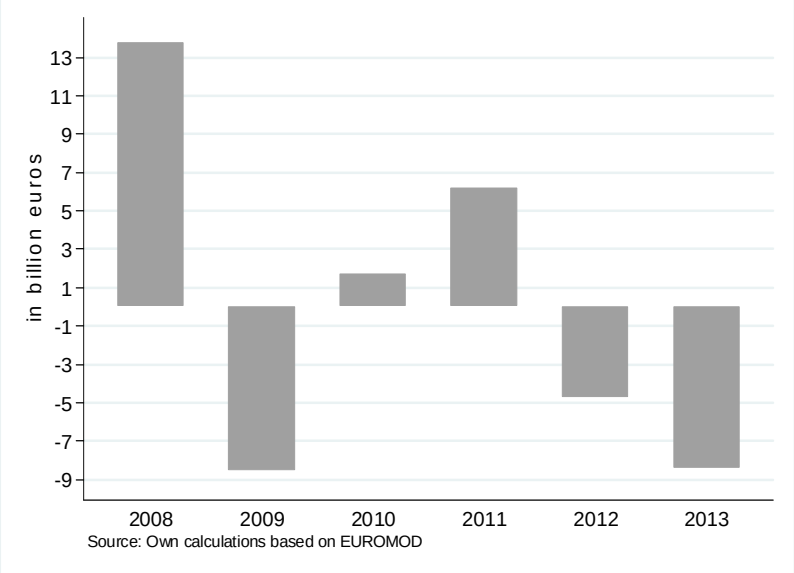


Figure 10: Deficits and surpluses euro area UI scheme 2008-2013



Our simulations demonstrate that at the national level Germany would have been the largest contributor to the scheme in absolute terms with yearly net contributions ranging from 7.4 to 13 billion euros (Figure 11 and Table 11), whereas Austria, Germany and the Netherlands would have borne the largest burden relative to their GDP. Net contributions relative to GDP would have ranged from 0.27 – 0.4 per cent in Austria, from 0.31 – 0.40 per cent in Germany and from 0.14 – 0.59 per cent in the Netherlands (Figure 12 and Table 12). Among the net recipients would have been Spain, France, Greece and Portugal, i.e. those countries most affected by rising unemployment. In Spain, the largest recipient in absolute terms, net benefits would have ranged from 5.2 billion euros in 2008 (0.47 per cent of GDP) to 14.5 billion euros in 2009 (1.39 per cent of GDP). In France, net benefits would have reached their maximum in 2013 (3.9 billion euros or 0.19 per cent of GDP) in 2013, in Greece and Portugal in 2012 (2.5 and 0.9 billion euros or 1.23 and 0.53 per cent of GDP, respectively). Italy, the largest Southern European country, would have been a net contributor from 2008-2011 with net payments ranging from 0.7-2.3 billion euros (0.04 – 0.14 per cent of GDP) and a net recipient in 2012 and 2013 (2.6 and 3.4 billion euros or 0.17 and 0.22 per cent of GDP).

Figure 11: EMU-UI Net contributions 2008-2013 (in billion euros)

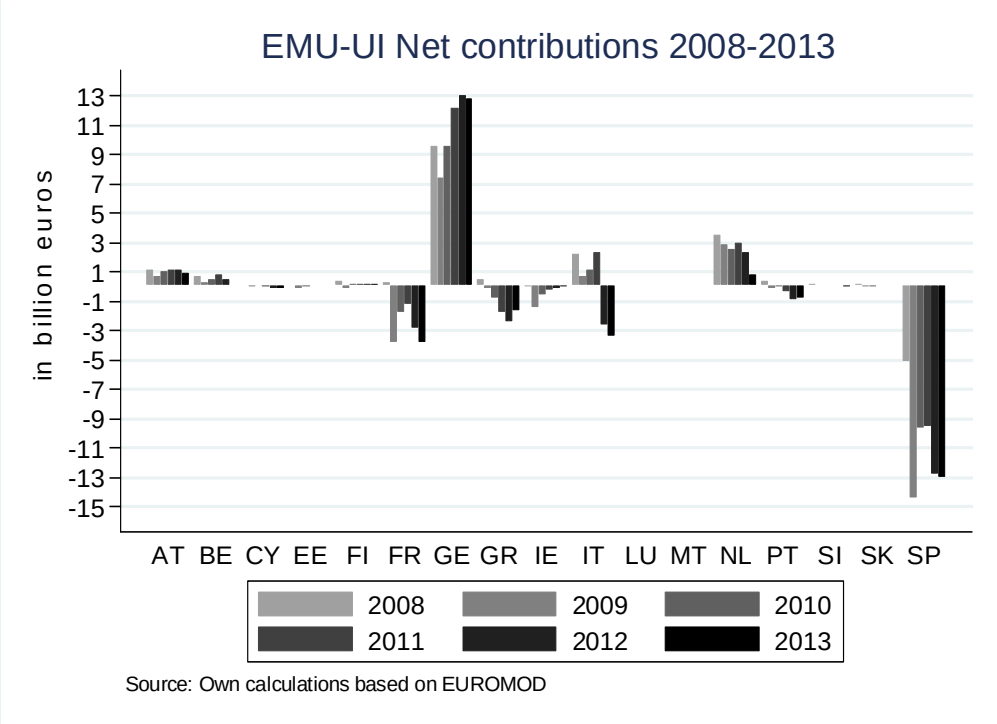


Figure 12: EMU-UI Net contributions 2008-2013 (in % of GDP)

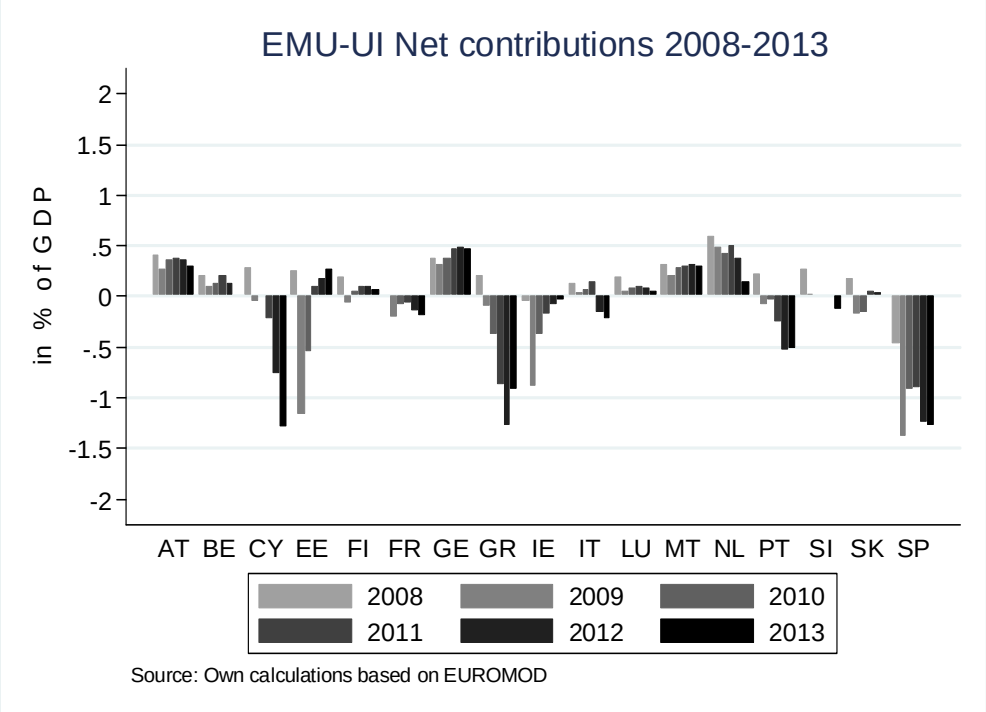


Figure 13: Share of net contributions relative to EMU total

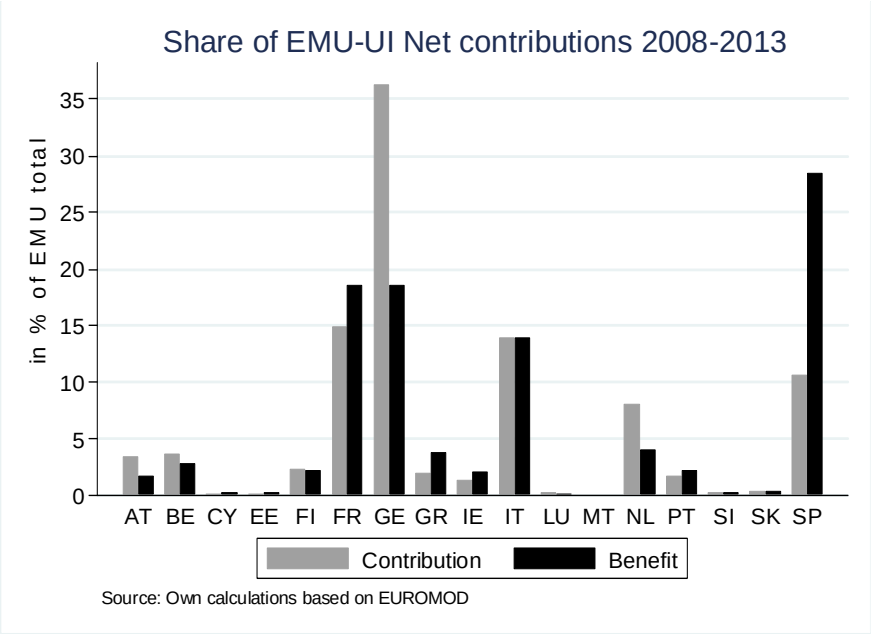


Table 11: EMU-UI benefits, contributions and net balance (in billion euros)

