An Unemployment Insurance Scheme for the Euro Area:

A simulation exercise of two options

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Abstract

This study offers an in-depth economic analysis of the two main proposals for the creation of a European unemployment insurance scheme. One proposes the creation of a harmonised European unemployment benefit scheme that would apply automatically to every eligible unemployed person. The alternative, here termed 'reinsurance', would transfer funds to national unemployment insurance schemes to finance benefits from the centre to the periphery when unemployment is measurably higher than normal.

The rationale behind these proposals is to set up an EU-level shock absorber to overcome coordination failures and the crisis-budget constraints of individual countries. The authors consider the possible trade-offs and challenges of, for example, the definition of the trigger, the fiscal rule and the harmonisation of national benefits. They conclude that while both options are viable, 'reinsurance' offers a stronger stabilisation effect for the same amount of European distribution.

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Executive Summary

This report was commissioned by the European Parliament as one of the analytical resources to be used in discussion of the possible creation of European-level unemployment insurance. The basic concept arises from the observation that if a member state is affected by slower growth for a period, it is likely to have higher unemployment. Further problems are likely to arise since a prolonged crisis implies that an increasing number of people will be unemployed over the long term. If the funding of compensation paid to unemployed workers is at the euro area level, it is more likely to come from the more prosperous areas and better off citizens. It is thus a redistributive tool that could contribute to stabilisation.

The purposes of the unemployment insurance are, from a purely economic point of view, to provide a counter-cyclical stabilisation mechanism to the economy, and from a social point of view, to alleviate the pain of unemployment by providing income security.

An EU-level mechanism could act as a shock absorber for both asymmetric and symmetric shocks to the economy, and thus overcome coordination failures and individual country's crisis budget constraints. From a political and social point of view, it could also demonstrate European solidarity in a visible and tangible way to EU citizens, introduce a mechanism for permanent/long-term redistribution across the EU and common standards for unemployment support, and support labour mobility within the EU/euro area.

Our proposals address the shock-absorber rationale as the principal rationale for a European unemployment insurance system (EUI), but to provide variety on more contentious issues some proposals will address the rationales of demonstrating European solidarity in a visible and tangible way for EU citizens and providing common standards. However, the proposals will not seek, as an overriding rationale, to promote permanent/long-term redistribution across the EU, but potential persistent transfers are indeed possible. We will largely leave the issue of supporting labour mobility within the EU/euro area out of our analysis.

In this chapter, we delve into the economic, political and practical challenges relating to the creation of a supranational automatic stabiliser. The pros and cons of possible solutions are summarised in the following tables.

We start with the choice of indicator to trigger the European unemployment insurance system.

Trigger	Pros	Cons
Short-term unemployment rate	Clear, unambiguous, rapid response to shock	Higher variability across European countries
Unemployment gap	Captures longer-term impact of the shock better	Ex post revisions Difficulty in setting a benchmark
Conclusion: **The simulation uses the unemployment gap for reinsurance and short-term unemployment for the 'harmonised system'.**		

The second issue to deal with is the fiscal rule for the system.

Fiscal rule	Pros	Cons
Annual balance	Simplicity, no need to deal with borrowing capacity	Unable to respond to the frequent combination of symmetric and asymmetric shocks, consequently likely to provide least support when most needed.
No fiscal rule	Simplicity Strongly anticyclical, especially in sustained downturns	Open-ended commitment for member states – difficult both politically and technically.
Balanced over the economic cycle	A combination of countercyclical policy with constraints on the overall cost and contribution	Technically more complex than the other two options
Conclusion: **The simulation will work with two options: no fiscal rule and balanced over the economic cycle.**		

The third issue is the extent to which there should be harmonisation of the national standards for unemployment benefits under the European system and conditionality for use of the newly established EU funds in this area.

Coordination of rules	Pros	Cons
Common unemployment benefit standards	Clarity Strong signal of Social Europe for citizens	Requires politically challenging unification Provides less scope for incorporating national preferences
Conditionality of use of EUI	Strong anticyclical impact guaranteed Higher political/social support	Alternative uses by national governments might be more efficient Can create imbalances in generosity/coverage between the European system and other national

| | | parts of a benefit system |
| | | Lack of democratic accountability of the authority imposing reforms |

Conclusion: The simulation will provide two alternative approaches consistent with the logic of the two basic options: **the harmonised unemployment benefit option will rely on common standards and conditionality; the reinsurance option will provide leeway for national governments on both fronts.**

The last table presents the pros and cons of possible solutions to two additional issues: which countries should participate, and how the mechanism should be funded.

Additional issues	Pros	Cons
EU28 participation	Higher stabilisation capacity	Politically more challenging to approve
Euro area participation	Easier political link to monetary union	Less stabilisation capacity
Funding by labour taxation	Direct link between revenue and benefits, both individually and nationally	Can increase labour tax wedge in countries with already high labour taxation
Funding by national fiscal contribution	Does not contribute to increasing labour tax wedge	Does not provide the direct link between revenue and benefits

Conclusion: **The simulation will be based on the EU28 to demonstrate stabilisation effects for all EU economies**, particularly given the ever-expanding euro area membership.   The simulation will also provide two alternative approaches consistent with logic of the two basic options: **the harmonised unemployment benefit option will rely on direct labour taxation; the reinsurance option will be based on general subsidy to and from national governments**.

This leads us to **present simulation results for two options with two variants, or four scenarios in total.**

Option 1 in the simulation is the harmonised European unemployment benefit. The harmonised system applies automatically to every eligible unemployed person. Under our scenario, this joint European benefits system would have the following features:

- It would apply to short-term unemployed workers. Our reference to unemployed population therefore does not include all unemployed workers, but only those that have been unemployed for less than one year. We set the maximum duration of benefit to 12 months. However, our calculation is based on an average duration of six months, so we expect a symmetric pattern of people leaving the register. In the absence of data on duration profiles of the unemployed across European countries, this appeared to the best option.

- The coverage ratio is set at 75%, meaning that among those unemployed for less than a year, three-quarters are eligible to receive benefits.

- The benefit is equivalent to 40% of the average monthly national nominal compensation. It should be noted that 40% of nominal compensation is not as low as it sounds, since it is

calculated not from a gross wage, but from nominal compensation, which also includes employer social security contributions.

Each member state would be free to set eligibility rules and replacement rates. If the cost were less than the formula below, the member state would receive the actual amount. If the cost were higher than the formula, the member state would receive an amount equivalent to the 75%*40% formula. This would avoid difficult-to-achieve formal harmonisation while ensuring that there would be *de facto* harmonisation, since member states would be incentivised to set up the system in such a way as to be close to the 75%*40% formula. In other words, more generous systems would be allowed, but on top of the harmonised one.

$$Gross\ Expenditure = 0.75\ U_{12months} \times 0.4\ MNCE \times 6\ months$$

where U stands for unemployment and *MNCE* indicates the monthly nominal compensation per employee.

How would be the system financed? We choose as the source of funding a dedicated labour taxation equivalent to 0.5% of nominal compensation. The rate was set up to roughly balance the system as shown in this section.

$$Gross\ Revenue = (LF - U) \times 0.5\%\ MNCE \times 12\ months$$

We present two versions of this system. In the first (option 1a), the system does not require a country-level neutral budgetary position. In other words, countries can be permanently in deficit or surplus vis-à-vis the system without any corrective mechanisms. This represents a truly European system that essentially ignores boundaries in the fiscal sense and is able to redistribute resources in the event of shocks.

We modify such a system in option 1b, in which each country needs to restore a neutral budgetary position. Fiscal neutrality would be achieved by doubling the contribution rate from 0.5% to 1% of the base for countries that have a cumulative deficit with the system of at least 1% of GDP. The double contribution rate would stop once the cumulative deficit falls below 1% of GDP.

We call **option 2 "reinsurance"**. The insured entities are not single workers at risk of unemployment, as in option 1, but member states, or more precisely, national insurance funds. The basic idea is to transfer funds to finance unemployment benefits from the centre to the periphery when unemployment is measurably higher than normal.

In our simulation, assistance is triggered when the unemployment rate is higher than the non-accelerating rate of unemployment (NAWRU) by two percentage points in a certain country. This choice of trigger is arbitrary and smaller values could be chosen. However, such a value is consistent with the idea of the reinsurance system intervening only in exceptional circumstances, in other words, a major increase in unemployment rates.

The payout is a subsidy for the national budget equivalent to the sum of all unemployment benefits for a six-month benefit period, calculated on the same basis as option 1 (40% of nominal compensation, 75% of unemployed of less than one year covered). The payout would not be conditional; gross transfers from the EUI can be used as national governments see fit (though of course if conditionality were to be imposed, this would have no impact on the fiscal calculations that follow).

The insurance would be funded by member state contributions. These would amount to 0.1% of GDP annually until 0.5% of EU GDP is accumulated. Contributions would then stop, to be restarted again if the fund fell under 0.5% of EU output.

On the expenditure side, we model the following rule: if the difference between the annual unemployment rate and NAWRU in each country is higher than 2%, then the country in

question receives a payout equal to 75% of unemployed workers (under 12 months) multiplied by 40% of their average nominal compensation.

$$if\ U_{t,i} - NAWRU > 2 => Country\ pay - out_{i,t} = 0.4\ MNCE\ \text{x}\ .75\ U$$

As with Option 1, we present results for two versions of this second option. In option 2a, no fiscal rule is applied. In other words, countries can be permanently in deficit or surplus vis-à-vis the system without any corrective mechanisms. This represents a truly European system, which essentially ignores boundaries in the fiscal sense, and also a real insurance based on the idea that such a shock is randomly distributed.

In option 2b, countries are required to maintain a neutral budgetary position. The system would aim to be balanced in the medium-to-long run for each member state. This would be achieved by setting an additional contribution of 0.2% of GDP payable annually by countries that have a cumulative deficit with the system of at least 1% of GDP. The additional contribution is due every year, regardless of whether the regular contribution is being paid, and would stop once the cumulative deficit falls below 1% of GDP.

We compare the four combinations with regards to revenues, expenditure, annual balance and cumulative balance.

We start with **revenues.** The left panel of the figure below shows stark differences between options 1 and 2. Option 2, despite an initial five-year period to build up the fund, is much less costly than option 1 since it is a form of 'catastrophe' insurance for member states, whereas option 1 is a form of permanent redistribution. Of course, option 1, unlike option 2, can replace the national schemes to some extent so this does not imply that the overall public revenue and expenditure in member states and the EU would be increased. It may simply be transferred from member states to the supranational level.

In the 14-year period we simulate, differences between the a and b options appear to be relatively small for option 2 but more significant for option 1, where the need to rebalance a country's relationship with the system if the accumulated deficit exceeds 1% of GDP leads to a more sustained increase in revenues.

EUI revenues and expenditure under various options (% of GDP)
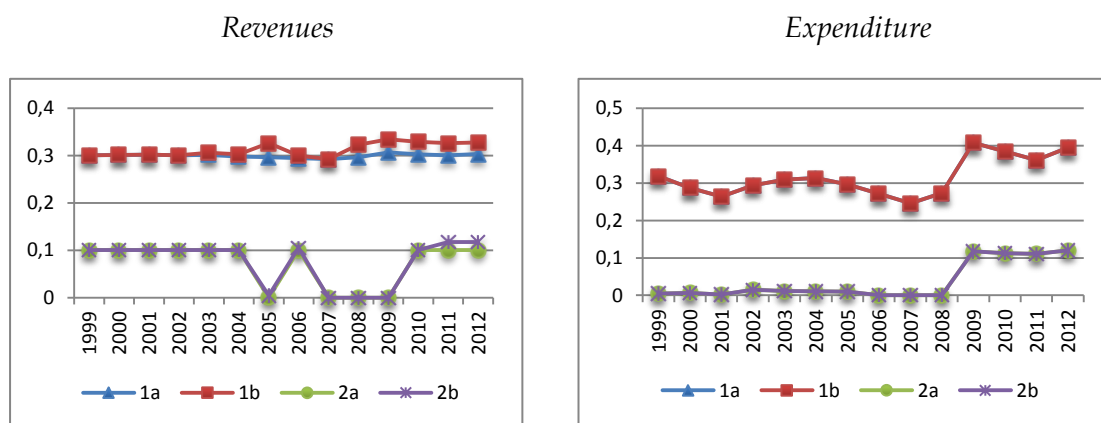
Source: Own elaboration based on AMECO data.