	2008			2009			2010			2011			2012			2013		
	BEN	SIC	BAL	BEN	SIC	BAL	BEN	SIC	BAL	BEN	SIC	BAL	BEN	SIC	BAL	BEN	SIC	BAL
EMU	45.70	59.45	13.75	67.88	59.33	-8.55	58.50	60.21	1.72	55.38	61.58	6.20	66.80	62.08	-4.72	70.67	62.28	-8.39
AT	0.84	1.98	1.14	1.28	2.01	0.73	1.00	2.04	1.05	0.97	2.10	1.13	1.06	2.15	1.09	1.25	2.19	0.94
BE	1.39	2.12	0.72	1.80	2.13	0.32	1.70	2.15	0.44	1.47	2.24	0.77	1.82	2.31	0.49	2.30	2.34	0.04
CY	0.06	0.11	0.05	0.12	0.11	-0.01	0.11	0.11	0.00	0.15	0.11	-0.04	0.25	0.11	-0.04	0.25	0.11	-0.14
EE	0.06	0.11	0.04	0.26	0.09	-0.16	0.17	0.09	-0.08	0.08	0.10	0.02	0.07	0.11	0.03	0.07	0.12	0.05
FI	1.02	1.39	0.37	1.52	1.39	-0.13	1.30	1.41	0.11	1.27	1.47	0.20	1.32	1.52	0.19	1.42	1.55	0.13
FR	8.49	8.78	0.30	12.59	8.79	-3.80	10.79	8.99	-1.80	10.53	9.23	-1.30	12.26	9.37	-2.89	13.29	9.42	-3.86
GE	11.33	20.87	9.54	13.48	20.87	7.39	11.97	21.53	9.56	10.25	22.45	12.19	10.13	23.16	13.03	10.77	23.58	12.81
GR	0.92	1.40	0.48	1.65	1.42	-0.22	2.19	1.34	-0.85	3.05	1.22	-1.83	3.53	1.07	-2.45	2.65	0.96	-1.68
IE	1.01	0.92	-0.09	2.30	0.86	-1.45	1.40	0.81	-0.59	1.09	0.80	-0.29	0.95	0.80	-0.15	0.89	0.81	-0.07
IT	6.18	8.35	2.16	7.72	8.40	0.68	7.44	8.57	1.13	6.41	8.68	2.28	11.17	8.55	-2.62	11.91	8.49	-3.42
LU	0.06	0.13	0.07	0.11	0.13	0.02	0.10	0.14	0.04	0.10	0.14	0.04	0.11	0.14	0.03	0.12	0.14	0.02
MT	0.02	0.04	0.02	0.03	0.04	0.01	0.02	0.04	0.02	0.02	0.04	0.02	0.02	0.04	0.02	0.02	0.05	0.02
NL	1.31	4.81	3.50	2.07	4.90	2.83	2.42	4.93	2.51	2.05	5.01	2.96	2.76	5.06	2.30	4.10	4.96	0.86
PT	0.68	1.06	0.37	1.22	1.07	-0.15	1.13	1.07	-0.06	1.48	1.04	-0.44	1.86	1.99	-0.88	1.86	0.99	-0.87
SI	0.08	0.19	0.10	0.18	0.19	0.01	0.19	0.19	0.00	0.19	0.19	0.00	0.18	0.19	0.01	0.23	0.19	-0.04
SK	0.13	0.25	0.11	0.35	0.25	-0.11	0.35	0.25	-0.10	0.22	0.26	0.04	0.24	0.26	0.02	0.26	0.27	0.01
SP	12.09	6.94	-5.15	21.19	6.68	-14.51	16.20	6.54	-9.66	16.05	6.50	-9.55	19.05	6.23	-12.81	19.24	6.14	13.10

Source: Own calculations based on EUROMOD

Table 12: EMU-UI benefits, contributions and net balance (in % of GDP)

	2008			2009			2010			2011			2012			2013		
	BEN	SIC	BAL	BEN	SIC	BAL	BEN	SIC	BAL	BEN	SIC	BAL	BEN	SIC	BAL	BEN	SIC	BAL
EMU	0.5	0.6	0.1	0.8	0.7	-0.1	0.6	0.7	0.0	0.6	0.7	0.1	0.7	0.7	0.1	0.7	0.7	-0.1
AT	0.3	0.7	0.4	0.5	0.7	0.3	0.3	0.7	0.4	0.3	0.7	0.4	0.3	0.7	0.4	0.4	0.7	0.3
BE	0.4	0.6	0.2	0.5	0.6	0.1	0.5	0.6	0.1	0.4	0.6	0.2	0.5	0.6	0.1	0.6	0.6	0.0
CY	0.4	0.6	0.3	0.7	0.7	-0.1	0.7	0.7	0.0	0.9	0.6	-0.2	1.4	0.6	-0.8	1.9	0.6	-1.3
EE	04	0.6	0.3	1.8	0.7	-1.2	1.2	0.6	-0.5	0.5	0.6	0.1	0.4	0.6	0.2	0.4	0.6	0.3
FI	0.5	0.7	0.2	0.9	0.8	-0.1	0.7	0.8	0.1	0.7	0.8	0.1	0.7	0.8	0.1	0.7	0.8	0.1
FR	0.4	0.5	0.0	0.7	0.5	-0.2	0.6	0.5	-0.1	0.5	0.5	-0.1	0.6	0.5	-0.1	0.6	0.5	-0.2
GE	0.5	0.8	0.4	0.6	0.9	0.3	0.5	0.9	0.4	0.4	0.9	0.5	0.4	0.9	0.5	0.4	0.9	0.5
GR	0.4	0.6	0.2	0.7	0.6	-0.1	1.0	0.6	-0.4	1.5	0.6	-0.9	1.8	0.6	-1.3	1.4	0.5	↕0.9
IE	0.6	0.5	0.0	1.4	0.5	-0.9	0.9	0.5	-0.4	0.7	0.5	-0.2	0.6	0.5	-0.1	0.5	0.5	0.0
IT	0.4	0.5	0.1	0.5	0.6	0.0	0.5	0.6	0.1	0.4	0.6	0.1	0.7	0.5	-0.2	0.8	0.5	-0.2
LU	0.2	0.4	0.2	0.3	0.4	0.1	0.3	0.3	0.1	0.2	0.3	0.1	0.2	0.3	0.1	0.3	0.3	0.1
MT	0.4	0.7	0.3	0.5	0.7	0.2	0.4	0.7	0.3	0.4	0.7	0.3	0.3	0.7	0.3	0.3	0.6	0.3
NL	0.2	0.8	0.6	0.4	0.9	0.5	0.4	0.8	0.4	0.3	0.8	0.5	0.5	0.8	0.4	0.7	0.8	0.1
PT	0.4	0.6	0.2	0.7	0.6	-0.1	0.7	0.6	0.0	0.9	0.6	-0.3	1.1	0.6	-0.5	1.1	0.6	-0.5
SI	0.2	0.5	0.3	0.5	0.5	0.0	0.5	0.5	0.0	0.5	0.5	0.0	0.5	0.5	0.0	0.7	0.5	-0.1
SK	0.2	0.4	0.2	0.6	0.4	-0.2	0.5	0.4	-0.2	0.3	0.4	0.1	0.3	0.4	0.0	0.4	0.4	0.0
SP	1.1	0.6	-0.5	2.0	0.6	-1.4	1.5	0.6	-0.9	1.5	0.6	-0.9	1.9	0.6	-1.2	1.9	0.6	-1.3

Source: Own calculations based on EUROMOD

5.4 Automatic stabilization effects

To what extent does the basic unemployment insurance scheme analyzed in our simulations provide income stabilization? In order to investigate this important function of the euro area unemployment insurance scheme, we follow the literature on automatic stabilization effects of tax-benefit systems (cf. Auerbach and Feenberg 2000, Dolls et al. 2012, Bargain et al. 2013) and calculate the income stabilization coefficient defined in section 2 which relates changes in taxes and benefits to changes in gross income. It thus measures how much of a shock on gross income is absorbed by the tax-benefit system. In other words, changes in net incomes are smaller than gross income changes if a fraction of the shock is cushioned by taxes or benefits and unemployment insurance can thus have a consumption-smoothing effect (cf. Baily 1978, Gruber 1997, Chetty 2008). To what extent the cushioning of the shock translates into demand stabilization depends on how households adjust their consumption expenditure after changes in net income (cf. Jappelli and Pistaferri 2010 for a survey). The higher the share of credit-constrained households, the larger will be the stabilizing effect on aggregate demand.[19]

Unemployment insurance can stabilize (aggregate) disposable income either through reduced contributions or higher benefit payments. In our simulations, we calculate changes in benefit payments from and social contributions into the euro area unemployment insurance scheme from year t to year t+1 at the individual micro level and aggregate these changes to the country-level. For the calculation of stabilization effects of the euro area unemployment insurance scheme, we relate aggregate changes in benefit payments to aggregate gross income changes at the extensive margin, i.e. due to job losses or exits out of unemployment, and aggregate changes in contribution payments to the sum of extensive and intensive gross income changes. The unemployment insurance scheme does have a stabilizing effect if total benefit (contribution) payments at the country level are higher (lower) than in the previous year conditional on an aggregate loss in gross income.

Figure 14 shows stabilization results for the GIIPS countries, Table 13 for the EA17. The first important result is that in 2009 the euro area unemployment insurance scheme would have had a stabilizing effect in all 17 member states. This is due to the fact that in 2009 unemployment rates and the share of short-term unemployed went up in the euro area and, equally important, that the scheme can build up deficits in single years. Any shock absorption scheme without the possibility of debt financing would have unfolded a destabilizing effect in those member states which were comparably less severe affected in that recession year.[20] Euro area unemployment

[19] See e.g. Dolls et al. 2012 who use information on financial wealth, home-ownerhsip and direct survey evidence to identify credit-constrained households in their micro data.

[20] See Bargain et al. 2013 and Dolls et al. 2013 for evidence on the (de)stabilizing effects of a fiscal equalization system which is based on taxing capacity and expenditure needs. The authors show that in

insurance benefits would have absorbed 42.5 percent of the shock on gross income at EMU-level with national values ranging from 32.5 percent in Italy to almost 130 percent in Germany.[21] The stabilizing effect of reduced contribution payments amounts to 1.9 percent which is equal to the proportional payroll tax. Note that we account for extensive and intensive margin income changes when calculating the stabilizing effect of contributions which explains why stabilization stemming from changes in contribution payments can be zero even if unemployment increases. This happens if income growth at the intensive margin outweighs income losses at the extensive margin.[22]

Interestingly, in spite of declining coverage rates (see Table 10) Greece and Spain are the only member states which would have been stabilized either by higher unemployment insurance benefits and/or reduced contributions over the whole sample period. In Greece, for example, the aggregate amount of euro area unemployment benefits would have increased in each year from 2008 to 2012 (from 0.92 billion euros in 2008 to 3.53 billion euros in 2012, see Table 11). The yearly increase in unemployment benefits which would have been paid to the unemployed in Greece results in a positive income stabilization coefficient for benefits from 2009-2012 (Table 13). Only in 2013, the aggregate amount of euro area unemployment benefits would have declined to 2.65 billion euros so that, by definition, the income stabilization coefficient for benefits is zero in 2013.

At the other end of the spectrum are countries such as Estonia or Malta which would have been stabilized only in two out of 5 years. One can thus conclude that the basic unemployment insurance scheme analyzed in our simulations would have supported those countries with the worst labour market developments and hence, would have had the intended effect in terms of income stabilization.

the event of the 2008-2009 shock, the taxing capacity of the union as a whole declined which implies that there would have been less money available in the equalization pot and hence, some member states would have had to pay more contributions or would have received lower payments than in the previous year.

[21] Note that (aggregate) income stabilization at the country-level can be higher than the replacement rate of 50 percent if the share of short-term unemployed increases from year t to t+1. In that case, the aggregate change in benefits can be even higher than the aggregate gross income loss, which, in the case of Germany would have led to a stabilization coefficient of more than 100 percent in 2009.

[22] If we account for income changes at the extensive margin only, social insurance contributions to the euro area unemployment insurance scheme would always stabilize incomes when the total number of contributors to the scheme goes down.