Expenditure does not differ between options *a* and *b*, as the difference is on the revenue side. Therefore, we can only compare expenditure overall under options 1 and 2. What we can see in the right panel of the figure above is the same as in the revenue panel, only more pronounced. The reinsurance option essentially lies dormant (helping an individual member state here and there) until the Great Recession, when it kicks into action. Expenditure for

option 1 is also effectively anti-cyclical at the EU level – expenditure ranges from 0.25% of GDP to 0.4%, but it has a baseline component that distributes significant amounts, even at the best of times.

The most complicated figure so far is the comparison of **annual balances**. In good times, options 1 and 2 are both neutral, as assistance to individual countries is not sufficiently large to significantly influence the overall system balance. The only exception is the initial build-up of funding under option 2. However, in difficult times after 2009, both options initially go into deep deficit in 2009. After this, their reactions differ. At one end of the range, option 2b quickly regains balance at the EU level, while at the other end, option 1a continues with a deficit of 0.05% to 0.1% of GDP until 2012. Therefore, the desirability of the various options at the EU level also depends on what policy-makers consider to be a preferable approach.

EUI annual and cumulative balance of the EU under various options (% of GDP)
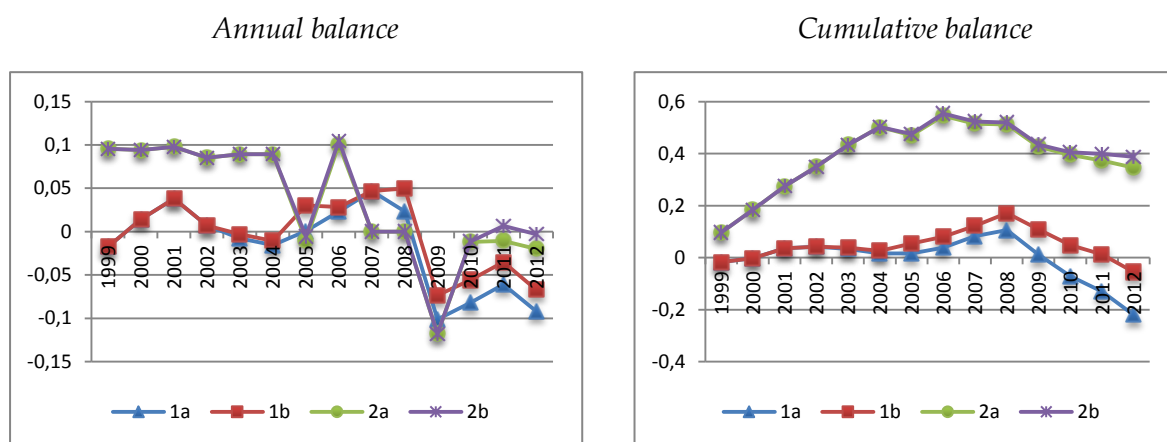
Source: Own elaboration based on AMECO data.

Different annual balances also translate into different **cumulative balances**. For option 2, the differences between 2a and 2b lead to a small cumulative difference. The real difference occurs between options 1 and 2, where option 1 goes into cumulative deficit, which becomes a system-wide deficit under both 1a and 1b by 2012 (though the b option, by increasing revenue, results in a much smaller deficit). The calibration of various options is only an illustration, of course, but it shows that for option 1, policy-makers would need to have a financial backstopping facility of some kind (e.g. an extraordinary contribution or loans).

We also present **a range of estimates of stabilisation effects of the European unemployment insurance system**. We present the estimates for national episodes of major distress that are sufficient to trigger assistance under both options. We use a simple estimate of the stabilisation effect: every year starting from 2008, we multiply the net inflow coming from the EUI fund by a fiscal multiplier. The rationale is that this allows us to calculate the value added of the European mechanism if it had existed at the time. We propose the calculation only for major shocks[1] because for minor shocks, the shock absorption value is non-existent; national governments are more than able to weather them on their own. This does *not* exclude other rationales for creating an EUI, even for minor shocks (as presented by the harmonised unemployment insurance system compared with the reinsurance).

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[1] We consider a downturn that results in an unemployment rate higher than 2%+ the country's NAWRU as a major shock.

Since we look at episodes of major distress, the net inflow during such episodes is identical for the harmonised and the reinsurance options. Therefore, we do *not* show differences between options 1 (the harmonised scheme) and 2 (the reinsurance scheme), because they produce identical results in our simulation. Given our strong preference for it, we consider the case of a fiscal rule that allows deficit and surpluses each year, with the obligation to restore fiscal balance over the cycle. Calculations are showed in the table below.

Example of stabilisation effect of the EUI during the Great Recession, selected countries

	2008	2009	2010	2011	2012	SUM
Estonia	0.00	1.15	0.89	-0.15	-0.15	1.74
Greece	0.00	0.00	-0.15	0.81	0.95	1.60
Ireland	0.00	0.85	0.55	0.41	0.37	2.19
Latvia	0.00	1.34	0.86	0.20	0.19	2.59
Lithuania	0.00	1.09	0.60	0.21	0.14	2.04
Spain	0.00	1.79	1.54	1.26	1.49	6.08

Source: Authors.

We start with the case of Spain, which has been in the limelight during this crisis due to skyrocketing unemployment figures. The net inflow, multiplied by the fiscal multiplier of unemployment benefits, generates an additional output equal to 13 to 19 billion euros every year starting from 2009. This is equal to between 1.3% and 1.8% of GDP. Another interesting case is that of the Baltic countries, where the combined effect of the EUI funds and their (assumed) multiplier is slightly above 1% of GDP in 2009. However, compared to Spain, it declines faster due to the faster recovery of the three economies. In Greece, the European mechanism kicks in later due to the deterioration of the NAWRU that accompanies the increase in unemployment. The total impact on the economy over the entire recession (up to 2012) is 1.6% of GDP. Finally, in Ireland, the EUI funds are provided between 2009 and 2011 and, combined with their multiplier effect, generate an additional output equal to between 0.4% and 0.9% every year.

1. Introduction

This report was commissioned by the European Parliament as one of the analytical resources to be used in discussion of the possible creation and shape of European-level unemployment insurance.

Specifically, the Terms of Reference for the study stated:

> "The current economic crisis has revealed inside the Euro-zone deficiencies and/or inadequacies in social safety net and more specifically that national unemployment schemes are jeopardized in the current crisis, not allowing them to play their counter-cyclical role. Against this background and following the hearing organized by the Employment and Social Affairs Committee on 9 July 2013, the European Parliament has decided to commission a research paper on the Cost of Non-Europe (CoNE) of the absence of a minimum unemployment allowance. The basic concept arises from the idea that if a member state is affected by slower growth for a period then, it is likely to have higher unemployment. Further problems are likely to arise since a prolonged crisis inevitably implies that an increasing number of people will be long-term unemployed. If the funding of the compensation paid to unemployment workers is Euro zone wide than, it is more likely that it comes from the more prosperous areas and better off citizens. It is thus a redistributive tool that could contribute to stabilisation. However at this stage several questions remain open namely; the extent, the coverage, the replacement rate the funding, and the access conditions to a minimum unemployment allowance, (just to mention few of them) and need to be clarified."

The scope of the paper is as follows: "Analyse the basic characteristics of the unemployment benefits in EU MS, ascertain what are the prospects of introducing an unemployment insurance scheme for the Euro-zone; presenting in details the institutional dimensions of such instrument and, developing a simulation exercise (based on the information and data available the contractor will present at least three scenarios)".

The resulting paper was drafted between November 2013 and February 2014 and is structured in three parts:

Chapter 2 analyses briefly the existing situation, including a summary of the existing US unemployment insurance systems and a list of existing proposals for the European system. Chapter 3 outlines the main trade-offs and challenges in designing such a system Chapter 4 then presents results of our simulation of four scenarios

Additionally, the paper contains an executive summary, introduction and bibliography.

Given the existence of several high-quality studies of the existing situation and even of the trade-offs and challenges in designing a new European system (including, but not limited to, several excellent papers commissioned by the European Commission), we decided to focus on practical simulation. Therefore, chapter 4 makes up the bulk of the paper and chapters 2 and 3 are as succinct as possible.

2. Current situation

The objective of this chapter is to analyse what exists in European countries in terms of unemployment benefits. We map the situation based on four main characteristics and we compare this with the situation in the United States. We discover that a high level of heterogeneity exists in Europe as a result of different durations, coverage ratios and replacement rates. As a result, expenditure varied on average over the period 2005-2011 between 0.2% and 2.1% of national outputs.

We also map measures that exist at the supranational level, specifically the European level, in terms of both harmonisation of different systems and policies implemented by the EU. Our conclusion is that the existing attempts of the Council of Europe to coordinate automatic stabilisers or funds managed by the EU are of a much smaller scope than the idea of creating a European unemployment insurance system.

2.1 Brief summary of national systems

Unemployment insurance schemes exist in one way or another in all European countries. However, no one could claim that Europe is united on this front, since as soon as one starts looking at figures, large differences emerge between national frameworks. To understand these differences, we look at the four main characteristics of unemployment insurance schemes:

- Coverage ratios, meaning the share of unemployed workers covered by the insurance.

- Coverage levels, expressed as income replacement ratios, which is the share of the previous wage provided by the system.

- Duration, normally in terms of weeks or months.

- Eligibility requirements, often expressed in numbers of weeks/months of contributions to the common fund.

As shown in this section, a great level of variation exists in Europe for each characteristic. This is not the only source of diversity since, as a consequence of the different mixes, expenditure on income support varies, together with the organisation of the insurance.

2.1.1 Design

Coverage ratios

Coverage ratios are defined as the percentage share of unemployed workers covered by the insurance. If in principle this is a simple measure, in practice no unequivocal numbers exist due to the different definitions of benefits and unemployment in different surveys.

Taking the European Union Statistics on Income and Living Conditions (EU-SILC) as a reference, it has been estimated that among euro area countries, more than two-thirds of workers are covered by the insurance in five countries: Austria, Belgium, Finland, France and Germany. In Greece, Italy, Slovenia and Slovenia, by contrast, only one-third of unemployed workers are entitled to receive benefits. The remaining countries are distributed somewhere in between one- and two-thirds (EC, 2013).

Coverage ratios estimated via the Labour Force Survey have a downward bias compared to EU-SILC, but leave the ranking of countries practically unchanged (EC, 2013).

Income replacement rates

The level of income protection is defined in most EU member states as a percentage of the previous (gross)[2] wage, with percentages often being higher for lower earners. The reference period for this calculation also differs across countries, ranging from 3 to 24 months (EC, 2013).

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[2] In three euro area countries (Austria, Finland and Germany) the net is used. In Ireland and Malta, it is a flat rate.

According to European Commission estimates, taking as a reference a single person earning an average wage, gross replacement rates can range from 20% in the UK and Malta to more than 70% in Luxembourg, the Netherlands, Portugal and Slovenia, but with rates in most countries in the range of 40% to 60%.

Table 1. Gross replacement rates (GRR)

GRR < 40%	**Austria**	**Ireland**	**Malta**		
40% < GRR< 60%	Slovakia	Spain	Germany	Finland	Cyprus
	Estonia	Belgium	Greece	Italy	France
GRR > 60%	Netherlands	Portugal	Luxembourg	Slovenia	

Source: European Commission (2013).

Duration

The lowest durations are in Slovakia and Malta, which ensure benefits for no more than six months. Still below one year are Austria and Cyprus (7 months), Italy (8), Ireland and Greece (10), and Portugal (11). The duration reaches 12 months in Estonia, Germany, Luxemburg and Slovenia, 17 in Finland, and 24 in Spain and France. It goes up to 38 months in the Netherlands and it is unlimited in Belgium (EC, 2013).

Eligibility

In order to be entitled to the benefit, the unemployed worker needs to contribute to the insurance during time in employment. This qualifying period is often expressed in terms of months of contribution over a reference period. Both vary greatly between EU countries, ranging from 6 months of contribution over the previous 24 in the UK to 12 months over the previous 18 in Belgium. Aside from Belgium, the countries that are very strict on this ground include the Netherlands, Slovakia, Poland and Latvia. At the opposite end of the scale, alongside the UK, are Spain, Ireland and France.