Figure 14: Income stabilization EMU-UI in selected member states

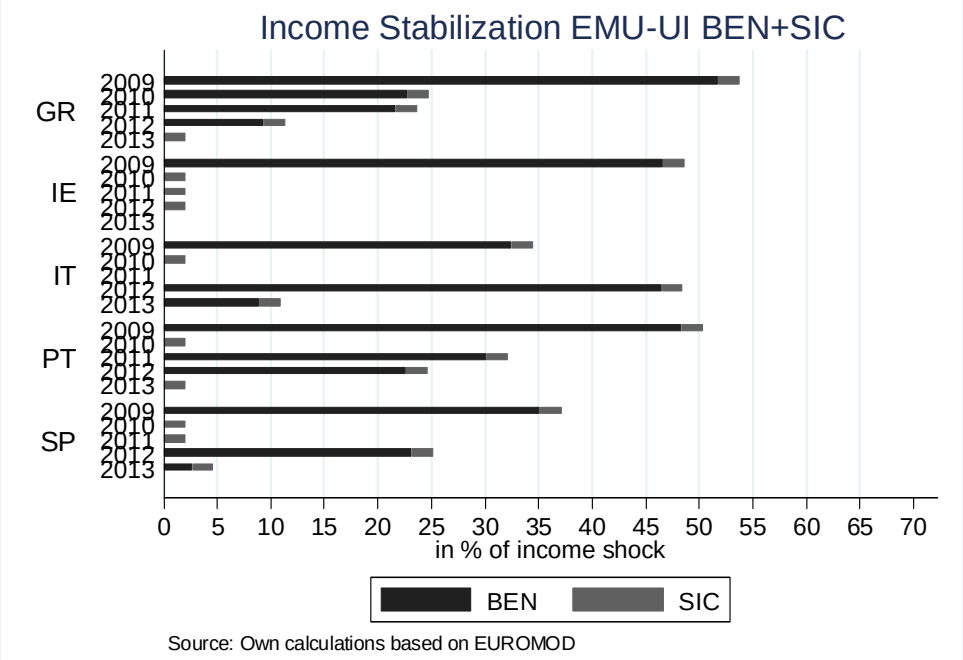


Table 13: Income stabilization coefficient

	2009		2010		2011		2012		2013	
	BEN	SIC	BEN	SIC	BEN	SIC	BEN	SIC	BEN	SIC
EMU	42.5	1.9	0.0	0.0	0.0	0.0	37.8	0.0	12.8	0.0
AT	41.5	0.0	0.0	0.0	0.0	0.0	60.8	0.0	38.3	0.0
BE	50.4	0.0	0.0	0.0	0.0	0.0	72.8	0.0	38.1	0.0
CY	56.0	0.0	0.0	0.0	42.9	0.0	38.6	1.9	19.7	1.9
EE	43.2	1.9	0.0	1.9	0.0	0.0	0.0	0.0	0.0	0.0
FI	35.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	45.7	0.0
FR	48.2	0.0	0.0	0.0	0.0	0.0	55.2	0.0	30.1	0.0
GE	129.4	1.9	0.0	0.0	0.0	0.0	0.0	0.0	44.0	0.0
GR	51.8	0.0	22.7	1.9	21.7	1.9	9.4	1.9	0.0	1.9
IE	46.7	1.9	0.0	1.9	0.0	1.9	0.0	0.0	0.0	0.0
IT	32.5	0.0	0.0	0.0	0.0	0.0	46.5	1.9	8.9	1.9
LU	55.9	0.0	0.0	0.0	0.0	0.0	41.3	0.0	31.6	0.0
MT	38.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	56.4	0.0
NL	45.4	0.0	18.7	0.0	30.2	1.9	22.6	1.9	0.0	0.0
PT	48.4	0.0	0.0	0.0	30.2	1.9	22.6	1.9	0.0	0.0
SI	66.3	0.0	5.2	0.0	4.4	0.0	0.0	1.9	35.8	1.9
SK	65.0	1.9	0.1	0.0	0.0	0.0	67.9	0.0	30.3	0.0
SP	35.1	1.9	0.0	1.9	0.0	1.9	23.2	1.9	2.7	1.9

Source: Own calculations based on EUROMOD.

How does stabilization by the basic euro area unemployment insurance scheme compare to automatic stabilizers inherent in national unemployment insurance systems? A comparison of income stabilization coefficients reported in Table 13 with those in Figure 1 in section 3 shows that the basic euro area unemployment

insurance scheme would have provided significant stabilization in 2009 and in some member states also in more recent years, even with a modest replacement rate of 50 per cent (cf. Table 3).[23] The stabilization gap is particularly large in Estonia, Greece, Italy and Slovenia (with a difference in income stabilization ranging between 30-60 percentage points in 2009), but also apparent in Ireland and Spain, all countries with pre-crisis national UI systems absorbing less than 20 per cent of an asymmetric unemployment shock. The reason is that eligibility rules of national UI schemes are in many cases more restrictive implying a lower coverage than under the basic unemployment insurance scheme analyzed here which provides full coverage for all new unemployed with previous employment income for up to 12 months. Additionally, we have documented in section 3 that discretionary policy actions during the crisis implemented in particular in the GIIPS countries did not enhance the stabilizing effects of their national unemployment insurance systems.

Our calculations allow us to provide estimates to what extent household consumption would have been stabilized by the euro area unemployment insurance scheme. Several studies have shown that especially credit-constrained households adjust their consumption expenditure when disposable income changes and that unemployment is a good predictor for limited liquidity (Gruber 1997, Browning and Crossley 2001, Bloemen and Stancanelli 2005, Jappelli and Pistaferri 2013). An upper bound estimate for demand stabilization is therefore to assume that unemployment households fully adjust their consumption expenditure after changes in disposable income in which case demand stabilization equals income stabilization. A stabilization gap between national and euro area unemployment insurance schemes of e.g. 40 per cent would then imply that the decline in household consumption would have been cushioned by this number in the presence of the basic euro area unemployment insurance scheme.

In order to quantify potential effects of the basic euro area unemployment insurance scheme on output, we estimate the additional stabilization effects relative to the shock-absorption capacity of pre-crisis national UI systems. We follow CBO (2011) and assume a range of estimates how an additional euro spent in unemployment benefits would affect output.[24] This range for this fiscal multiplier is assumed to lie between 0.5-1.5 which is also in line with the evidence surveyed in Ramey (2011).[25]

[23] Recall that estimated stabilization effects of pre-crisis national UI systems shown in Figure 1 are based on a stylized shock scenario where the unemployment rate in a given country is increased such that aggregate gross income is reduced by 5 per cent (see Dolls et al. 2012). Hence, we compare stabilizing effects of pre-crisis national UI systems with those of the euro area UI system during the crisis.

[24] See also Auerbach and Gorodnichenko (2012) and Nicholson et al. (2014) for a recent literature overview on the macroeconomic effects of unemployment compensation.

[25] Our lower (upper) bound estimate of 0.5 (1.5) thus implies that each additional euro spent in transfers to the unemployed raises output by 0.5 (1.5) euros. Estimates in CBO (2011) range from 0.4

We abstract from stabilization effects resulting from changes in contribution payments to the euro area UI scheme in this exercise since the magnitude of this effect is very small relative to GDP.

Table 14: Estimated effect of euro area UI on output

Year	2009			2010			2011			2012			2013		
	0.5	1	1.5	0.5	1.0	1.5	0.5	1.0	1.5	0.5	1.0	1.5	0.5	1.0	1.5
EMU	0.07	0.13	0.20	0	0	0	0	0	0	0.03	0.06	0.08	0	0	0
AT	0.03	0.06	0.09	0	0	0	0	0	0	0.01	0.02	0.03	0.01	0.02	0.03
BE	0.03	0.06	0.09	0	0	0	0	0	0	0.03	0.06	0.09	0.02	0.04	0.07
EE	0.63	1.25	1.88	0	0	0	0	0	0	0	0	0	0	0	0
FI	0.05	0.09	0.14	0	0	0	0	0	0	0.01	0.03	0.04	0.01	0.02	0.03
FR	0.04	0.08	0.12	0	0	0	0	0	0	0.02	0.04	0.06	0	0	0
GE	0.04	0.07	0.11	0	0	0	0	0	0	0	0	0	0	0.01	0.01
GR	0.13	0.27	0.40	0.08	0.16	0.24	0.13	0.26	0.39	0.02	0.04	0.06	0	0	0
IE	0.25	0.50	0.75	0	0	0	0	0	0	0	0	0	0	0	0
IT	0.04	0.09	0.13	0	0	0	0	0	0	0.14	0.28	0.42	0.01	0.02	0.04
LU	0.02	0.04	0.06	0	0	0	0	0	0	0	0	0	0	0	0
NL	0.04	0.08	0.12	0	0	0	0	0	0	0.03	0.06	0.08	0.04	0.08	0.12
PT	0.11	0.22	0.33	0	0	0	0.05	0.11	0.16	0.04	0.09	0.13	0	0	0
SI	0.12	0.24	0.36	0	0	0	0	0	0	0	0	0	0.05	0.11	0.16
SP	0.21	0.41	0.62	0	0	0	0	0	0	0.03	0.06	0.09	0	0	0

Note: Output effects are expressed in per cent of national GDP for a range of estimates (0.5, 1, 1.5) of the short-term effects of an additional euro spent in unemployment benefits on output. Source: Own calculations based on EUROMOD.

Table 14 shows the (additional) effect of the euro area unemployment insurance scheme on output under the assumption that pre-crisis national unemployment insurance systems would have been replaced by the euro area unemployment insurance scheme. In other words, we compare stabilization effects of the euro area unemployment insurance system with those of pre-crisis national unemployment insurance systems abstracting from policy changes during the crisis.[26] Our results suggest that growth effects would have been moderate at the euro area level raising output by up to 0.20 per cent in 2009 and up to 0.08 per cent in 2012. In all other years, the euro area unemployment insurance scheme would have provided no additional growth effect at the EMU level. Results at the country level differ

to 1.5 and hence are almost identical to ours.

[26] Note that as in the previous analysis we do not consider any potential topping-up of the euro area unemployment insurance benefits by national unemployment benefits in this exercise.

substantially with largest output effects estimated for 2009 which is in line with our results on income stabilization presented in Table 13. The euro area unemployment insurance scheme would have unfolded largest macro stabilization effects in Estonia, Ireland and Spain where our upper bound estimates suggest that output would have been raised by 1.9, 0.8 and 0.6 per cent in 2009, respectively. The additional stabilization effect would have been very small in those member states with strong national automatic stabilizers, in particular Austria, Belgium, France, Germany and Luxembourg. In Greece, the euro area unemployment insurance scheme would have provided additional stabilization in 4 out of 5 years, whereas in Estonia, Ireland and Luxembourg there would have been a positive effect on output only in 2009.

Our results on output effects of the euro area unemployment insurance system should be interpreted in the light of the limitations of our analysis and the simplifying assumptions made. First, we abstract from potential spill-over effects of additional benefits to the unemployed within the euro area. Taking these macro-feedback effects into account would require a combined micro-macro model at the multi-country level. So far these models have been restricted to a single country (Peichl 2009). Second, there is still considerable uncertainty in the literature how large fiscal multipliers actually are (see e.g. Auerbach and Gorodnichenko 2012 and Ramey 2011) which is why we rely on a range of potential values. Finally, we do not account for potential fiscal responses of national governments, for example topping-up benefits from the euro area unemployment insurance system, if a euro area unemployment insurance system had been introduced in 2007.

6. Conclusions

The current economic crisis in the Eurozone has brought the idea of deeper fiscal integration to the top of the European policy agenda. A common unemployment insurance system is one key reform proposal which could serve as a fiscal risk sharing mechanism in the euro area. However, main concerns often expressed in these debates include permanent transfer flows induced by supranational automatic stabilizers and the risk of moral hazard.

In this paper, we have presented different possible variants of an unemployment insurance system for the euro area, namely a basic unemployment insurance scheme that partly replaces national UI systems, a benefit extension program that complements national unemployment insurance systems and a fully centralized system. All three alternatives would establish automatic stabilizers at the euro area level, but would have very different implications for stabilization, redistribution and the risk of moral hazard. A basic euro area unemployment insurance scheme could ensure that a basic level of insurance is guaranteed even if a member state loses access to private capital markets and cannot let its national automatic stabilizers sufficiently work. Its stabilizing effect diminishes, however, when the share of long-term unemployed becomes larger. A benefit extension program administered at the euro area level and with pay-out rules linked to certain triggers would not provide stabilization in normal times but could increase the insurance effect of national unemployment insurance schemes in severe economic crises. A fully centralized unemployment insurance system would lead to a complete harmonization of unemployment insurance so that existing differences of national unemployment insurance systems in terms of income stabilization would be equalized. The risk of ex-ante permanent redistribution and consequently, adverse incentives for national governments to address structural weaknesses of the economy, is higher the more likely it is that not only short-term (cyclical) unemployment, but potentially also long-term (structural) unemployment is covered by the common system.

Using counterfactual simulation techniques based on harmonized European micro data, we have examined the economic effects of a basic euro area unemployment insurance scheme if such a system had been in place from 2008-2013. The scheme analyzed in our simulations has a low replacement rate of only 50 per cent which could be topped up by national unemployment insurance systems and hence would leave room for diversity across member states. It has a broad coverage as all new unemployed with previous employment income are eligible to unemployment benefits from the common system for up to 12 months. The scheme can run deficits or build surpluses in single years but is calibrated such that it is revenue neutral over the whole simulation period.

Our main results can be summarized as follows. Over the period 2008-2013, the scheme would have had a total volume of 365 billion euros at the Eurozone level. Average yearly benefits and contributions would have amounted to 61 billion euros. The scheme would have run deficits in 2009, 2012 and 2013 and surpluses in 2008, 2010 and 2011. Net transfers would have been unevenly distributed due to a substantial divergence in unemployment rates across the euro area over the simulation period. Largest net contributors to the scheme would have been Austria, Germany and the Netherlands with net contributions relative to GDP ranging from 0.27 – 0.4 per cent in Austria, from 0.31 – 0.40 per cent in Germany and from 0.14 – 0.59 per cent in the Netherlands. Largest net recipients would have been Spain, France, Greece and Portugal. Net benefits would have been up to 1.39 per cent of GDP in Spain, up to 1.23 per cent in Greece, up to 0.53 per cent in Portugal and up to 0.19 per cent in France.

We have shown that the basic unemployment insurance scheme considered in our simulations which has the capacity to build up deficits and a broad coverage of new unemployed would have provided significant stabilization in the early phase of the economic crisis, but that the stabilizing effects would have diminished in the following years. Net household incomes would have been stabilized by the euro area unemployment insurance scheme in all Eurozone countries in 2009, and, to a smaller extent, in the following years. We have compared stabilization effects of the euro area unemployment insurance scheme with those of pre-crisis national unemployment insurance systems and shown that there is a substantial stabilization gap in some member states which is due to stricter eligibility rules of national schemes. In a next step we have asked the question to what extent output would have been raised if pre-crisis national unemployment insurance systems would have been replaced by the euro area scheme. Assuming a plausible range of estimates for the fiscal multiplier which are in line with the recent literature, we find that growth effects would have been moderate at the euro area level raising output by up to 0.20 per cent in 2009 and up to 0.08 per cent in 2012. The euro area unemployment insurance scheme would have unfolded largest macro stabilization effects in Estonia, Ireland and Spain where our upper bound estimates suggest that output would have been raised by 1.9, 0.8 and 0.6 per cent in 2009, respectively. The additional stabilization effect would have been small in those member states where national unemployment insurance systems provide strong automatic stabilizers, in particular in Austria, Belgium, France, Germany and Luxembourg.

The aim of this paper was to conduct an analysis of possible scenarios for an EMU-unemployment insurance system. On purpose, we did not aim at designing an optimal system which is beyond the scope of this paper as this requires a much deeper theoretical analysis. Still, the scenarios analyzed in this paper provide useful guidance for designing such policies. We leave the optimality questions to future research.

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Appendix

Table A.1: Qualifying conditions for unemployment benefits

	2007	2009	2011	2013
AT	52 weeks of insurance periods within the last 24 months. 26 weeks within the last 12 months for persons under the age of 25.	52 weeks of insurance periods within the last 24 months. 26 weeks within the last 12 months for persons under the age of 25.	52 weeks of insurance periods within the last 24 months. 26 weeks within the last 12 months for persons under the age of 25.	52 weeks of insurance periods within the last 24 months. 26 weeks within the last 12 months for persons under the age of 25.
BE	Period varies according to the age of the insured person between 312 working days during the previous 18 months, and 624 working days over the previous 36 months.	Period varies according to the age of the insured person between 312 working days during the previous 18 months, and 624 working days over the previous 36 months.	Period varies according to the age of the insured person between 312 working days during the previous 18 months, and 624 working days over the previous 36 months.	Period varies according to the age of the insured person between 312 working days during the previous 21 months, and 624 working days over the previous 42 months.
CY	Conditions relate to extent of contributions paid: The insured person has been insured for at least 26 weeks up to the date of unemployment, Lower part of insurable earnings up to the date of unemployment equal to at least 26 times the weekly Basic Insurable Earnings (Βασικές Ασφαλιστέες Αποδοχές) of CYP 82.67 (€ 142) per week; and Paid and credited insurable earnings in the benefit year are at least equal to 20 times the weekly amount of Basic Insurable Earnings. Definitions: Lower part of insurable earnings: insurable earnings up to Basic Insurable Earnings. Upper part of insurable earnings: insurable earnings over Basic	Conditions relate to extent of contributions paid: * The insured person has been insured for at least 26 weeks up to the date of unemployment, * Lower part of insurable earnings up to the date of unemployment equal to at least 26 times the weekly Basic Insurable Earnings (Βασικές Ασφαλιστέες Αποδοχές) of € 154.07 per week; and * Paid and credited insurable earnings in the benefit year are at least equal to 20 times the weekly amount of Basic Insurable Earnings.Definitions: Lower part of insurable earnings: insurable earnings up to Basic Insurable Earnings. Upper part of insurable earnings: insurable	Conditions relate to extent of contributions paid: * The insured person has been insured for at least 26 weeks up to the date of unemployment, * Paid basic insurance up to the date of unemployment equal to at least 26 times the weekly Basic Insurable Earnings (Βασικές Ασφαλιστέες Αποδοχές) of € 167.05 per week (0.50 insurance point); and * Paid and assimilated insurance in the the relevant contribution year is at least equal to 20 times the weekly amount of Basic Insurable Earnings (0.39 insurance point). Definitions: Basic insurance:	Conditions relate to the extent of contributions paid: * the insured person has been insured for at least 26 weeks up to the date of unemployment; * paid basic insurance up to the date of unemployment equal to at least 26 times the weekly Basic Insurable Earnings (Βασικές Ασφαλιστέες Αποδοχές) of €174.38 per week (0.50 insurance point); and * paid and assimilated insurance in the relevant contribution year is at least equal to 20 times the weekly amount of Basic Insurable Earnings (0.39 insurance point). Following the exhaustion of payment, entitlement can be

	2007	2009	2011	2013
	Insurable Earnings. Benefit year: Starts from the first Monday of July and ends the last Sunday prior to the first Monday from which the benefit year will start.	earnings over Basic Insurable Earnings. Benefit year: Starts from the first Monday of July and ends the last Sunday prior to the first Monday from which the benefit year will start.	insurable earnings up to Basic Insurable Earnings (up to one insurance point). One insurance point: equal to 52 times the weekly basic amount = € 8,687. Relevant contribution year: the last contributions year, prior to the benefit year, which includes the date of fulfilling the relevant insurance conditions. Benefit year: the period which starts the first Monday of July of each year and ends the last Sunday prior to the first Monday of July of the following year.	regained after 26 weeks of employment from the day of exhaustion and provided that insurance has been paid during that period equal to at least 26 times the weekly Basic Insurable Earnings (Βασικές Ασφαλιστέες Αποδοχές). Definitions: Basic insurance: insurable earnings up to Basic Insurable Earnings (up to one insurance point). One insurance point: equal to 52 times the weekly basic amount = € 9,068. Relevant contribution year: the last contribution year, prior to the benefit year, which includes the date of fulfilling the relevant insurance conditions. Benefit year: the period which starts the first Monday of July of each year and ends the last Sunday prior to the first Monday of July of the following year.
EE	Unemployment Insurance Benefit (töötuskindlustushüvitis): Insurance period (payment of contributions) of 12 months over the 36 months preceding registration as an unemployed.	Unemployment Insurance Benefit (töötuskindlustushüvitis): Insurance period (payment of contributions) of 12 months over the 36 months preceding registration as an unemployed.	Unemployment Insurance Benefit (töötuskindlustushüvitis): Insurance period (payment of contributions) of 12 months over the 36 months preceding registration as an unemployed.	Unemployment Insurance Benefit (töötuskindlustushüvitis): Insurance period (payment of contributions) of 12 months over the 36 months preceding registration as unemployed.
FI	Insurance: Basic unemployment allowance (peruspäiväraha): Employees: Initial	Insurance: Basic unemployment allowance (peruspäiväraha):	Insurance: Basic unemployment allowance (peruspäiväraha):	Insurance: Basic unemployment allowance (peruspäiväraha):

	2007	2009	2011	2013
	condition at least 43 weeks of employment during the last 28 months and during each week at least 18 hours. Re-eligibility condition at least 34 weeks of employment during the last 24 months and during each week at least 18 hours. Self-employed persons: at least 24 months of entrepreneurship during the last 48 months.	* Employees: Initial condition at least 43 weeks of employment during the last 28 months and during each week at least 18 hours. Re-eligibility condition at least 34 weeks of employment during the last 24 months and during each week at least 18 hours. * Self-employed persons: at least 24 months of entrepreneurship during the last 48 months.	* Employees: Initial condition at least 34 weeks of employment during the last 28 months and during each week at least 18 hours. * Self-employed persons: at least 18 months of entrepreneurship during the last 48 months.	* Employees: Initial condition at least 34 weeks of employment during the last 28 months and during each week at least 18 hours. * Self-employed persons: at least 18 months of entrepreneurship during the last 48 months.
FR	Unemployment insurance (assurance chômage): At least 6 months (182 days) insurance during the last 22 months preceding the unemployment.	Unemployment insurance (assurance chômage): At least 4 months (122 days) insurance during the last 28 months (36 months for those aged 50 and over) preceding the unemployment.	Unemployment insurance (assurance chômage): At least 4 months (122 days) insurance during the last 28 months (36 months for those aged 50 and over) preceding the unemployment.	Unemployment insurance (assurance chômage): At least 4 months (122 days) insurance during the last 28 months (36 months for those aged 50 and over) preceding the unemployment.
GE	Unemployment insurance (Arbeitslosenversicherung): The unemployed person must have been compulsorily insured for at least 12 months during the last 2 years.	Unemployment insurance (Arbeitslosenversicherung): The unemployed person must have been compulsorily insured for at least 12 months during the last 2 years.	Unemployment insurance (Arbeitslosenversicherung): The unemployed person must have been compulsorily insured for at least 12 months during the last 2 years.	Unemployment insurance (Arbeitslosenversicherung): The unemployed person must have been compulsorily insured for at least 12 months during the last 2 years.
GR	At least 125 days of work during the 14 months preceding job loss or, at least, 200 days of work during the 2 years preceding job loss. For first time claimants, an additional requirement of at least 80 days of work per year during the 2 previous years applies.	* At least 125 days of work during the 14 months preceding job loss or, at least, 200 days of work during the 2 years preceding job loss. * For first time claimants, an additional requirement of at least 80 days of work per year during the 2 previous years applies.	* At least 125 days of work during the 14 months preceding job loss or, at least, 200 days of work during the 2 years preceding job loss. * For first time claimants, an additional requirement of at least 80 days of work per year during the 2 previous years applies.	* At least 125 days of work during the 14 months preceding job loss or, at least, 200 days of work during the 2 years preceding job loss. From the reference periods the two last months are excluded. * For first time claimants, an additional requirement of at least 80 days of work per year during the 2 previous years applies.