2.1.2 Financing and expenditure

The unemployment benefits system originated as an insurance to protect workers' income from the risk of unemployment due to the business cycle. In almost all European countries, the contribution to the system is split between the employer and the employee. Only in Denmark is the cost entirely borne by the insured, while in the Czech Republic, Lithuania and Poland it is entirely financed by the employer (EC, 2013). In most cases, such contributions turn out not to be sufficient to cover the expenditure on benefits, and therefore the state intervenes to subsidise the system or to cover the deficits. This happens in all countries, with the exception of Estonia, France, the Netherlands, Portugal, Bulgaria and Hungary, where no role is foreseen for the state.

All elements summed up, out-of-work income maintenance support (as officially recorded by Eurostat) amounts to slightly more than 1% of GDP in the EU, with obvious variations due to the cycle. Once more, the average is hardly representative of the member countries, since expenditure can constitute less than 0.5% of GDP (in Slovakia, Poland, the UK, Lithuania, Czech Republic, Bulgaria and Romania) or more than 1.5% (in the Netherlands, Ireland and Spain).

Figure 1. Out-of-work income maintenance and support, as % of GDP (average 2005-2011)
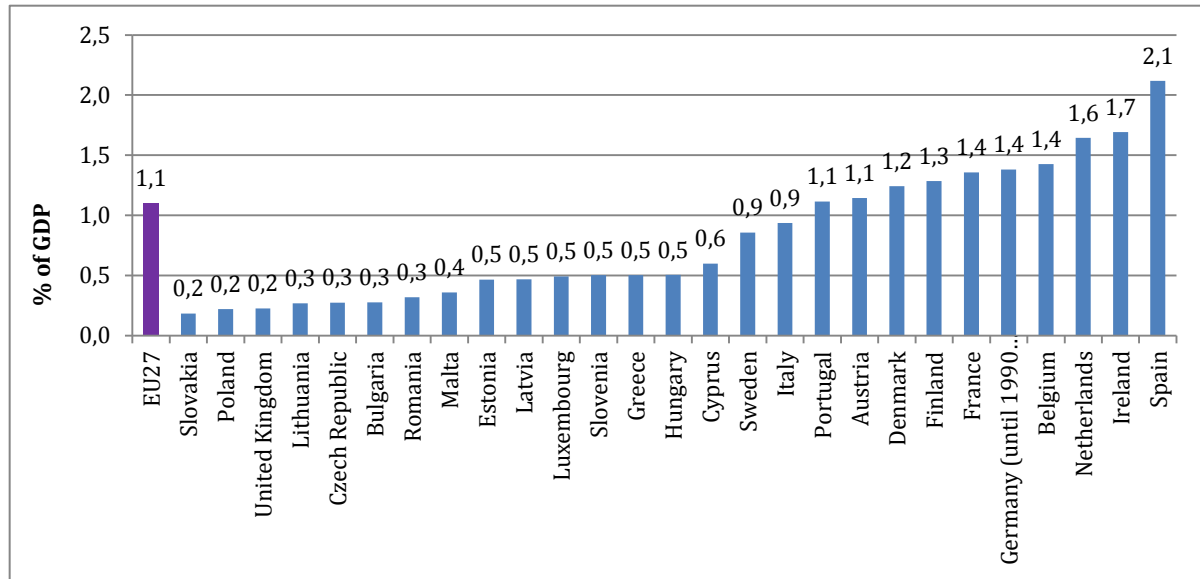
Source: Eurostat.

2.2 Coordination of existing national systems

Given the large variation across national systems, one of the few fields where no attempt has been made in the past to reach a level of harmonisation is passive labour markets policies for the unemployed. Yet a form of coordination exists, even though it exclusively originates from the need to facilitate cross-country mobility and therefore *de facto* affects only a small share of workers in Europe.

The degree of social security coordination between the different national systems at the European level is one of the key determinants of intra-EU labour migration. The EU regulation on the coordination of national systems and the European Social Charter contribute most in this regard at the European level.

2.2.1 *EU regulation on the coordination of national systems*

The coordination of national unemployment benefits is organised via a subsection within Regulation (EC) No 883/2004 on the coordination of social security systems. The aim of the provision in the Regulation is to improve the standard of living and conditions of employment through the simplification and advancement of the free movement of persons. Earlier, in 1971, the Council Regulation (EEC) No 1408/71 had been put in place to ensure equivalent treatment and protection of social security benefits of all EU workers, irrespective of current residence in the EU and the employment. The new Regulation is built on the fundament of the previous Council Regulation of 1971.

The Regulation does not transfer directly any powers from the national to the supranational level, as it bases its influence on Article 308 TEC (now 352 TFEU). The Regulation was aimed at amending the nationally determined social benefit entitlements or the condition under which they are granted within each domestic framework, thus leaving domestic systems intact. Various divisions of the social security system are covered, among them the unemployment benefits claimable within an EU member state. The provisions in the Regulation state that periods of employment spent in one EU member state need to be taken into account when the person moves to another EU member state and thereby switches to another national social security system. The applicable legislation is that of the member state

in which in person is pursuing 'a gainful activity'. With regard to unemployment insurance, this means that the member state whose system the person is currently paying into or receiving benefits from must allow for the periods of insurance and the duration of employment (whether regular employment or self-employment) that they have accomplished in other EU member states "as though they were completed under the legislation it applies".

Furthermore, if a previously insured person becomes unemployed, thus having claims on unemployment benefits, and is applying for jobs in another member state, that person has the right to move to the other member state to facilitate the application while retaining his claim on unemployment benefit entitlements from the member state of his/her previous employment for a minimum of three months, which can be extended to six months if the institutions in charge deem it appropriate. The regulation only applies if the total entitlement period has not been exceeded during the job-seeking time spend abroad. In any case, after the imparted three-to six-months grace period, the claim is no longer valid should the person not return to the member state in which s/he is entitled to unemployment benefits.

Generally, all employment benefits are claimed from the institution of the country where the person has worked last and was residing. This regulation is targeted to the needs of 'frontier workers' who regularly cross the border, and prevents burden-shifting among neighbouring states. This rule only applies to full unemployment, as partial unemployed is dealt with in the country where the part-time work is carried out.

The regulation also applies, besides to EU member states, to the EFTA countries: Iceland, Liechtenstein, Norway and Switzerland. In the annex to the regulation, several references to predating bilateral agreements that need to honoured and specific acts with regard to individual countries are made; however, these must not impede the framework described above.

Since the start of the Great Recession, in particular, such regulation has raised fears among policy-makers of the possibility to exploit the system, thereby giving rise to the so-called 'welfare tourism' debate. The truth is that the fear of social welfare tourism with regard to unemployment benefits is very limited, since a person is only entitled to the benefits that he/she has accumulated in the unemployment insurance fund in the country of employment. The fact that previous periods of work in another country are taken into account does not pose a significant threat to the social system of the last hosting country, since the person has to have obtained a job in the host country before making a claim thereafter. Hence, simply moving to another country without work will not induce transfers based on unemployment benefits.

There is of course the possibility to create a dummy firm or fake employment which could entitle 'labour' migrants to unemployment benefits, though the risk is low as they would have to show income to be entitled to a percentage of their previous salary. Job-seeking abroad for the period of three (theoretically possible to extend to six) months could create an incentive to cash in on purchasing power differences, i.e. a euro spent in Luxembourg has less purchasing power than in Latvia. However, overall studies have not clearly shown substantial welfare tourism within in the EU (Guild et al., 2013). Jobseekers are more likely to stay where they have already settled down or move to a region where they intend to find employment rather than where their purchasing power is maximised for the next three months.

2.2.2 Other European systems of unemployment benefit coordination

European Code of Social Security

The European Code of Social Security was initiated as early as 1949 and was highly influenced by the Social Security Minimum Standards (Convention No. 102) published by the International Labour Organization (ILO) in 1950. It is a product of the Council of Europe and therefore not part of the *acquis communautaire*. After years of negotiations, the 'code' was adopted by the Council of Ministers in 1964 and came into force two years later. The aim of the code and its protocol was to protect the minimum standards of social security that must be adhered to within the signatory countries. The duration and quality of social benefits are regulated in terms of the minimum, but each signatory can decide what services or extended durations that country provides in excess of the minimum. The protocol sets these minimum standards in a manner which allows the individual signatory to maintain the specificities it has taken to fit national circumstances.

With regard to unemployment benefits (Article 19-24), the code defines the conditions under which the person whose contract has been terminated is entitled to unemployment benefits and it further states that benefits should be paid in periodical cash transfers. The protocol explicitly mentions that at least 50% of all employees must be covered by the insurance system in place. The code further emphasises that a jobseeker (whose wages have previously been suspended) is entitled to unemployment benefits if she/he has been unable to find "suitable" work. The minimum duration was set at 13 weeks during any 12-month period in the original code, but was enhanced to 21 weeks in the Addendum 2 of 2008. Overall, the code introduces an absolute minimum while leaving room for interpretation on issues such as "suitable work", thus circumventing firm restriction with regard to details for domestic policy-makers.

The European Social Charter

The European Social Charter, introduced through the Council of Europe Treaty, is another example of an instrument coordinating unemployment benefits and protecting social as well as human rights. The Treaty was introduced in 1961 but amended in 1996 and came into force in 1999. The revised Charter guards the right to social security, including benefit systems, which must not be discriminatory to any part of society. The Charter itself sets the framework within which unemployment insurance functions. Article 12 postulates the right to social security in general and making reference to the European Code of Social Security as "to maintain the social security system at a satisfactory level at least equal to that necessary for the ratification of the European Code of Social Security". The relevant Article 24 deals with the rights of employees in the case of termination of employment, but it does not specify any requirements to be made in case of unemployment beside the reference to the European Code of Social Security. Complaints against violations can be brought before a special committee evaluating the alleged infringements.

2.3 European funds

The Structural and Cohesion Funds represent the main financial instruments to foster economic, social and territorial cohesion in the EU.

One fund is particularly important when it comes to measures related to the labour market – the European Social Fund (ESF), which is based on multi-annual programmes. Among the 'special instruments' – outside the multi-annual programming routine – the European Globalisation Adjustment Fund (EGF) was recently set up. These more flexible mechanisms

are intended to enable the EU to mobilise the necessary funds to react to unforeseen events, such as crisis and emergency situations.[3]

EGF and ESF measures are sometimes used to complement each other. While the EGF provides tailor-made assistance to redundant workers in response to a specific, large-scale redundancy event, the ESF supports strategic, long-term goals (e.g. increasing human capital or managing change).[4]

The two funds therefore do not try to create an income support system for the unemployed, but rather to create complementary activation measures such as training, job-search assistance and occupational guidance.

European Social Fund

The ESF represents over 10% of the total EU budget. For the period 2007 to 2013, the ESF budget amounted to €75 billion, or close to €10 billion per year.

The ESF supports a number of actions to enhance access to employment such as (ESF Expert Evaluation Network, Final Synthesis Report on Access to employment, October 2012):

o   the modernisation and strengthening of labour market institutions, in particular employment services;

o   the implementation of active and preventive measures ensuring the early identification of needs with individual action plans and personalised support, such as tailored training, job search, outplacement and mobility, self employment and business creation; and

o   specific action to increase the participation of migrants and reduce gender-based segregation.

ESF funding is available through the member states and regions. ESF programmes are implemented through individual projects run by participating organisations, such as public administrations, companies, NGOs and social partners active in the field of employment and social inclusion (European Commission, 2012).

In the next period (2014 to 2020), the ESF will continue to be the main EU instrument for investing in human capital.

European Globalisation Adjustment Fund

The EGF is one of the special instruments not included in the EU's multi-annual financial framework, with a maximum total amount from January 2014 to 31 December 2020 of €3 billion. It may not exceed a maximum annual amount of €429 million. The EGF was initially established for the duration of the programming period 2007 to 2013

> "to provide the Union with an instrument to demonstrate solidarity with, and give support to, workers made redundant as a result of major structural changes in world trade patterns caused by globalisation where these redundancies have a significant adverse impact on the regional or local economy."[5]

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[3] http://ec.europa.eu/budget/mff/introduction/index_en.cfm

[4] COM (2011) 608 final.

[5] COM(2011) 608 final.

The EGF co-funds active labour market policy measures that aim to facilitate the re-integration of workers in areas, sectors, territories or labour markets suffering the shock of serious economic disruption.[6]

The Council and the European Parliament have recently agreed for the EGF to continue in the 2014-2020 period (European Commission, 2013).

The EGF shall apply to applications by the member states for financial contributions to be provided to workers made redundant mostly:

o   as a result of major structural changes in world trade patterns due to globalisation; or
o   as a result of a serious disruption of the local, regional or national economy caused by an unexpected crisis.