	2007	2009	2011	2013
IE	Insurance: 39 weekly contributions paid; and 39 weekly contributions paid or credited during the relevant contribution year preceding the benefit year, or 26 weekly contributions paid in each of the two relevant tax years preceding the benefit year.	Insurance: * 104 weekly contributions paid; and * 39 weekly contributions paid or credited during the relevant contribution year preceding the benefit year, of which a minimum of 13 must be paid contributions. The latter requirement may be satisfied by contributions paid in some other contribution years, or * 26 weekly contributions paid in each of the two relevant tax years preceding the benefit year.	Insurance: * 104 weekly contributions paid; and * 39 weekly contributions paid or credited during the relevant contribution year preceding the benefit year, of which a minimum of 13 must be paid contributions. The latter requirement may be satisfied by contributions paid in some other contribution years, or * 26 weekly contributions paid in each of the two relevant tax years preceding the benefit year.	Insurance: * 104 weekly contributions paid; and * 39 weekly contributions paid or credited during the relevant contribution year preceding the benefit year, of which a minimum of 13 must be paid contributions. The latter requirement may be satisfied by contributions paid in some other contribution years, or * 26 weekly contributions paid in each of the two relevant tax years preceding the benefit year.
IT	Ordinary unemployment benefit: Two years of insurance and 52 weekly contributions during the last 2 years. Special unemployment benefit: 10 monthly contributions of 43 weekly contributions during the last two years in the building industry.	Ordinary unemployment benefit: Two years of insurance and 52 weekly contributions during the last 2 years. Special unemployment benefit: 10 monthly contributions of 43 weekly contributions during the last two years in the building industry.	Ordinary unemployment benefit: Two years of insurance and 52 weekly contributions during the last 2 years. Special unemployment benefit: 10 monthly contributions of 43 weekly contributions during the last two years in the building industry..	Employment social allowance (Assegno Sociale per l'Impiego, ASpl): Having matured at least two years of work insurance contributions one of which accrued during the two years prior to the onset of unemployment. Mini ASpI: Having matured at least 13 weeks (3 months) of contributions during the 12 months prior to dismissal.
LU	At least 26 weeks of employment during the last year.	At least 26 weeks of employment during the last year.	At least 26 weeks of employment during the last year.	At least 26 weeks of employment during the last year.
MT	50 weeks of paid contributions of which at least 20 paid or credited should be in the last two previous years.	50 weeks of paid contributions of which at least 20 paid or credited should be in the last two previous years.	50 weeks of paid contributions of which at least 20 paid or credited should be in the last two previous years.	50 weeks of paid contributions of which at least 20 paid or credited should be in the last two previous years.
NL	Short-term benefit (kortdurende	A person who has been employed for at least 26	A person who has been employed for at least 26	A person who has received wages in at

	2007	2009	2011	2013
	uitkering): At least 26 weeks of paid employment during the last 36 weeks (week condition). Salary-related benefit (loongerelateerde uitkering): 26-weeks-condition and employment in at least 4 years during the last 5 calendar years, in each of which a salary over 52 days was paid (4-out-of-5 condition).	weeks in the 36 weeks before the first day of unemployment (weeks' condition) qualifies for a three-month benefit. A person who has received wages for at least 52 days in four of the five calendar years preceding the year in which s/he became unemployed, (years' condition) qualifies for a benefit payable for a number of months that equals the number of months in employment (with a maximum of 38 months).	weeks in the 36 weeks before the first day of unemployment (weeks' condition) qualifies for a three-month benefit. A person who has received wages for at least 52 days in four of the five calendar years preceding the year in which s/he became unemployed, (years' condition) qualifies for a benefit payable for a number of months that equals the number of months in employment (with a maximum of 38 months).	least 26 weeks out of the 36 weeks before the first day of unemployment (weeks' condition) qualifies for a three-month benefit. A person who has received wages for at least 208 hours in four of the five calendar years preceding the year in which s/he became unemployed, (years' condition) qualifies for a benefit payable for a number of months that equals the number of months in employment (with a maximum of 38 months).
PT	Unemployment insurance: At least 450 days of salaried work and contribution payment, or assimilated situation, in 24 months preceding commencement of unemployment.	Unemployment insurance: At least 450 days of salaried work and contribution payment, or assimilated situation, in 24 months preceding commencement of unemployment.	Unemployment insurance: At least 450 days of employed work and contribution payment, or assimilated situation, in the 24 months preceding commencement of unemployment.	Unemployment insurance: At least 360 days of employed work and contribution payment, or assimilated situation, in the 24 months preceding commencement of unemployment.
SI	At least 3 years (2 years in case of temporary employment) of unemployment insurance contributions during the last 4 years.	At least 3 years (2 years in case of temporary employment) of unemployment insurance contributions during the last 4 years.	At least 2 years of unemployment insurance contributions during the last 3 years (4 years in case of temporary employment).	At least 2 years of unemployment insurance contributions during the last 3 years (4 years in case of temporary employment).
SK	At least 12 months of employment (full time equivalent) during the previous 18 months.	At least 12 months of employment (full time equivalent) during the previous 18 months.	At least 9 months of insurance during the previous 24 months.	At least 9 months of insurance during the previous 24 months. For unemployed persons younger than 30 years: at least 6 months of insurance during the previous 24 months.
SP	Insurance: Minimum contribution period of 360 days during the 6 years	Insurance: Minimum contribution period of 360 days during the 6 years immediately	Insurance: Minimum contribution period of 360 days during the 6 years	Insurance: Minimum contribution period of 360 days during the 6 years

	2007	2009	2011	2013
	immediately preceding the legal unemployment situation.	preceding the legal unemployment situation.	immediately preceding the legal unemployment situation.	immediately preceding the legal unemployment situation.

Source: European Commission (http://www.missoc.org/MISSOC/INFORMATIONBASE/COMPARATIVETABLES/MISSOCDATABASE/comparativeTableSearch.jsp)

Table A.2: Duration of unemployment benefit receipt

	2007	2009	2011	2013
AT	Unemployment benefit (Arbeitslosengeld): Depends on insurance duration and age. Insurance periods and duration of payment: 52 weeks within 2 years: 20 weeks; 156 weeks within 5 years: 30 weeks; 312 weeks within 10 years and 40 years of age: 39 weeks; 468 weeks within 15 years and 50 years of age: 52 weeks. This duration will be extended by the period during which the beneficiary participates in a follow-up training or retraining measure or in a reintegration measure commissioned by the Labour Market Service and by 156 or 209 weeks if the beneficiary participates in a work foundation (special training measure).	Unemployment benefit (Arbeitslosengeld): Depends on insurance duration and age. Insurance periods and duration of payment: 52 weeks within 2 years: 20 weeks; 156 weeks within 5 years: 30 weeks; 312 weeks within 10 years and 40 years of age: 39 weeks; 468 weeks within 15 years and 50 years of age: 52 weeks. This duration will be extended by the period during which the beneficiary participates in a follow-up training or retraining measure or in a reintegration measure commissioned by the Labour Market Service and by 156 or 209 weeks if the beneficiary participates in a work foundation (special training measure).	Unemployment benefit (Arbeitslosengeld): Duration of payment depends on insurance duration and age: 52 weeks within 2 years: 20 weeks; 156 weeks within 5 years: 30 weeks; 312 weeks within 10 years and 40 years of age: 39 weeks; 468 weeks within 15 years and 50 years of age: 52 weeks. After completion of a vocational rehabilitation from the statutory social insurance the duration of payment amounts to 78 weeks. The duration will be extended by the period during which the beneficiary participates in a follow-up training or retraining measure or in a reintegration measure commissioned by the Labour Market Service and by 156 or 209 weeks if the beneficiary participates in a work foundation (special training measure). old-age pension are met.	Unemployment benefit (Arbeitslosengeld): Duration of payment depends on insurance duration and age: 52 weeks within 2 years: 20 weeks; 156 weeks within 5 years: 30 weeks; 312 weeks within 10 years and 40 years of age: 39 weeks; 468 weeks within 15 years and 50 years of age: 52 weeks. After completion of a vocational rehabilitation from the statutory social insurance the duration of payment amounts to 78 weeks. The duration will be extended by the period during which the beneficiary participates in a follow-up training or retraining measure or in a reintegration measure commissioned by the Labour Market Service and by 156 or 209 weeks if the beneficiary participates in a work foundation (special training measure).
BE	No limit (except for certain cases of long-term	No limit (except in case of active search for	No limit (except in case of active search for	No limit (provided the beneficiary actively

	2007	2009	2011	2013
	unemployment or in case of active search for employment).	employment).	employment).	looks for work and notably follows a pathway to work).
CY	156 days.	156 days.	156 days.	156 days.
EE	Unemployment Insurance Benefit (töötuskindlustushüvitis): 180 calendar days for a person with an insurance period less than 56 months, 270 calendar days for a person with an insurance period from 56 to 110 months, 360 calendar days for a person with an insurance period of 111 or more months.	Unemployment Insurance Benefit (töötuskindlustushüvitis): * 180 calendar days for a person with an insurance period less than 56 months, * 270 calendar days for a person with an insurance period from 56 to 110 months, * 360 calendar days for a person with an insurance period of 111 or more months.	Unemployment Insurance Benefit (töötuskindlustushüvitis): * 180 calendar days for a person with an insurance period less than 56 months, * 270 calendar days for a person with an insurance period from 56 to 110 months, * 360 calendar days for a person with an insurance period of 111 or more months.	Unemployment Insurance Benefit (töötuskindlustushüvitis): * 180 calendar days for a person with an insurance period less than 56 months, * 270 calendar days for a person with an insurance period from 56 to 110 months, * 360 calendar days for a person with an insurance period of 111 or more months.
FI	Insurance: 500 calendar days. An employee born prior to 1950 and who has reached the age of 57 while in receipt of an unemployment allowance may be paid until the age of 60, after which entitled to unemployment pension. An employee born in 1950 or thereafter who has reached the age of 59 while in receipt of an unemployment allowance may be paid until the age of 65.	Insurance: 500 calendar days. An employee born prior to 1950 and who has reached the age of 57 while in receipt of an unemployment allowance may be paid until the age of 60, after which entitled to unemployment pension. An employee born in 1950 or thereafter who has reached the age of 59 while in receipt of an unemployment allowance may be paid until the age of 65.	Insurance: Maximum period of 500 calendar days. A jobseeker born prior to 1950 can then apply for unemployment pension (Työttömyyseläke). A jobseeker born in 1950-1954 may, notwithstanding the maximum period, be paid unemployment allowance until the end of the calendar month in which s/he reaches the age of 65, provided s/he has reached the age of 59 before the maximum period expires and has acquired, on expiry of the maximum period, at least five employment years - as defined by law - over the last 20 years. A jobseeker born in 1955 or later may, notwithstanding the	Insurance: Maximum period of 500 calendar days. A jobseeker born prior to 1950 can then apply for unemployment pension (Työttömyyseläke). A jobseeker born in 1950-1954 may, notwithstanding the maximum period, be paid unemployment allowance until the end of the calendar month in which s/he reaches the age of 65, provided s/he has reached the age of 59 before the maximum period expires and has acquired, on expiry of the maximum period, at least five employment years - as defined by law - over the last 20 years. A jobseeker born in 1955 or later may, notwithstanding the

	2007	2009	2011	2013
			maximum period, be paid unemployment allowance until the end of the calendar month in which s/he reaches the age of 65, provided s/he has reached the age of 60 before the maximum period expires and has acquired, on expiry of the maximum period, at least five employment years - as defined by law - over the last 20 years.	maximum period, be paid unemployment allowance until the end of the calendar month in which s/he reaches the age of 65, provided s/he has reached the age of 60 before the maximum period expires and has acquired, on expiry of the maximum period, at least five employment years - as defined by law - over the last 20 years.
FR	Unemployment insurance (assurance chômage): Duration of payment of the benefit varies according to length of insurance and to age; minimum: 7 months, maximum: 36 months.	Unemployment insurance (assurance chômage): The duration of payment of the benefit corresponds to the length of insurance taken into account for acquiring entitlement to benefits (between 4 months and 2 years or 3 years if the beneficiary is aged 50 and over).	Unemployment insurance (assurance chômage): The duration of payment of the benefit corresponds to the length of insurance taken into account for acquiring entitlement to benefits (between 4 months and 2 years or 3 years if the beneficiary is aged 50 and over).	Unemployment insurance (assurance chômage): The duration of payment of the benefit corresponds to the length of insurance taken into account for acquiring entitlement to benefits (between 4 months and 2 years or 3 years if the beneficiary is aged 50 and over).
GE	Unemployment insurance (Arbeitslosenversicherung): The duration of benefits (DB) depends on the duration of compulsory insurance coverage and on the age of the beneficiary: DB Age DP (months) (years) (months) 12 6 16 8 20 10 24 12 30 55 15 36 55 18 (Provision in force since 1 January 2004 for new entitlements after 1 February 2006).	Unemployment insurance (Arbeitslosenversicherung): The duration of benefits (DB) depends on the duration of compulsory insurance coverage (DI) and on the age of the beneficiary: DI (months) Age (years) DB (months) 12 6 16 8 20 10 24 12 30 50 15 36 55 18 48 58 24(Provision in force since 1 January 2008; special provision for persons who completed their 50th or 58th year of age before 1 January 2008 and whose	Unemployment insurance (Arbeitslosenversicherung): The duration of benefits (DB) depends on the duration of compulsory insurance coverage (DI) and on the age of the beneficiary: DI (months) Age (years) DB (months) 12 6 16 8 20 10 24 12 30 50 15 36 55 18 48 58 24	Unemployment insurance (Arbeitslosenversicherung): The duration of benefits (DB) depends on the duration of compulsory insurance coverage (DI) and on the age of the beneficiary: DI (months) Age (years) DB (months) 12 6 16 8 20 10 24 12 30 50 15 36 55 18 48 58 24

	2007	2009	2011	2013
		entitlement is not yet exhausted, in case they had the entitlement for the maximum period of entitlement according to the provision that was valid till 31 December 2007: increase to 15 or 24 months).		
GR	Generally proportional to periods of employment: Employment duration: 125 days 5 months 150 days 6 months 180 days 8 months 220 days 10 months 250 days 12 months If aged 49 or more: 210 days 12 months In all cases, 3 additional months at reduced rate, if 4,050 days of work, 12 additional months. For the newcomers on the labour market (youngsters between 20-29 years): 5 months of benefits. In all cases, 25 instalments of daily unemployment benefit for each month.	Generally proportional to periods of employment: Employment duration: 125 days: 5 months 150 days: 6 months 180 days: 8 months 220 days: 10 months 250 days: 12 months If aged 49 or more: 210 days: 12 months In all cases, 3 additional months at reduced rate, if 4,050 days of work, 12 additional months. For the newcomers on the labour market (youngsters between 20-29 years): 5 months of benefits. In all cases, 25 instalments of daily unemployment benefit for each month.	Generally proportional to periods of employment: Employment duration: 125 days: 5 months 150 days: 6 months 180 days: 8 months 220 days: 10 months 250 days: 12 months If aged 49 or more: 210 days: 12 months In all cases, 3 additional months at reduced rate, if 4,050 days of work, 12 additional months. For the newcomers on the labour market (youngsters between 20-29 years): 5 months of benefits. In all cases, 25 instalments of daily unemployment benefit for each month.	Generally proportional to periods of employment: Employment duration: 125 days 5 months 150 days 6 months 180 days 8 months 220 days 10 months 250 days 12 months If aged 49 or more: 210 days 12 months If one of the above conditions for granting unemployment benefits is fulfilled and 4.050 or more days of insurance are certified: 12 months. For the newcomers on the labour market (young people between 20-29 years): 5 months (€73.37). Every beneficiary is entitled to 25 days of insurance for each month during which unemployment benefit is granted.
IE	Insurance: 390 days but limited to 312 days if applicant has paid less than 260 weekly contributions since first entering insurance. If applicant is 65, the	Insurance: 312 days but limited to 234 days if applicant has paid less than 260 weekly contributions since first entering insurance. If	Insurance: 312 days but limited to 234 days if applicant has paid less than 260 weekly contributions since first entering insurance. If applicant is	Insurance: 234 days but limited to 156 days if applicant has paid less than 260 weekly contributions since first entering insurance. If applicant is

	2007	2009	2011	2013
	allowance will be paid until 66 (pension age) if 156 weekly contributions have been paid.	applicant is 65, the allowance will be paid until 66 (pension age) if 156 weekly contributions have been paid.	65, the allowance will be paid until 66 (pension age) if 156 weekly contributions have been paid.	65, the allowance will be paid until 66 (pension age) if 156 weekly contributions have been paid.
IT	Ordinary unemployment benefit: 210 days (300 days for the unemployed aged over 50 years). Special unemployment benefit: 90 days with of extension in the event of a recession.	Ordinary unemployment benefit: 210 days (300 days for the unemployed aged over 50 years). Special unemployment benefit: 90 days with of extension in the event of a recession.	Ordinary unemployment benefit: 240 days (360 days for the unemployed aged over 50 years). Special unemployment benefit: 90 days with of extension in the event of a recession.	Employment social allowance (Assegno Sociale per l'Impiego, ASpl): statutory durations will be gradually increased according to age: * Unemployed persons under 50 will be granted the benefit for 8 months till 2014, then increased to 10 months in 2015; * Unemployed persons between the age of 50 and 54 will be granted the benefit for a period of 12 months till 2015; * Unemployed persons aged 55 and over will be granted the benefit for 12 months in 2013 then increased to 14 months in 2014 and 16 months in 2015. From January 2016 onwards: * Unemployed persons under 55 will be granted the benefit for 12 months; * Unemployed persons aged 55 and over will be granted the benefit for 18 months. Mini ASpI: Granted for a number of weeks corresponding to half the number of weekly contributions

	2007	2009	2011	2013
				paid during the last year prior to dismissal. .
LU	365 calendar days during a reference period of 24 months (without exceeding the duration of working days over the reference period). 182 extra calendar days for persons particularly "difficult" to place. For unemployed of 50 years and more prolongation of 12, 9 or 6 months respectively if 30, 25 or 20 years of affiliation to pension.	* 365 calendar days during a reference period of 24 months (without exceeding the number of working days over the reference period). * 182 extra calendar days for persons particularly "difficult" to place. * For unemployed persons over 50 years of age, prolongation of 12, 9 or 6 months if 30, 25 or 20 years of affiliation to pension insurance, respectively.	* 365 calendar days during a reference period of 24 months (without exceeding the number of working days over the reference period). * 182 extra calendar days for persons particularly "difficult" to place. * For unemployed persons over 50 years of age, prolongation of 12, 9 or 6 months if 30, 25 or 20 years of affiliation to pension insurance, respectively.	* 365 calendar days during a reference period of 24 months (without exceeding the number of working days over the reference period). * 182 extra calendar days for persons particularly "difficult" to place. * For unemployed persons over 50 years of age, prolongation of 12, 9 or 6 months if 30, 25 or 20 years of affiliation to pension insurance, respectively.
MT	A maximum of 156 days' benefit or when the number of benefit days paid do not exceed the number of contributions paid under a Contract of Service. For example, a person claims Unemployment Benefit (Beneficcju ghal dizimpjieg) after working for 70 weeks since his entry in the Scheme. He will be entitled to a maximum of 70 days. All other number of days paid as sickness and unemployment prior to this claim will also be deducted. So if he has previously taken 8 days sick leave his entitlement would be of 62 days.	A maximum of 156 days' benefit or when the number of benefit days paid do not exceed the number of contributions paid under a Contract of Service. For example, a person claims Unemployment Benefit (Beneficcju ghal dizimpjieg) after working for 70 weeks since his entry in the Scheme. He will be entitled to a maximum of 70 days. All other number of days paid as sickness and unemployment prior to this claim will also be deducted. So if he has previously taken 8 days sick leave his entitlement would be of 62 days.	A maximum of 156 days' benefit or when the number of benefit days paid do not exceed the number of contributions paid under a Contract of Service. For example, a person claims Unemployment Benefit (Beneficcju ghal dizimpjieg) after working for 70 weeks since his/her entry in the Scheme. S/he will be entitled to a maximum of 70 days. All other number of days paid as sickness and unemployment prior to this claim will also be deducted. So if s/he has previously taken 8 days sick leave his/her entitlement would be of 62 days.	A maximum of 156 days' benefit, provided that the number of benefit days paid does not exceed the number of contributions paid under a Contract of Service. For example, a person claims Unemployment Benefit (Beneficcju ghal dizimpjieg) after working for 70 weeks since his/her entry in the Scheme. S/he will be entitled to a maximum of 70 days. All other number of days paid as sickness and unemployment prior to this claim will also be deducted. So if s/he has previously taken 8 days sick leave his/her entitlement would be of 62 days.
NL	Short-term benefit (kortdurende uitkering):	A person who only meets the weeks' condition	A person who only meets the weeks'	A person who only meets the weeks'