Until 2009 the threshold for the number of redundancies required to trigger access to the EGF was 1,000. This number has now been reduced to 500. This amendment was welcomed due to the particular features of countries where the industrial structure is composed of small and medium enterprises (SMEs) (GHK, 2011).

The measures financed under the EGF may include in particular:[7]

a) job-search assistance, occupational guidance, advisory services, mentoring, outplacement assistance, entrepreneurship promotion, aid for self-employment and business start-up or for changing or adjusting activity (including investments in physical assets), co-operation activities, tailor-made training and re-training, including information and communication technology skills and certification of acquired experience;

b) special time-limited measures, such as job-search allowances, employers' recruitment incentives, mobility allowances, subsistence or training allowances (including allowances for carers or farm relief services), all of which are limited to the duration of the documented active job search or life-long learning or training activities;

c) measures to stimulate disadvantaged or older workers to remain in or return to the labour market.

Since its creation in 2007, the EGF has dealt with a total of 110 cases. Spain is the country that has requested EGF assistance for the greatest number of workers, followed by Italy, Germany and Ireland.

Table 2. EGF: Number of applications received, 2007–13

	2007	**2008**	**2009**	**2010**	**2011**	**2012**	**2013***
	8	5	28	29	24	10	6

* Note: up to 12 August 2013.
Source: EC 2014.

How important are the two funds?

As previously shown, the two funds together constitute more than 10% of the EU budget. But what is their incidence in member state economies? Two observations can be made in terms of size. The first is that the ESF and the EGF are hardly comparable. Even in Estonia, which is the country that has benefited the most from the EGF, the aid provided by the fund

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[6] COM(2011) 608 final.

[7] COM(2011) 608 final.

amounts to only 0.01% of GDP. Therefore, even though it may be very useful in dealing with micro adjustments and providing relevant support for a local economy, in macroeconomic terms it has a minor impact.

The ESF, on the other hand, not only has a longer tradition but also greater firepower. As indicated in Table 3, funds can go up as high as 0.78% of GDP[8] (as in the case of Portugal during the last budget period).

Yet, the ESF cannot be considered a stabilising tool. As a matter of fact, it serves the opposite purpose: it is used to finance supply-side measures for the labour market, such as active labour market policies and job centres, and therefore it is meant to improve the functioning of the labour market in the long run.

Table 3. European Social and Globalisation Adjustment Funds

	ESF allocated (2007-2013)		EGF allocated (2007-2011)	
	Million euros	% of GDP	Million euros	% of GDP
Czech Republic	4,451	0.43	0.3	0.00
Estonia	461	0.41	7	0.01
Ireland	750	0.06	10.1	0.00
Greece	5,133	0.34	2.9	0.00
Spain	11,271	0.15	43.7	0.00
Italy	14,475	0.13	66.2	0.00
Poland	11,773	0.47	400.3	0.00
Portugal	9,245	0.78	1.2	0.00
Romania	4,334	0.48	3.2	0.00

Source: http://ec.europa.eu/esf/main.jsp?catId=443&langId=en and EGF statistical portrait, p. 69.

2.4 The US system of unemployment insurance

The US federal unemployment compensation (UC) programme provides income support to workers that lose their jobs for up to a maximum of 26 weeks in most states. Approximately 130 million jobs are covered by the programme. As at the end of the week 17 August 2013, 2.9 million unemployed workers were receiving unemployment compensation with an average weekly compensation of $307. Estimated expenditure on regular unemployment benefits in 2014 amounts to $40.5 billion (Whittaker and Isaacs, 2013).

In the case of severe recessions and consequent high unemployment in a state, extended benefits can be launched, funded 50% by the state and 50% by the federal government (and exceptionally 100% by the federal government in the 2009 stimulus package).

The US system constitutes an obvious point of comparison for the potential European system, given that the UC centralises part of the organisation but still allows each state the possibility to personalise certain features and requirements.

The UC is in fact a joint federal-state programme financed by federal taxes under the Federal Unemployment Tax Act (FUTA) and by state payroll taxes under the State Unemployment Tax Acts (SUTA). The FUTA tax rate for employers is 6% of labour cost, but a credit of 5.4%

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[8] The allocated budget for 2007-2013 is divided by the cumulated GDP over the same period.

is granted for employers coming from states that have a national system in place, which is all US states. The provision served as an incentive for all states to create an insurance, as it constituted a minimum floor for employers coming from every state.

Most businesses are subject to state and federal unemployment taxes. An estimated $6.7 billion in federal unemployment taxes (FUTA) and $44.47 billion in state unemployment taxes (SUTA) should have been collected in FY2011 (Whittaker and Isaacs, 2011). Part of the former is used by each state to cover the administrative costs of its system and the other part finances the extended benefits when needed. It is worth noting that the employers' contribution is subject to experience ratings; firms that fire more also pay more.

Unlike in most European countries, the US version of an unemployment insurance scheme is therefore fully financed by employers. The mechanism is based on the principle that those that fire more also need to contribute more to the fund. For the firms' side of the labour market, although not perfect, the system is organised as insurance: companies need to provide severance payment to workers and in order to do that, insure themselves against the risk of firing a certain number of workers (see Box 1). The same is not true for employees who do not contribute to the fund. From their point of view, the benefits rather qualify as social assistance in the form of income protection.

The system is administered by the US Department of Labor (DOL). Federal law sets broad rules that the state programmes must follow, including the broad categories of workers that must be covered by the programme, the method for triggering the Extended Benefit (EB) and Emergency Unemployment Compensation 2008 (EUC08) programmes, the highest state unemployment tax rate to be imposed on employers (5.4%), and how the states will repay Unemployment Trust Fund (UTF) loans. If the states do not follow these rules, their employers may lose a portion of their state unemployment tax credit when their federal income tax is calculated. The federal tax pays for both federal and state administrative costs, the federal share of the EB programme, loans to insolvent state UC accounts, and state employment services (Whittaker and Isaacs, 2011).

Table 4. Revenue and expenditure associated with unemployment compensation, FY2001 – FY2011

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011[a]
UC revenue, total	27.8	27.5	33.2	39.3	41.8	43.0	41.2	39.4	37.8	44.7	51.4
FUTA tax	6.9	6.6	6.5	6.6	6.7	7.1	7.3	7.2	6.7	6.4	6.7
State UC taxes	20.8	20.9	26.7	32.7	35.1	35.9	33.7	32.2	31.1	38.3	44.7
UC outlays, total	28.1	50.9	54.3	42.5	32.6	31.7	32.7	43.0	119.7	156.1	129.5
Regular benefits	27.3	42.0	42.0	36.9	31.2	30.2	31.4	38.1	75.3	63.0	61.0
Extended benefits	[b]	0.16	0.32	0.16	0.00	0.20	0.00	0.02	4.1	7.8	9.5
Emergency UC	—	7.9	11	4.1	—	—	—	3.6	32.7	72.1	55.4
Federal Additional Compensation	—	—	—	—	—	—	—	—	6.5	11.7	1.9
UCFE/UCFX[c]	0.5	0.5	0.6	0.8	0.8	0.8	0.7	0.7	1.0	1.3	1.5
Trade Benefits	0.3	0.3	0.4	0.5	0.6	0.5	0.6	0.6	0.1	0.2	0.2
Administrative costs	3.6	3.7	4.1	3.9	3.8	3.9	3.7	3.9	4.3	5.5	5.5

Source: U.S. Department of Labor, *UI Outlook*, January 2001-February 2011, and updates.

a. Estimated for 2011.

b. Less than $5 million.

c. UC benefits for federal employees (UCFE) and former military servicemembers (UCFX).

Source: Whittaker and Isaacs (2011b).

Maximum benefit levels vary enormously, from \$133 per week in Puerto Rico to \$625 in Massachusetts.[9] States can obtain loans from the Federal Unemployment Account should they run low on funds, but the deficit needs to be cleared in the long run.

How was the system created? The origin of the system dates back to the mid-1930s. The Great Depression had made it clear that an income support mechanism was necessary, and a number of states started to investigate and make proposals in this direction. The main obstacle, however, remained the employers' fear of losing competitiveness with respect to neighbouring states. This made the intervention at the federal level necessary. Witte (1936) explains that

> "[T]hroughout the history of the unemployment compensation provisions of the Social Security Act, there was general agreement regarding the necessity for federal legislation. It was recognized by everyone who believed in the desirability of unemployment insurance that little headway could be made unless employers in all states would be subject to the same (or substantially the same) costs, whether their respective states enacted unemployment insurance laws or not."

Box 1. Experience rating

Unemployment insurance in the US is financed via a tax for employers that amounts to 5.4% of labour cost. The tax is not a fixed amount for each employer, however, since those that tend to fire less also pay less. This is called "experience rating" and is based on the idea that the existence of unemployment insurance reduces the cost of firing and therefore an instrument is needed to eliminate the perverse incentive of increasing the number of redundant workers (Mongrain and Roberts, 2004).

Experience rating is said to be perfect when firms pay the full cost of their layoffs. The type applied in the US is imperfect since lower and upper bounds exist, meaning that firms that are less volatile in terms of employment end up subsidising the more volatile firms (Wang and Williamson, 2002).

The tax is based on a formula and each US state is free to decide how to apply it. In more than half of states, this is based on the reserve ratio. The second most common formula applied is the benefit ratio.

The *reserve ratio* is the ratio between the company's unemployment insurance account (contributions paid minus benefits) and total gross wages. The reserve is cumulative over the lifetime of the company, whereas total wages refer to the last three years. As a result, the tax increases when more unemployed workers receive the benefit and decreases when higher contributions are paid into the fund. The *benefit ratio* is the ratio of benefits divided by total payrolls over the past three years; the more benefits are withdrawn by unemployed workers, the higher the tax for the employer.

The concept of experience rating is also applied at the national level: in case of a lack of liquidity, a state can borrow from the federal funds. States are charged interest on loans that are not repaid by the end of the fiscal year in which they were obtained. States facing troubles in financing their own insurance can therefore ask for help from the federal fund, but only in the form of a loan that needs to be repaid based on an agreement with the US Secretary of Labour. If the firm fails to restore the balance between revenues and expenditure of national funds in the medium run, the federal authority can raise firms' contribution.

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[9] 2011 data.

Can the US system be a model for Europe?

A major concern related to the creation of a European unemployment insurance system is the incentive for people to move to collect benefits in more generous countries, so-called welfare mobility or welfare tourism. Does it happen in the US, where a strong incentive to do just that is provided by the large dispersion in the weekly benefit granted by different states? In other words, can an unemployed Texan worker collect benefits in Massachusetts, where he/she can receive up to $674 per week? The eligibility rules of the Massachusetts government explicitly state that "if you worked in another state, you should apply for unemployment insurance in that state".[10] There are residency requirements in place in individual states, though as far as we were able to tell, there is no federal requirement. However, given the shape of the US system, states have incentives not to attract unemployed recipients of the benefit.

One of the added values of the federal system lies in the possibility to extend benefits exceptionally in the event of severe recessions in one or more states, i.e. when the stabilisation tool is most needed. This happens via the extended and emergency benefits, with the former partially and the latter completely financed at the federal level. Extended benefits are the geographical redistributive part of the system.

Figure 2. Total unemployment insurance benefits paid by month and type of programme in the US
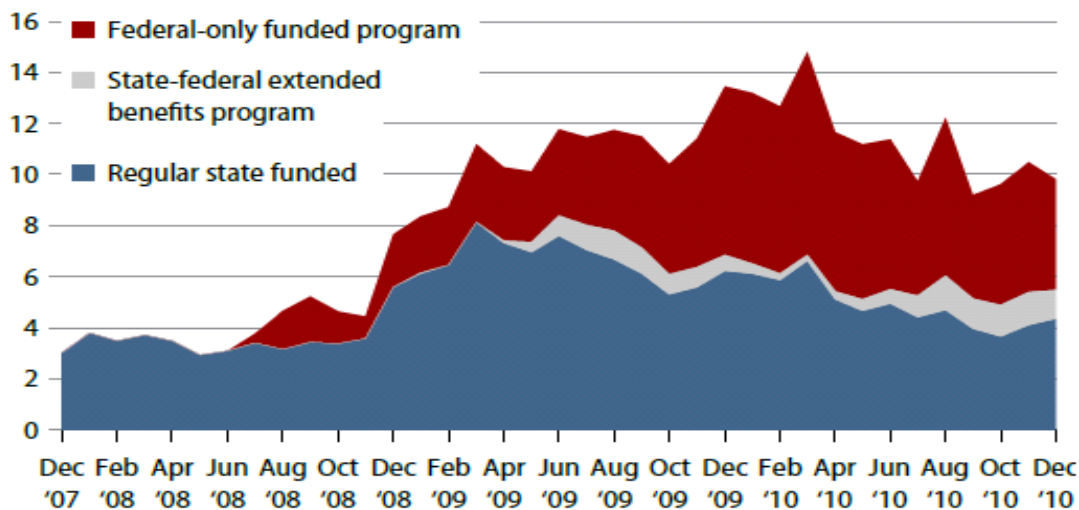
Source: Boushey and Eizenga (2011).