	2007	2009	2011	2013
	6 months. Salary-related benefit (loongerelateerde uitkering): The benefit will be payable for as many months as the number of years in employment (with a maximum of 38 months).	receives benefits for a maximum duration of 3 months. A person who satisfies the years' condition receives benefits for as many months as the number of months in employment, with a maximum of 38 months. See "1. Conditions", "Qualifying period".	condition receives benefits for a maximum duration of 3 months. A person who satisfies the years' condition receives benefits for as many months as the number of months in employment, with a maximum of 38 months. See "1. Conditions", "Qualifying period".	condition receives benefits for a maximum duration of 3 months. A person who satisfies the years' condition receives benefits for as many months as the number of months in employment, with a maximum of 38 months. See "1. Conditions", "Qualifying period".
PT	Unemployment insurance: Duration of benefits proportional to age and length of contribution: (1) aged less than 30 years: contribution period < 24 months: 270 days of payment; contribution period i 24 months: 360 days of payment; 30 extra days every 5 years of registered income before unemployment. (2) aged from 30 to 40 years: contribution period < 48 months: 360 days of payment; contribution period c 24 months: 540 days of payment; 30 extra days every 5 years of registered income during the last 20 years preceding unemployment. (3) aged from 40 to 45 years: contribution period < 60 months: 540 days of payment; contribution period c 60 months: 720 days of payment; 30 extra days every 5 years of registered income during the last 20 years preceding	Unemployment insurance: Duration of benefits proportional to age and length of contribution: (1) aged less than 30 years: * contribution period > 24 months: 360 days of payment; 30 extra days every 5 years of registered income before unemployment.(2) aged from 30 to 40 years: * contribution period * contribution period > 24 months: 540 days of payment; 30 extra days every 5 years of registered income during the last 20 years preceding unemployment.(3) aged from 40 to 45 years: * contribution period * contribution period > 60 months: 720 days of payment; 30 extra days every 5 years of registered income during the last 20 years preceding unemployment.(4) aged 45 years or more: * contribution period * contribution period > 72 months: 900 days of	Unemployment insurance: Duration of benefits proportional to age and length of contribution: (1) aged less than 30 years: * contribution period < 24 months: 270 days of payment; * contribution period > 24 months: 360 days of payment; 30 extra days every 5 years of registered income before unemployment.(2) aged from 30 to 40 years: * contribution period < 48 months: 360 days of payment; * contribution period > 24 months: 540 days of payment; 30 extra days every 5 years of registered income during the last 20 years preceding unemployment.(3) aged from 40 to 45 years: * contribution period < 60 months: 540 days of payment;	Unemployment insurance: Duration of benefits proportional to age and length of contribution: (1) aged less than 30 years: * contribution period < 15 months: 150 days of payment; * contribution period ≥ 15 months and < 24 months: 210 days of payment; * contribution period ≥ 24 months: 330 days of payment; 30 extra days every 5 years of registered income during the last 20 years preceding unemployment. (2) aged from 30 to 40 years: * contribution period < 15 months: 180 days of payment; * contribution period ≥ 15 months and < 24 months: 330 days of payment;

	2007	2009	2011	2013
	unemployment. (4) aged 45 years or more: contribution period < 72 months: 720 days of payment; contribution period c 72 months: 900 days of payment; 60 extra days every 5 years of registered income during the last 20 years preceding unemployment.	payment; 60 extra days every 5 years of registered income during the last 20 years preceding unemployment.	* contribution period > 60 months: 720 days of payment; 30 extra days every 5 years of registered income during the last 20 years preceding unemployment.(4) aged 45 years or more: * contribution period < 72 months: 720 days of payment; * contribution period > 72 months: 900 days of payment; 60 extra days every 5 years of registered income during the last 20 years preceding unemployment.	* contribution period ≥ 24 months: 420 days of payment; 30 extra days every 5 years of registered income during the last 20 years preceding unemployment. (3) aged from 40 to 50 years: * contribution period < 15 months: 210 days of payment; * contribution period ≥ 15 months and < 24 months: 360 days of payment; * contribution period ≥ 24 months: 540 days of payment; 45 extra days every 5 years of registered income during the last 20 years preceding unemployment. (4) aged 50 years or more: * contribution period < 15 months: 270 days of payment; * contribution period ≥ 15 months and < 24 months: 480 days of payment; * contribution period ≥ 24 months: 540 days of payment; 60 extra days every 5 years of registered income during the last 20 years preceding unemployment.
SI	Unemployment Benefit	Unemployment Benefit	Unemployment Benefit	Unemployment Benefit

	2007	2009	2011	2013
	(Dávka v nezamestnanosti): 6 months (4 months in case of temporary employment).	(Dávka v nezamestnanosti): 6 months (4 months in case of temporary employment).	(Dávka v nezamestnanosti): 6 months (4 months in case of temporary employment). After a period of 3 months, the beneficiary has the choice either to continue receiving benefit (for another 3 months maximum) or to cancel the registration as jobseeker and obtain a bonus.	(Dávka v nezamestnanosti): 6 months (4 months in case of employees on fixed-term labour contracts). After a period of 3 months, the beneficiary has the choice either to continue receiving benefit (for another 3 months maximum) or to cancel the registration as jobseeker and obtain a bonus.
SK	Depends upon length of insurance: 3 months for insurance of 1 to 5 years, 6 months for insurance of 5 to 15 years, 9 months for insurance of 15 to 25 years, 12 months for insurance of 25 years or more, 18 months for insured persons over 50 years of age and insurance period of more than 25 years, 24 months for insured persons over 55 years of age with on insurance period of more than 25 years.	Depends upon length of insurance: * 3 months for insurance of 1 to 5 years, * 6 months for insurance of 5 to 15 years, * 9 months for insurance of 15 to 25 years, * 12 months for insurance of 25 years or more, * 18 months for insured persons over 50 years of age and insurance period of more than 25 years, * 24 months for insured persons over 55 years of age with on insurance period of more than 25 years.	Depends upon length of insurance: * 3 months for insurance of 9 months to 5 years, * 6 months for insurance of 5 to 15 years, * 9 months for insurance of 15 to 25 years, * 12 months for insurance of 25 years or more, * 19 months for insured persons over 50 years of age and insurance period of more than 25 years, * 25 months for insured persons over 55 years of age with on insurance period of more than 25 years.	Depends upon length of insurance and partly also on age: * insurance period between 9 months and 5 years: 3 months, * insurance period between 5 and 15 years: 6 months, * insurance period between 15 and 25 years: 9 months, * insurance period of 25 years or more: 12 months (19 months if over age 50; 25 months if over age 55). Only for unemployed persons younger than 30 years: * insurance period of at least 6 months: 2 months.
SP	Insurance: Depending on contribution period over preceding 6 years. The duration of the payment varies from a minimum of	Insurance: Depending on contribution period over preceding 6 years. The duration of the payment varies from a minimum of	Insurance: Depending on contribution period over preceding 6 years. The duration of the payment varies from a	Insurance: Depending on contribution period over preceding 6 years. The duration of the payment varies from a minimum

	2007	2009	2011	2013
	4 months to a maximum of 2 years.	4 months to a maximum of 2 years.	minimum of 4 months to a maximum of 2 years.	of 4 months to a maximum of 2 years.

Source: European Commission (http://www.missoc.org/MISSOC/INFORMATIONBASE/COMPARATIVETABLES/MISSOCDATABASE/comparativeTableSearch.jsp)

Table A.3: Unemployment Insurance Contribution

	2007	2009	2011	2013
AT	6.00% total, of which 3.00% employees, 3.00% employers. Ceiling: In principle, € 3,840 per month, for special payments (13th and 14th salary) € 7,680 per year. No employers' or employees' contributions for women over the age of 56 years and men over the age of 58 years.	6.00% total, of which 3.00% employees, 3.00% employers. Ceiling: In principle, € 4,020 per month, for special payments (13th and 14th salary) € 8,040 per year. No employers' or employees' contributions for women and men over the age of 57 years. Employees' contributions are omitted or reduced in case of low incomes. There is no employee contribution to be paid up to € 1,128. Contribution rate paid by employee with an income over € 1,128 up to € 1,230 amounts to 1% and with an income over € 1,230 up to € 1,384 to 2%.	6.00% total, of which 3.00% employees, 3.00% employers. Ceiling:In principle, €4,200 per month, for special payments (13th and 14th salary) €8,400 per year. No employers' or employees' contributions for women and men who have reached the age of 58 before 1 June 2011.Employees' contributions are omitted or reduced in case of low incomes. There is no employee contribution to be paid up to € 1,179. Contribution rate paid by employee with an income over € 1,179 up to € 1,286 amounts to 1% and with an income over € 1,286 up to € 1,447 to 2%.	6.00% total, of which 3.00% employees, 3.00% employers. Ceiling: In principle, €4,440 per month, for special payments (13th and 14th salary) €8,880 per year. No employers' or employees' contributions for women and men who have reached the age of 58 before 1 June 2011. Employees' contributions are omitted or reduced in case of low incomes. There is no employee contribution to be paid up to €1,219. Contribution rate paid by employee with an income over €1,219 up to €1,330 amounts to 1% and with an income over €1,330 up to €1,497 to 2%.
BE	Part of the contributions from global management, which varies according to need.	Part of the contributions from global management, which varies according to need.	Part of the contributions from global management, which varies according to need.	Part of the contributions from global management, which varies according to need.
CY	6% of the global contribution in respect of employed persons is transferred out of the Social Insurance Fund (Ταμείο Κοινωνικών	6% of the global contribution in respect of employed persons is transferred out of the Social Insurance Fund (Ταμείο Κοινωνικών	From the overall contribution a percentage of 1.15% of the insurable earnings of employed persons is allocated to the	From the overall contribution a percentage of 1.15% of the insurable earnings of employed persons is allocated to the