If in principle the rule constitutes a safe back-up for a system that is not very generous (at least compared to European standards), this is something that could hardly be implemented in a European context. The reason is that such extensions require quick decision-making, which is more difficult to implement in Europe given the multi-level governance and the necessity to apply a subsidiarity principle.

A less remarked upon but interesting aspect of the US system is its capacity to strike a balance vis-à-vis individual states over the cycle: each state can indeed borrow from the federal cash pot in hard times, but these remain as loans and as such need to be returned. This in principle ensures that the objective of stabilising income when most needed is not missed, but at the same time avoids free-riding. If a state is unable to repay the loan, the employers' contribution is automatically raised. This is what happened recently in

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[10] http://www.massresources.org/unemployment-eligibility.html

California, for example, where the fund currently runs a deficit of almost $10 billion (Employment Development Department, 2013).

All in all, the US system is particularly interesting, not only for the comparability of its labour market to the European market in terms of size and skills levels, but even more so because of its mix of three compromises/results:

- The stabilisation capacity based on short-term support, combined with the possibility for each state to borrow from the central cash pot, if necessary.

- The creation of a common minimum standard, not in terms of provision where each state is free to set its optimal level of protection, but in terms of employers' contribution necessary to finance the policy.

- The experience rating, which punishes companies that fire more.

2.5 Potential economic, political and social rationale for EU action on unemployment benefits

The purpose of unemployment insurance is, from a purely economic point of view, to provide a counter-cyclical stabilisation mechanism to the economy, and from a social point of view, to alleviate the pain of unemployment by providing income security. Economic theory suggests that higher insurance can increase wages and extend the unemployment spell by raising the reservation wage, which is the lowest wage rate at which a worker would accept a job. Empirical evidence suggests that the exact design of such policy matters, in particular how benefits decrease with duration and to what extent they are complemented by active labour market policies (Blanchard et al., 2013). The exact design is important from the microeconomic point of view, but what about the macroeconomic aspects? In a monetary union especially, they are at least as important to justify the adoption of such policy.

Three considerations are important in an international-macro perspective:

- the coordination issue;
- fiscal constraints; and
- the trigger of the policy symmetric and asymmetric shocks.

To the purely economic considerations, one needs to add the political and social concerns: the existence of a form of European solidarity and redistribution within the continent.

2.5.1 The economic theory

(A)symmetric shocks and coordination failures

Problems arise in a monetary union when an asymmetric shock occurs. A textbook case is provided by De Grauwe (2007): an asymmetric demand shock – negative in France and positive in Germany. As a consequence, unemployment increases in the former and goes down in the latter. Two mechanisms can potentially lead to automatic re-equilibration: wage flexibility and mobility of labour.

How does unemployment insurance interfere with each? Will it facilitate or hinder wage flexibility and labour mobility? Would this change if such insurance is organised at the European level?

In principle, an unemployment insurance scheme will hamper both adjustment mechanisms. The benefit will keep the reservation wage at a certain level, higher or lower depending on the replacement rate. The national unemployment insurance will also limit cross-country

mobility: it lowers the incentive to look for a job in general, but even more so in another country because the unemployed workers may need to give up their benefits.

The latter problem would be solved should a European system be in place: unemployed workers could collect the benefits independently of the country in which they are looking for a job. With regard to the first issue – the reservation wage – it does not matter for the adjustment in the recession country whether the benefit is paid at the national or European level.

But how likely are asymmetric shocks in Europe? The academic literature gives the impression that this is a steady issue in Europe. The differences in the European economies (different specialisation of production, different labour market regulations, different demographics, different national level macroeconomic policies, etc.) make economies react differently to external shocks. Asymmetric shocks therefore seem to be a matter of regularity, and it is only the significance of these shocks that varies.

The OECD (2010: 72) underlines that recent asymmetric shocks in Europe were mainly attributable to the catching-up processes of certain economies. However, there are still considerable differences between economies that could easily cause new imbalances. Even though the common currency has increased integration, there remain many potential sources of asymmetric shocks. These could be different demographic developments, asymmetric production trends, remaining inequalities in the regulation and flexibility of wages and prices, or differences in employment protection. The OECD therefore recommends the euro area-wide coordination of such issues, or far-reaching structural reforms that may lower the risk of asymmetric shocks.

In a recent publication from the IMF (Allard et al., 2013), the authors argue that booms and busts occur very regularly in an unequal pattern across Europe and that this dispersion of national specific growth is not really showing a tendency to approach a common European level.

De Grauwe (2013) observes that while monetary policy has been centralised, the rest of the macroeconomic policies have remained in national hands,

> "producing idiosyncratic movements unconstrained by the existence of a common currency. Hence, there are few policy options to bring national booms and busts into line with any kind of European development. Even worse, the common interest rate that may be too low for booming countries and too high for countries in recession even exacerbates asymmetric developments. Therefore, at first the convergence process in Europe has to be finished. And already that process appears to be asymmetric itself."

Figure 3. Country-specific shocks in the euro area
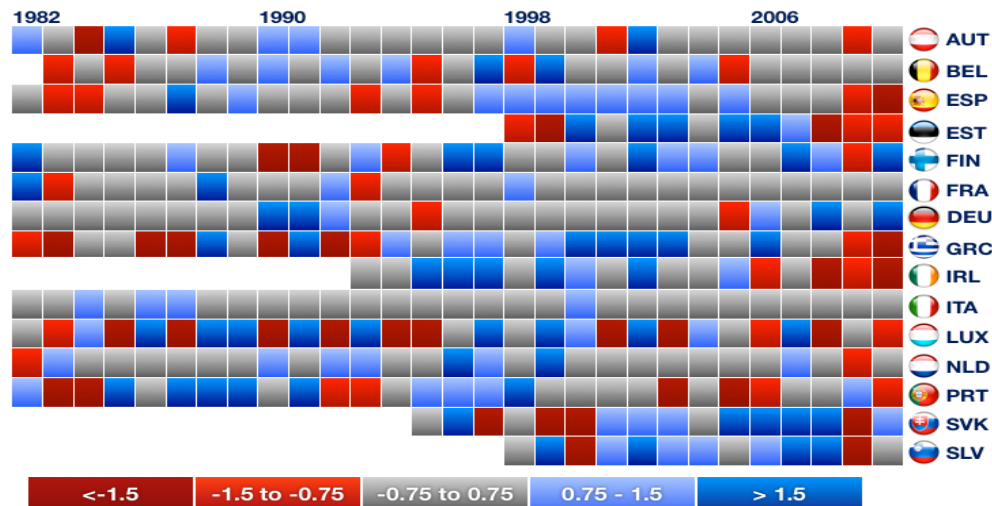
SOURCE: OECD and IMF staff calculations
NOTE: The idiosyncratic growth shocks are derived as the part of the country-specific growth shocks that are not explained by euro area-wide growth shocks. Growth shocks (both for the euro area and individual countries) are computed as the residuals of the growth rate regressed over two lags.

Source: Allard et al. (2013).

The case of symmetric shocks is more straightforward and poses fewer challenges to policy-makers. In case of recession, the main decision to be taken is whether to use the fiscal or monetary stimulus, or a combination of the two. Yet, because of the specific nature of Europe's construction, suboptimal equilibria can be also reached because the former is decided at national level and the latter by a supranational institution – the ECB – with an independent mandate. An EMU-wide (or eurozone-wide) unemployment insurance scheme could therefore solve the coordination problem by relying on an automatic stabiliser.

Budget constraints

Together with the risk of asymmetric shocks and coordination failures, a third macroeconomic argument may point to the need for EU/EMU-wide automatic stabilisers: tough budget constraints.

The euro area crisis showed that risk premia on sovereign debt can diverge significantly. Starting from 2010, it became not only difficult but also very expensive for sovereigns in the periphery of Europe to borrow on the market. High interest rates therefore make the financing of public expenditure, which can easily include expenditure on labour market policies in times of high unemployment rates very expensive. A government that faces tough fiscal constraints may consequently be faced with the choice of cutting income support measures at a time when they are needed most, that is, when unemployment is soaring and vacancies are limited. Moreover there is a possibility for large shocks to become self-sustaining through pro-cyclical fiscal policy and a negative feedback loop. Backstopping national systems could be a way of preventing such a feedback loop from developing.

The creation a supranational fund (in whatever form), whereby countries and/or workers and employers contribute during good times, could avoid such a trap. In this case, the funding of passive labour market policies would come from a supranational authority and would therefore not be a burden on the national budgets, as countries would have to contribute to it only during upswings.

2.5.2 Political and social rationale

Demonstrating European solidarity in a visible and tangible way for EU citizens

The crisis and its aftermath has tested European ideals and the credibility of both national and European institutions in the eyes of European citizens. The introduction of an EUI system could demonstrate European solidarity in a way that is visible and tangible to citizens (unlike some of the more abstract European interventions) on a permanent basis. Of course, the desirability of such a measure is a political decision.

Permanent/long-term redistribution across the EU

The EU already has limited fiscal redistribution mechanisms, albeit small and with redistributive roles that are not explicitly geared towards reducing disparities between member states. The national balance vis-à-vis the EU budget can be substantial for a small set of small and poor countries. The *de facto* list of net contributors and net beneficiaries also appears to be relatively stable.

Under this rationale, the EUI would be an additional special case of a permanent or long-term redistribution mechanism between countries of the Union. Consultations during the preparation of this paper made it clear that while a degree of persistency in EUI transfers might not be always avoidable, permanent or long-term redistribution is *not* one of the rationales for creating such a scheme. Indeed, it could be even seen as a problem to be avoided, if possible.

Figure 4. Net contributors to EU budget 2012, as % of GDP
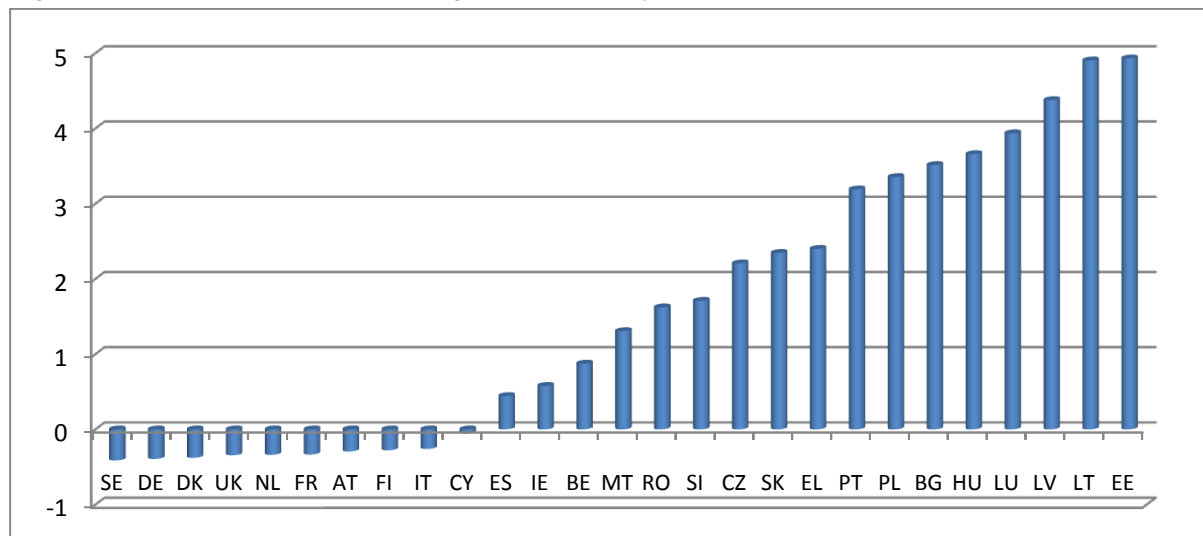
Source: European Commission 2013 EU, Budget Financial Report 2012.

Desirability of common standards

The desirability of common standards in social policy is a contested issue in European affairs and is, in the end, a political choice. In the case of the EUI, the issue of common standards can cut both ways. One could argue for minimum standards in order to prevent social dumping and guarantee equal social rights. By the same token, one could argue for 'maximum' standards to prevent hysteresis and moral hazard.

Supporting labour mobility within the EU/euro area

A relatively uncontested goal of EU policy is to stimulate labour mobility within the Union. This could, therefore, be a *prima facie* rationale for a joint unemployment insurance system. However, as explained in this chapter, the current EU regulation for coordinating social security systems already ensures that:

- qualification periods from various countries are cumulated; and
- the unemployed can move to a different country and still receive unemployment benefits (for up to three months, with a possible extension to six months)

The EU regulation could be beefed up on the second issue and thus stimulate mobility, but this could be done through amendment of the existing regulation if needed. So further support of labour mobility can be a consequence of the EUI (if it strengthens equality of rights/portability), but not an important one.

Consequently, all of our proposals will address the shock-absorber rationale as the principal rationale for an EUI. However, to provide variety on a more contested issue, some proposals will address the rationales of demonstrating European solidarity in a visible and tangible way for EU citizens and providing common standards. However, the proposals will not seek, as overriding rationales, to promote permanent/long-term redistribution across the EU, although potential persistent transfers are indeed possible. By the same token, we will largely leave the issue of supporting labour mobility within the EU/euro area out of our analysis.

2.6 Summary of existing proposals

With the establishment of EMU, demands have been voiced for a common European unemployment insurance system, in one form or another, to provide a feasible mitigation of asymmetric shocks. These proposals have varied from a small fiscal budget freely used in domestic spending, to funds based on the output gap, to true mutual unemployment schemes. The selection of proposals below provides a broad overview of existing ideas that are directly or to some extent related to the EUI proposal.

❖ In 1993, Majocchi and Rey delivered a proposal within the MacDougall report advising the implementation of a "conjunctural convergence facility" once more mitigating asymmetric shocks (Majocchi and Rey, 1993). In contrast to other schemes, this system is not triggered automatically; thus is dependent on the evaluation of fellow member states to rule out idiosyncratic causes unrelated to external shocks. The fund would provide loans and grants to the struggling state, which in turn could pay benefits or invest, for example, in additional training, hence bringing down unemployment rates.

❖ In the same year Italianer and Vanheukelen (1993) developed the idea of a stabilisation mechanism based on the national deviations in the annual change of the unemployment rate from the EMU average. Unlike Majocchi and Rey (1993), the stabilisation mechanism has an automatic feature, even though the authors propose to cap the receipts to 2% of GDP. They also propose a toned-down version in which the transfers are only triggered once a certain threshold is passed in order to only activate the mechanism in the event of significant asymmetric shocks, i.e. not smoothing small waves but rather 'tsunamis'.

❖ Bajo-Rubio and Diaz-Roldan (2003) developed a European unemployment insurance system that functions on a monthly basis as it takes the change over the past 12 months as the reference value to trigger the dispersion of benefits. It is a redistribution scheme in which each country pays in (1% of tax revenues). Payments are made to those countries which

experience a rise in their unemployment rate, however this mechanism is only set in motion if at least one country experiences a drop in its unemployment rate, thus testifying to the source of the negative changes as an asymmetric shock. Each month, the receiving member state uses the transferred funds to support the unemployed. Bajo-Rubio and Diaz-Roldan raise another rule that could be applied to reduce the risk of moral hazard: limiting the number of consecutive months in which a country is able to receive funds.

❖ Enderlein et al. (2013) do not call directly for a European unemployment insurance fund but rather a cyclical adjustment insurance fund (CAIF), which is once more based on the output gap methodology. They do suggest, however, that the output gap as a main trigger could be complemented with indicators such as inflation rates and short-term (cyclical) unemployment. They have not included the unemployment indicator in their calculations, stating that "short-term unemployment is a problematic indicator as long as labour market institutions are in the realm of national legislation". Of course, the output gap has its drawbacks as well and the net effect over the period 1999-2014 would have been very small (less than 0.25% of GDP).

❖ Sutherland et al. (2012) proposes the creation of a true EU insurance fund that is built at the EU level and paid in to by employers or employees, or alternatively an unemployment benefit system. The EU benefits would set a minimum standard for the member states, which could, in cases of severe crisis, be complemented with supplements and extensions. National channels for raising contributions and distributing the benefits should be utilised to minimise administrative costs. The paper suggests leaving the decision about the means by which to collect the contribution (e.g. tax) up to each individual member state. The authors do not provide a simulation of the impact of such a system concerning net benefits or details on either coverage or replacement rate.

❖ Depla (2012), in his paper for the seminar 'EU level economic stabilisers', presents an unemployment insurance scheme for the euro area as one part of the toolkit for a wider European reform programme. His unemployment benefits scheme differs from the rest since it is not a replacement or the basis for national schemes, but rather a supplement. The unemployed would only be entitled to the supplement if the European Labour Contract were adhered to and if the sum of national and euro area benefits did not exceed the maximum threshold, thus preventing a transfer from less generous states to countries with highly generous systems. The receipt would be paid from an annual contribution equal to 1% of GDP. Depla's system not only introduces the European component to the unemployment insurance scheme, as the others do, but also attaches a social component by limiting the transfers.

❖ The most comprehensive and in-depth potential architecture for a European unemployment insurance system has been proposed by Dullien (2007, 2012, 2013) with the ultimate aim of absorbing the negative budgetary effects of short-term unemployment caused by the business cycle or asymmetric shocks, though not by structural unemployment. The insurance fund would be financed through a payroll tax and the payments and contributions would be collected by the national agencies in order to use the existing framework and avoid additional bureaucratic costs. A minimal standard of unemployment benefits would be covered at the European level, while each member state would be free to choose the services/benefits that they provide, nationally, on top of the supranational coverage. He proposes a minimum of 12 weeks with a replacement rate of 50%. In his model, Dullien shows the theoretical impact such a system would have had on crisis-ridden Spain once the housing bubble has burst. The transfer, according to Dullien, could have mitigated almost 25% of the downturn in the immediate aftermath of the collapse. The issue of moral hazard is acknowledged and perceivably alleviated in his system, since the EUI

only covers a minimum far below the current replacement rate at the national level, thus maintaining the incentive structure to implement labour market reforms. The EUI is expected to remain balanced in the long run, without clear net receivers and net contributors. One element intended to prevent a one-way financial flow is the exclusion of seasonal unemployment within his scheme. Dullien's proposal has frequently been used as a basis for political demands by parties and other institutions (Brantner and Giegold, 2012).

❖ Pisani-Ferry et al. (2013), pursue a European (EMU) unemployment insurance scheme for the same reason as Dullien, i.e. as a fiscal stabiliser. Contrary to Dullien, they propose an insurance system levied on a corporate income tax fully covering the expenditures. A euro area-wide applied corporate tax rate of 12.6% is estimated to be sufficient to cover the average euro area costs for unemployment insurance (1.8% of euro area GDP). Unemployment benefits could be covered in full by this budget, with each member state transferring revenues from the first 12.6% of tax on corporate income. The distributional effect could be significant, since revenues collected from the 12.6% tax may not suffice to cover domestic unemployment benefits. Pisani-Ferry et al. show that this would have been the case for Ireland in 2010. In another exercise, the authors calculate the magnitude of unemployment benefits in the new common system if receipts are dependent on a set-base value (1.5% of GDP) plus a factor of the deviation of the individual unemployment rate from the euro area average. Consequently, Portugal (with a less generous national unemployment benefits system) would receive more financial resources than needed to cover the benefits, thus creating a fiscal stimulus package, whereas Ireland would experience the opposite. The common unemployment insurance is not covered directly in the paper, but rather moved to the appendix and does not give details of the extent to which benefits are covered at the supranational level.

❖ Gros et al. (forthcoming) suggest the creation of a European re-insurance scheme for major deviations from long-term unemployment rates. The basic idea is to transfer funds from the centre to the periphery to finance unemployment benefits when unemployment is measurably higher than normal. The system therefore qualifies as reinsurance for national unemployment benefits funds.

3.   Outline of main trade-offs and challenges

In the first chapter of this report, we provided a general overview of existing passive labour market policies in Europe and compared them to the United States. We also listed existing EU contributions in the field and summarised political and economic arguments behind the creation of a European unemployment insurance system. We concluded by summarising existing proposals.

We now focus on two main proposals: the harmonised European unemployment benefit, developed by Sebastian Dullien, and the 'reinsurance' scheme, a proposal put forward by CEPS (Gros et al., forthcoming). The harmonised scheme consists of an insurance fund financed through a payroll tax (collected by national agencies) and spent on a minimum standard of unemployment benefits that applies in the same fashion to all eligible European workers. Reinsurance is a radically different system based on a re-insurance fund which will be used only in the event of severe recessions, in light of the fact that 'business as usual' downturns are already well covered by existing policies.

The two proposals are conceptually extremely different. The first is meant to cover 'business as usual' shocks; it creates a fund for rainy days. The second covers 'tail risks', or in other words creates a shelter for very stormy days and tornados.

Figure 5. Out-of-work income maintenance and support, % of GDP (average 2005-2011)
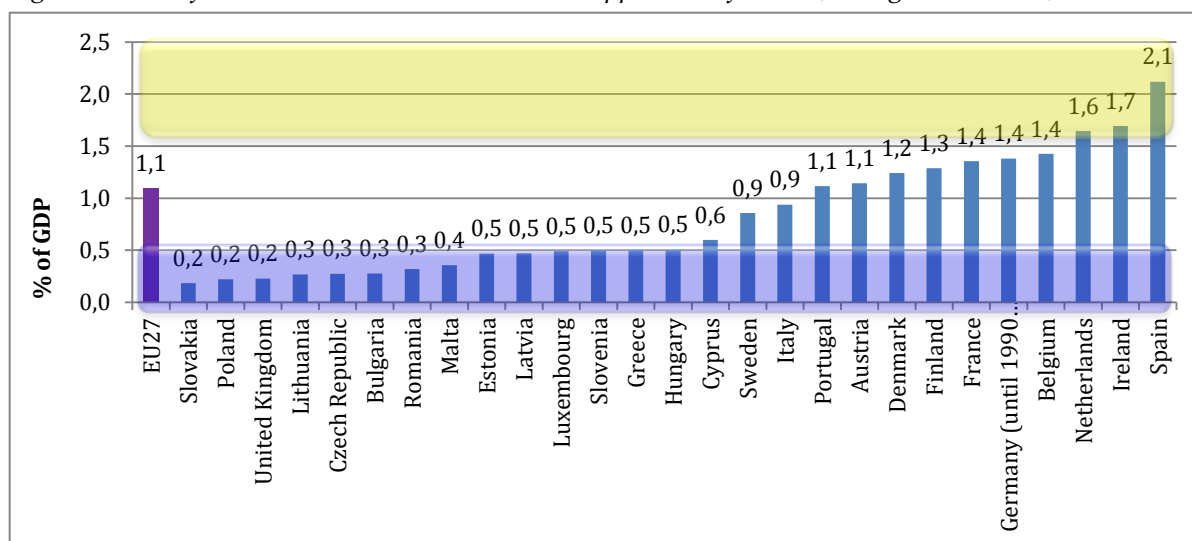
Source: Eurostat.

In this chapter we delve into the economic, political and practical challenges related to the creation of a supranational automatic stabiliser. The chapter is divided into two main parts. In the first, we look at three key policy dimensions:

- **The threshold and a ceiling for its activation**. Any system of unemployment insurance needs to define under what conditions it is triggered. This also means that an indicator needs to be chosen for this purpose.
- **Common standards for the EU**. Should they be enforced? If so, what would they be?
- **Fiscal rule**. Should the EUI have a balanced budget on an annual basis, cyclically, or not necessarily balanced at all?

In the second part of this chapter, we discuss three additional technical issues:

- **Participation**. Should the scheme involve all EU or euro area countries in a mandatory or voluntary fashion?
- **Funding**. How should it be organised? What is the source?
- **Implications for other labour and EU policies**. Should the EUI also be concerned with active labour market policies? Is there any overlap with, for instance, the European Social and Globalisation Adjustment Fund?