	2007	2009	2011	2013
	Ασφαλίσεων) paid into a separate Unemployment Benefit (Επίδομα Ανεργίας) Account.	Ασφαλίσεων) paid into a separate Unemployment Benefit (Επίδομα Ανεργίας) Account.	Unemployment Benefit Account (Λογαριασμό Παροχών Ανεργίας).	Unemployment Benefit Account (Λογαριασμό Παροχών Ανεργίας).
EE	Unemployment Insurance Benefit (töötuskindlustushüviti s): 0.9% of gross wages total, of which 0,6% employee, 0.3% employer.	Unemployment Insurance Benefit (töötuskindlustushüviti s): 3% of gross wages total, of which 2% employee, 1% employer.	Unemployment Insurance Benefit (töötuskindlustushüviti s): 4.2% of gross wages total, of which 2.8% employee, 1.4% employer.	Unemployment Insurance Benefit (töötuskindlustushüvitis): 3% of gross wages total, of which 2% employee, 1% employer.
FI	Earnings-related security (ansioperusteinen sosiaaliturva): Employer: 0.75% on first € 840,940 of payroll, 2.95% on exceeding amount Insured:	Earnings-related security (ansioperusteinen sosiaaliturva): Employer: 0.65% on the first € 1,788,000 of payroll, 2.70% on exceeding amount Insured:	Earnings-related security (ansioperusteinen sosiaaliturva): Employer: 0.80% on the first € 1,879,500 of payroll, 3.20% on exceeding amount Insured:	Earnings-related security (ansioperusteinen sosiaaliturva): Employer: 0.80% on the first €1,990,500 of payroll, 3.20% on exceeding amount Insured:
FR	6.4% total, of which 2.4% employee, 4.0% employer. Monthly ceiling: € 10,728 Annual ceiling: € 128,736	6.4% total, of which 2.4% employee and 4.0% employer. Monthly ceiling: € 11,436 Annual ceiling: € 137,23	6.4% total, of which 2.4% employee, 4.0% employer. Monthly ceiling: € 11,784 Annual ceiling: € 141,408	Employees: 2.4% Employers: 4%. For recruitments as of 1 July 2013, variation of the employer contribution rate according to the type of contract and age. Monthly ceiling: €12,344 Annual ceiling: €148,128
GE	Unemployment insurance: 4.2% total, of which 2.1% employee, 2.1% employer. Annual ceiling: € 63,000 in the old Länder and € 54,600 in the new Länder.	Unemployment insurance: 2.8% total, of which 1.4% employee, 1.4% employer. Annual ceiling: € 64,800 in the old Länder and € 54,600 in the new Länder.	Unemployment insurance: 3.0% total, of which 1.5% employee, 1.5% employer. Annual ceiling: € 66,000 in the old Länder and € 57,600 in the new Länder.	Unemployment insurance: 3.0% total, of which 1.5% employee, 1.5% employer. Annual ceiling: €69,600 in the old Länder and €58,800 in the new Länder.
GR	5% total, of which 1.33% employee, 3.67% employer. Persons insured before 1.1.1993: Ceiling: € 2,315.00 per	4% total, of which 1.33% employee, 2.67% employer. Persons insured before 1/1/1993:	5% total, of which 1.83% employee, 3.17% employer. Beginning of application: 1/8/2011.	5% total, of which 1.83% employee, 3.17% employer. Beginning of application: 1/8/2011.

	2007	2009	2011	2013
	month. Persons insured since 1.1.1993: Ceiling: € 5,279.60 per month.	Ceiling: € 2,432.25 per month. Persons insured since 1/1/1993: Ceiling: € 5,543.55 per month.	Persons insured before 1/1/1993: Ceiling: € 2,432.25 per month. Persons insured since 1/1/1993: Ceiling: € 5,543.55 per month.	Ceiling: €5,546.80 per month.
IE	Included in the overall Social Insurance rates. Overall Social Insurance (excluding contribution for sickness and maternity benefits in kind) rates: Self-employed: 3.0%. No ceiling. Employee: 4.0%. The first € 127 of weekly earnings is excluded from the calculation of the percentage payable. Employees with earnings up to € 339 per week are exempt from making a contribution. Annual ceiling: € 48,800. Employer: 8.5% (including a 0.7% National Training Fund Levy) on incomes up to € 356 per week. 10.75% (including a 0.7% National Training Fund Levy) on all earnings where weekly income is in excess of € 356. No ceiling.	Included in the overall Social Insurance rates. Overall Social Insurance rates (excluding contribution for sickness and maternity benefits in kind): * Employee: 4.0%. The first € 127 of weekly earnings is excluded from the calculation of the percentage payable. Employees with earnings up to € 352 per week are exempt from making a contribution. Annual ceiling: € 75,036. * Employer: 8.5% (including a 0.7% National Training Fund Levy) on incomes up to € 356 per week. 10.75% (including a 0.7% National Training Fund Levy) on all earnings where weekly income is in excess of € 356. No ceiling.	Included in the overall Social Insurance rates. Overall Social Insurance rates (excluding contribution for sickness and maternity benefits in kind): * Employee: 4.0%. The first € 127 of weekly earnings is excluded from the calculation of the percentage payable. Employees with earnings up to € 352 per week are exempt from making a contribution. No ceiling. * Employer: 8.5% (including a 0.7% National Training Fund Levy) on incomes up to € 356 per week. 10.75% (including a 0.7% National Training Fund Levy) on all earnings where weekly income is in excess of € 356. No ceiling.	Included in the overall Social Insurance rates. Overall Social Insurance rates (excluding contribution for sickness and maternity benefits in kind): * Employee: 4.0%. Employees with earnings up to €352 per week are exempt from making a contribution. No ceiling. * Employer: 4.25% (including a 0.35% National Training Fund Levy) on incomes up to €356 per week. 10.75% (including a 0.7% National Training Fund Levy) on all earnings where weekly income is in excess of €356. No ceiling.
IT	Industry (with over 50 employees): 4.71% total, of which 0.30% employee, 4.41% employer. Commerce (with over 50 employees): 2.51% total, of which 0.30% employee,	Both industry and commerce (almost all enterprises): 1.61%, paid by the employer. No ceiling in either case.	Both industry and commerce (almost all enterprises): 1.61%, paid by the employer. No ceiling in either case.	Both industry and commerce (almost all enterprises): 1.61%, paid by the employer. Additional contribution of 1.40% (thus a total contribution rate of 3.01%) in case of fixed-

	2007	2009	2011	2013
	2.21% employer. The rate includes 1.61% contribution for unemployment benefit and 3.1% (industry) for topping up earnings in case of partial unemployment; this supplement made up as follows: 2.2% ordinary earnings supplement (Cassa integrazione guadagni ordinaria), 0.9% extraordinary earnings supplement (Cassa integrazione guadagni straordinaria), (0.3% of which is from the employee, 0.6% from the employer). No ceiling.			term work contracts. No ceiling in either case.
LU	The employment fund is financed by solidarity taxes from individuals and legal persons and by a general annual contribution from the State.	The employment fund is financed by solidarity taxes from individuals and legal persons and by a general annual contribution from the State.	The employment fund is financed by solidarity taxes from individuals and legal persons and by a general annual contribution from the State.	The employment fund is financed by solidarity taxes from individuals and legal persons and by a general annual contribution from the State.
MT	Included in the overall contribution.	Included in the overall contribution.	Included in the overall contribution.	Included in the overall contribution.
NL	The contributions to unemployment insurance (Werkloosheidswet, WW) consists of two separate components: one is paid into the General Unemployment Fund (Algemeen werkloosheidsfonds, Awf); the other, into the social security agency's Redundancy Payment Fund (Wachtgeldfonds, Wgf). Awf contribution: 8.25% total, of which 3.85% employee, 4.40% employer.	The contributions to unemployment insurance (Werkloosheidswet, WW) consists of two separate components: one is paid into the General Unemployment Fund (Algemeen werkloosheidsfonds, Awf); the other, into the social security agency's Redundancy Payment Fund (Wachtgeldfonds, Wgf). Awf contribution: 4.15% paid by the employer. Wgf contribution:	The contributions to unemployment insurance (Werkloosheidswet, WW) consists of two separate components: one is paid into the General Unemployment Fund (Algemeen werkloosheidsfonds, Awf); the other, into the social security agency's Redundancy Payment Fund (sectorfondsen, Sfn). Awf-contribution:4.20% paid by the employer. Sfn-contribution:1.90% paid by the employer.	The contributions to unemployment insurance (Werkloosheidswet, WW) consists of two separate components: one is paid into the General Unemployment Fund (Algemeen werkloosheidsfonds, Awf); the other, into the social security agency's Redundancy Payment Fund (sectorfondsen, Sfn). Awf-contribution: 1.70% paid by the employer. Sfn-contribution:

	2007	2009	2011	2013
	Wgf contribution: 1.75% paid by the employer. Ceiling for WW-contributions: The WW contribution is paid over a maximum of € 174.64 per day with a contribution-free allowance of € 60 per day. The mentioned Wgf-contribution is an average; it may vary according to branch of industry.	1.75% paid by the employer. Ceiling for WW-contributions: The WW contribution is paid over a maximum of € 185.46 per day with a contribution-free allowance of € 63 per day. The mentioned Wgf-contribution is an average; it may vary according to branch of industry.	Ceiling for WW-contributions:The WW contribution is paid over a maximum of € 189.60 per day with a contribution-free allowance of € 65.25 per day. The mentioned Sfn-contribution is an average; it may vary according to branch of industry.	2.76% paid by the employer. Ceiling for WW-contributions: The WW contribution is paid over a maximum of €195.96 per day. The mentioned Sfn-contribution is an average; it may vary according to branch of industry.
PT	Included in the overall contribution.	Included in the overall contribution.	Included in the overall contribution.	Included in the overall contribution.
SI	Contributions as a percentage of the assessment base: 1% employee, 1% employer, 2% voluntarily insured. No contribution of employee and employer if the employee receives Old-age pension. Assessment base ceiling: Minimum SKK 7,600 (€ 226) per month (minimum wage), maximum SKK 56,283 (€ 1,677) per month (3 times the average monthly wage in 2006). Lower minimum ceilings for persons with disabilities and young persons (see 3. "Sickness and maternity: cash benefits").	Contributions as a percentage of the assessment base: 1% employee, 1% employer, 2% voluntarily insured. No contribution of employee and employer if the employee receives Old-age pension. Assessment base ceiling: Minimum € 295.50 per month (minimum wage), maximum € 2,892.12 per month (4 times the average monthly wage in 2008). Lower minimum ceilings for persons with disabilities and young persons (see Table I, 3. "Sickness and maternity: Cash benefits").	Contributions as a percentage of the assessment base: 1% employee, 1% employer, 2% voluntarily insured. No contribution of employee and employer if the employee receives Old-age pension. Assessment base ceiling: Minimum (only for self-employed and voluntarily insured) 44.2% of national average wage; maximum € 2,978 per month (4 times the average monthly wage in 2009).	Contributions as a percentage of the assessment base: 1% employee, 1% employer, 2% voluntarily insured. Assessment base: Employees and employer: monthly gross earnings. Voluntarily insured: sum assigned by insurer. No contribution of employee and employer if the employee receives Old-age pension, Early pension or full Invalidity pension. Assessment base ceiling: Minimum (only for self-employed and voluntarily insured) 50% of national average wage; maximum €4,025 per month (5 times the average monthly wage in 2012).
SK	0.20% of gross wages total, of which	0.20% of gross wages total, of which 0.14%	0.20% of gross wages total, of which 0.14%	0.20% of gross wages total, of which 0.14%

	2007	2009	2011	2013
	0.14% employee, 0.06% employer. No ceiling.	employee and 0.06% employer. No ceiling.	employee and 0.06% employer. No ceiling.	employee and 0.06% employer. No ceiling.
SP	Unemployment insurance: 7.30% total, of which 1.55% employee, 5.75% employer. Ceiling: € 2,996.10 per month.	Unemployment insurance: 7.05% total, of which 1.55% employee, 5.50% employer. Ceiling: € 3,166.20 per month.	Unemployment insurance: 7.05% total, of which 1.55% employee, 5.50% employer. Applied to a maximum ceiling (tope máximo de cotización) of € 3,230.10 per month.	Unemployment insurance: 7.05% total, of which 1.55% employee, 5.50% employer. Applied to a maximum ceiling (tope máximo de cotización) of €3,425.70 per month.

Source: European Commission (http://www.missoc.org/MISSOC/INFORMATIONBASE/COMPARATIVETABLES/MISSOCDATABASE/comparativeTableSearch.jsp)