3.1   What situations should it cover? What should be the trigger?

Deciding under what circumstances the EUI should be activated represents an important step in designing the European unemployment insurance scheme. The EUI could either be applied with a business as usual approach or be activated only in exceptional circumstances. If the 'harmonised option' is put in place, it would be activated whenever a worker becomes unemployed for a given number of weeks. Conversely, the reinsurance proposal would kick in only under exceptional economic shocks, such as severe recession, where public finances are put under stress by a greater demand for unemployment benefits.

During the last crisis, expenditure on passive labour market policies climbed to approximately 3% of GDP in Spain and Ireland, from 1.5% and 0.9% in 2007, respectively.

The setting-up of the reinsurance option would imply the adoption of a set of reference indicators. We analyse the possible options among the following list of indicators: the output gap, the unemployment rate, the unemployment gap and the unemployment ratio.

3.1.1 *Unemployment rate and short-term unemployment (rate)*

The unemployment rate is *prima facie* the most natural choice of indicator, because it is indeed meant for the assessment of employment policies. In addition, it is a solid indicator, given that it is based on a head-count.[11] However, it raises some issues.

First, there is a long-standing debate among labour economists about the solidity of this indicator, which is considered by many experts inappropriate for measuring the temperature of the labour market. The reason is that the unemployment rate does *not* measure the share of people that do not have work in the population, but the share of those in the labour force who do not have a job *and* are also actively looking for one. Therefore, all those who are available to work but are not actively job-seeking are not recorded in the statistics.

Second, it is important to note that a significant part of the unemployment rate is unrelated to short-term shocks but is of a structural nature. The group of unemployed it measures is made up of two main subgroups: those whose unemployment duration is a small natural transition from one job to another, and those with a longer unemployment duration is because their skills do not match existing vacancies. The former has a short-term nature, whereas the latter is much more persistent and requires enormous effort to curb. A policy that does not take structural differences into account would, as a consequence, give rise to a rather unbalanced flow of funds over time. This is a problem if one focuses on the redistribution rationale rather than the cushioning of shocks rationale. However, since the cushioning argument appears to be among the key arguments for the creation of an EUI, we do not recommend using a headline unemployment rate.

For this reason we propose to consider the short-term rate, not the overall unemployment rate, but. This would be consistent with the fact that unemployment benefits generally do not cover the entire unemployment spell, but instead have a maximum length of eligibility.[12] An unlimited duration constitutes a disincentive to look for a job, especially if the income subsidy is generous.

The EU short-term unemployment rate, defined as up to 12 months of unemployment, was on average 4% during the period 2003-2012. In the following cases, it exceeded 6%:

- Greece in 2011-2012
- Spain before 2004 and since 2008
- Estonia in 2009-2010
- Latvia between 2009 and 2012
- Lithuania between 2009 and 2011
- Poland up to 2004
- Cyprus and Portugal since 2012

Interestingly enough, the list does not include the Irish Great Recession.

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[11] The head-count is not based on the entire working population; only a small share of the population is interviewed for the Labour Force Survey. However, the methodology is solid and agreed at the EU level via Eurostat.

[12] Belgium, where unemployment benefits are provided until the worker finds a new job, is an exception. In all countries, systems have become less and less generous over the past 20 years in order to create the incentive to reduce the length of the work-to-work transition.

Figure 6. Short-term unemployment in Europe
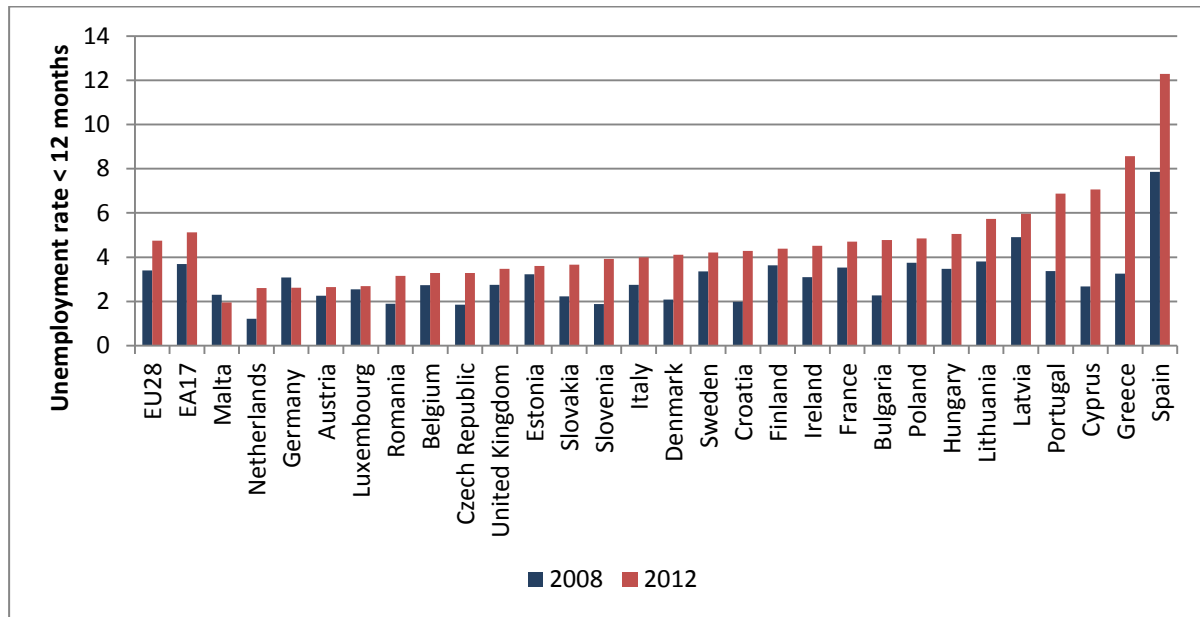
Source: Eurostat, Labour Force Survey.

In the case of the harmonised unemployment benefit system, we use short-term unemployment (not the rate, but the headcount) for the simulation, i.e. the number of people without a job and actively looking for one, and in their first 12 months of the unemployment spell.

3.1.2 Unemployment gap

Another option is to use distance from the national 'norm'. In other words, the EUI would be activated if the difference between actual unemployment and the norm exceeds a certain value.

The reference value could be either a long-term historical average or some measure of structural unemployment, such as the NAWRU. While these two options might appear similar, they are conceptually distinct. Moreover, each has obvious advantages and disadvantages.

Using an historical average minimises uncertainty or interpretation issues, but it brings a difficult trade-off. If the reference period is fairly short (say, 5-10 years), then the 'norm' can be influenced upwards by a prolonged economic slump and thus limit the impact and rationale of the EUI. If the reference period is longer than this, then it penalises successful labour market reform during the crisis.

These issues could be resolved by using a measure of structural unemployment, like the NAWRU, that would correct/augment the long-term average with a more nuanced assessment.

This option also comes with a downside. On the one hand, it introduces a degree of contestability and discretion because the NAWRU is more difficult to estimate than the simple unemployment rate and as such, it is subject to *ex post* revisions.[13] On the other hand,

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[13] A similar problem has been documented for the estimation and subsequent series of revisions for the output gap.

discretion is created with regard to the choice of the reference value. Should it be NAWRU plus 1%, 2% or something else?

3.1.3 What trigger for the EUI? Pros and cons of the different options

We summarise the pros and cons linked to the selection of one indicator or the other in Table 5. Our preference is for the unemployment gap in our simulation. The reason is that it captures well the impact of the shock by focusing on the distance from a certain level (we choose a measure of the structural unemployment rate). The downside of this choice is the difficulty of setting a benchmark which is, to a certain extent, discretionary. What is an 'emergency level' of unemployment? The structural unemployment rate plus 2%? Plus 3%? Nonetheless, we consider this option preferable and therefore when we model the 'reinsurance', we use NAWRU + 2% as a trigger for the policy.

In the model for the harmonised system, however, we use the short-term unemployment rate, i.e. the percentage of people without a job and actively looking for one, in their first 12 months of the unemployment spell. These are the unemployed workers entitled to receive an income-support benefit.

Table 5. Indicator to trigger EUI, pros and cons compared

Indicator to trigger EUI[14]	Pros	Cons
Short-term unemployment rate	Clear and unambiguous, fast response to shock	Higher variability across European countries
Unemployment gap	Better captures longer-term impact of the shock	Ex post revisions, difficulty in setting up benchmark
Conclusions: The simulation uses the unemployment gap for reinsurance' and short-term unemployment for the 'harmonised system'.		

Source: Authors' elaboration.

3.2 What should be the fiscal rule for the EUI and the country contributions?

In the previous sections of this chapter we analysed two key technical aspects that accompany the conception of a cross-national system of unemployment insurance: the trigger and the reference indicator. The next important step deals with the fiscal side of the system. First of all, should a rule exist at all? Or should expenditure be balanced at an annual level? Is an intermediate option possible? Additionally, how should the system treat a country that is in persistent deficit vis-à-vis the system?

3.2.1 A system balanced annually

We start by analysing one extreme option: a system that is balanced every year. In other words, whatever is collected during the year is redistributed across countries during the same year. As a consequence, the system would not run any deficit and neither any surplus.

This option has one main attraction: it would avoid problems related to the capacity of the EUI to borrow in case of deficit.

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[14] Relevant only for option 2 – reinsurance. Option 1, harmonised European unemployment benefit, does not require a trigger.

But apart from this, the case for an annually balanced fund is weak, especially given the technical complications. An annual distribution would in principle be possible, but highly problematic in practice. Such an approach, in fact, would require permanent calibration of the system on an annual basis, leading to unpredictability and uncertainty at the national level, thus eliminating to some extent the very rationale for an EUI.

A further argument against this option is the risk of symmetric shocks (e.g. the Great Recession). Without the possibility to borrow or use reserves, the system would end up transferring resources between countries undergoing difficulties.

3.2.2   A flexible system: No fiscal rule

The second extreme option is the rule of not imposing a rule. The EUI would not be subject to an *ex ante* decision on its fiscal rule. Deficits and/or the possibility to resort to extra funding, beside the national annual contributions, are therefore not ruled out. The main advantage is the possibility of ensuring the greatest flexibility to deal with a variety and different combinations of (symmetric and asymmetric) shocks.

Yet, an open-ended commitment remains difficult to impose. It would hardly be considered politically acceptable, and it would impose technical challenges in terms of consistency with the existing EU seven-year budgetary framework.

3.2.3   Fiscal balance over the economic cycle

We consider a third intermediate option in which the system would be balanced, but only over the economic cycle. In other words, the fund would be able to run surpluses annually, but would need a fiscal balance over the medium term.

Such an approach could be materialised in two ways:

- An account in the fund, which has to be balanced over the medium term, corresponds to each country. In case of necessity the fund would intervene to contribute to the expenditure on unemployment benefits, but on condition that the loan is paid back based on an agreement with the central authority that manages the system.

- Alternatively, countries would be allowed to run deficits/surpluses vis-à-vis the EUI, even over the medium term, as long as the fund as a whole is in balance over the cycle.

We recommend the first approach; the reason being that it strikes a fair compromise between two needs: being strongly anti-cyclical, and limiting the scope for permanent transfers across countries.

How could the balance be achieved? This could be done on the revenue as well on the expenditure side. In the first case, rebalancing would occur via an automatic increase in each country's contribution after a certain number of years of deficit. Alternatively, it could be achieved on the expenditure side by automatically limiting EUI transfers, again, after a certain time. The US experience strongly pushes in favour of the former: a balancing path based on an automatic increase of the national contribution. In the US, as explained in chapter 2, states can borrow from the federal account if needed, meaning that they do not receive permanent transfers from the central account. Moreover, if they fail to repay the loan, the federal system is authorised to increase the employers' contribution for that state in order to accelerate the speed of the rebalancing path.

3.2.4   What fiscal rule for the EUI? Pros and cons of the different options

We summarise in Table 6 the pros and cons outlined in the previous sections of the three options: an unemployment benefit scheme that is either balanced annually, or is fully flexible, or is balanced but only over the cycle.

Our preference, for both the 'harmonised scheme' and 'reinsurance', is for the latter: each country can borrow in stormy years, but needs to compensate with a surplus in sunny ones. Even though more complex, this option strikes a good balance between the need for a system that is counter-cyclical and the risk of redistributing towards countries with structurally higher levels and rates of unemployment.

For the sake of comparison, however, we also model a fully flexible system with no fiscal rule.

Table 6. A fiscal framework for the EUI

Fiscal framework	Pros	Cons
Annual balance	Simplicity, no need to deal with borrowing capacity	Unable to respond to the frequent combination of symmetric and asymmetric shocks, consequently likely to provide least support when most needed
No fiscal rule	Simplicity Strongly anticyclical, especially in sustained downturns	Open-ended commitment for member states – difficult both politically and technically
Balanced over the economic cycle	A combination of countercyclical policy with constraints on the overall cost and contribution	Technically more complex than the other two options
Conclusions: The simulation will work with two options – no fiscal rule and balanced over the economic cycle		

Source: Authors' elaboration.

3.3   Should there be common EU standards for unemployment benefits?

As explained in chapter 1, automatic stabilisers exist in all EU countries. Europeans can actually claim to have invented them; the first law to set up a public compulsory unemployment insurance system was passed in Germany under Bismarck's government in the 1880s. Differences exist in terms of generosity and coverage ratios, for example, but what is certain in Europe is that a form of income protection is granted to a majority of workers if they become unemployed for reasons independent of their own will.

There is more than one argument in favour of harmonisation. Aside from simplicity, harmonisation would substantially increase Europe's visibility and support thanks to the creation of a strong and perceptible social standard. Harmonisation could happen *de jure*, for example via a regulation on minimum standards for unemployment benefits, or *de facto* by setting up a unified European benefit system, partially or completely replacing national systems. Either way, common standards would need to be agreed upon for the key dimensions of unemployment insurance: coverage rates, replacement ratios, duration and eligibility.

Harmonisation also presents significant challenges. Just in terms of duration, the provision of such a benefit for one year would impose a change in the systems of eight countries where the duration is currently between 6 and 11 months.[15] Moreover, harmonisation under the Council of Europe instruments was possible only because of the lowest common denominator (21 weeks).

A potential compromise would be to set a framework that would provide some flexibility to member states. For example, similar to what was suggested by the European Commission (EC 2013), a possible standard could be: 75% of short-term unemployed workers covered, with a replacement rate of at least 50% of gross wage for one year.

A related issue to be considered on this front is whether conditionality should be applied in the use of funds. Should the supranational authority link the supply of EUI funds to, for example, the implementation of labour market and welfare reforms? The possibility for the supranational authority to have a say on how common funds are used would help more reluctant countries to accept the creation of a common system, especially in a situation where there is high cross-country heterogeneity in the provision of income support in the case of unemployment. A distinction needs to be made based on the type of system. Under the harmonised European unemployment benefit proposal, there would be no need to apply conditionality because the creation of an EUI would go hand-in-hand with a form of harmonisation of national systems via the creation of a common minimum standard. Under reinsurance, conditionality could be applied. We do not recommend its application, however, because it would not alter calculations on the volume of fiscal transfers anyway, but would only influence how these are used. We leave the discussion open.

The pros and cons of the pan-European harmonisation of benefit schemes on the issue of conditionality are summarised in Table 7.

Table 7. Standards and conditionality applicable to the EUI

Unification of national UB	Pros	Cons
Common UB standards	Clarity Strong signal of Social Europe for citizens	Requires politically challenging unification Provides less scope for incorporating national preferences
Conditionality	Strong anticyclical impact guaranteed, Higher political/social support	Alternative uses by national government might be more efficient Can create imbalances in generosity/coverage between the European system and other national parts of a benefit system Lack of democratic accountability of the authority imposing reforms
Conclusions: The simulation will provide two alternative approaches consistent with the logic of the two basic options. The harmonised unemployment benefit option will rely on common standards and conditionality. The reinsurance option will provide leeway for national governments on both fronts.		

Source: Authors' elaboration.

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[15] Slovakia and Malta (6 months), Austria and Cyprus (7), Italy (8), Ireland and Greece (10), Portugal (11).

3.4 Additional technical issues

Three cornerstones of the EUI system have been analysed in depth in the previous two sections: the trigger and the indicator, common standards, and the fiscal rule. In this last section we discuss three additional points. The first is participation: is the EUI meant for all EU countries, or just the euro area? Is participation compulsory or voluntary? The second is funding: should it be pay-as-you-go or have a funded element? The third is the interaction between the unemployment insurance and other related labour market policies, as well as other existing EU programmes related to the social domain.

3.4.1 *Participation: EU28 versus the euro area*

An issue to be discussed in the conceptualisation of a supranational unemployment insurance mechanism is its membership. Which EU countries are entitled to participate? And should membership to the system be considered compulsory or voluntary? An answer to this question is possible but, again, not simple.

Statistically speaking, the larger the group the better; a bigger group of contributors/potential users would make the fund more solid by the simple law of large numbers. A large group of contributors would imply that over a long period of time, if shocks occur randomly, everyone will benefit from participation and therefore have an interest in joining. An EU-wide scheme would also be logical from a legislative point of view, as the same rule would apply to all countries.[16]

Nonetheless, we are aware that enhanced cooperation is possible and if there is no agreement among 28 countries, it remains a valid option. In such a case, the second-best outcome would be an agreement between countries that are part of the monetary union. Such a group needs to include member states that, as part of their accession agreement, are deemed to join the EMU (Sweden, Poland, Czech Republic, Hungary, Romania, Bulgaria and Croatia) plus Denmark and Lithuania, given that they have a fixed peg with the euro.

On the issue of voluntary versus mandatory participation, economic theory would strongly recommend putting in place a mandatory system. Such a system, independently of how it is organised technically, would work as a supranational insurance between existing national insurances. In the event of voluntary participation, a problem of adverse selection would arise as only those with a higher probability of requiring it would participate. To avoid this basic microeconomic trap, we therefore recommend a mandatory EU- or euro area-wide of system.

One exception could be made, again borrowed from the US experience. In the 1930s when the US system was put in place, no country was obliged to set up a national unemployment insurance policy. Yet all states did so over time because where no system was in place, a payroll tax was imposed on employers in any case. This created a strong incentive for all states to set up their own system and collect that tax to finance a policy they could design.

3.4.2 *Revenues*

For the sake of the design of sound public policies, the discussion on the revenue of the system deserves as much attention as spending. We divide this into two sub-questions: the first concerns the type of taxation that should finance it; the second is whether the fund should be 'pay-as-you-go' (PAYG) or funded.

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[16] For this reason, we base our simulation on the assumption that all EU countries join the system.

The necessary revenue to finance the EUI can be generated via three forms of taxation. One option is a dedicated tax on consumption or on labour. The second alternative is a contribution from national governments not directly linked to a specific tax. Given the heavy labour taxation in some member states, it is questionable whether additional labour taxation is advisable. Figure 6 shows that the tax wedge is particularly high in euro area countries with high unemployment. Of course, one could argue that EUI labour taxation will only replace a national one. However, an EUI funded through labour taxation would tend to increase labour taxation, at least in countries with high unemployment, because the higher generosity of the common system as well as their higher unemployment would tend to lead to higher rates of taxation.

Figure 7. Tax wedge by family type, 2012
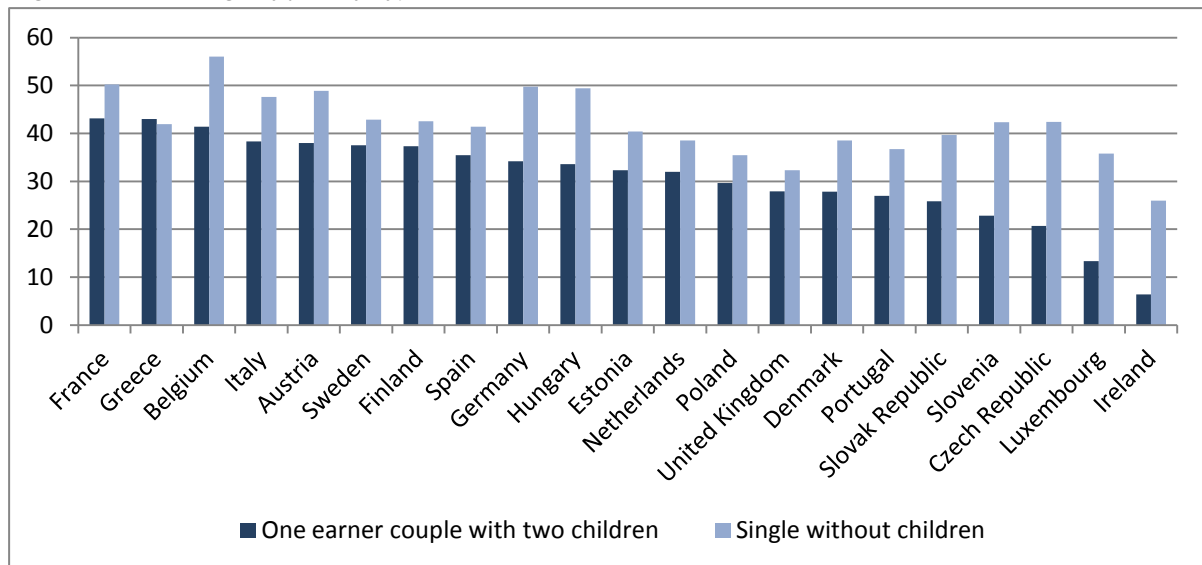
Source: OECD (2012).

On the other hand, this option creates intuitive and robust proportion between benefits and contributions. For this reason, we will base the simulation of Dullien's (2012) model on this type of financing.

A dedicated recurrent tax does not make sense for the reinsurance model, where the benefits are highly irregular and a fiscal relationship exists solely between the EUI and national governments, so in that proposal we propose to fund the EUI through contributions by national governments not specifically linked to a certain tax.

In terms of a pay-as-you-go versus a funded system, the PAYG system would be based on the following:

- A contribution equivalent to average long-term expected annual expenditure of the system;
- The system would need to make two decisions: what to do with surpluses and deficits;
- In our model, we will assume that surpluses will be retained to cover future deficits and that deficits will be covered by a bridging loan.

In other words, even a PAYG system can deliver surpluses and deficits that lead to an accumulated fund or liability, but they are incidental and temporary.

On the other hand, a funded system would be based on the following:

- An annual contribution that would be paid until a predetermined amount is accumulated;
- Contributions would be restarted only if contributions fell below the threshold again.

The accumulation of funding would thus be by design.

PAYG is less costly than a funded system during the initial period, as it does not seek to first accumulate a pile of cash. However, a funded system can be more easily anti-cyclical, both for individual countries and the system as a whole.

3.4.3 Implications for other programmes

Unemployment insurance at the national level funds not only passive labour market policy measures (i.e. unemployment benefits), but also active labour market policy measures. Therefore, a logical question is whether and how the European system should incorporate this.

For a variety of reasons, we do not recommend that the EUI incorporate active labour market policy financing. Given the role of other European financial instruments and of other European policy instruments, this would only add to complications. Therefore, our proposals are based on expectations that other programmes would continue.

Nevertheless, the creation of an EUI raises the opportunity to revisit existing instruments at the European level in the social domain and offers the possibility to discuss them again in order to create a coherent system of European social policies. It was argued in chapter 1, neither the European Social Fund nor the Globalisation Adjustment Fund can overlap with the EUI. If combined, however, they could from the backbone of European labour market policies in a way that is consistent with flexicurity principles. The EUI would ensure income protection, whereas the ESF would focus on protecting employment (or re-employment) by contributing to the funding of active labour market policies. The GAF would then continue to be used to facilitate structural adjustments that hit special categories of workers more harshly, such as blue-collar workers and the low skilled.

3.4.4 Pros and cons of participation and funding

In Table 8 we summarise the pros and cons of smaller/larger participation in the fund and how countries/workers should contribute to it.

Starting with participation, we believe that greater participation, ideally the EU28, would make the fund more stable in economic terms. We therefore model this case in our simulation. Yet we remain fully aware of the political challenges associated with this option and for this reason we consider a smaller set of countries as a second-best option. The natural choice falls on euro area members, which have a stronger economic case for the creation of automatic stabilisers.

What needs to be clear is that, whichever group is preferred, participation in the fund needs to be compulsory for its members in order to avoid an adverse selection trap.

As far as funding is concerned, we consider two options: a payroll tax for the 'harmonised scheme', and funding from governments not linked to a specific tax for 'reinsurance'. We do not consider one to be better than the other. The payroll tax clearly links the costs and benefits of the system, at the individual and the national level. The downside is that it risks increasing the tax wedge on labour costs; already very high in most European countries.

For 'reinsurance' we consider national funding without specifying its source, which would not increase the tax wedge but at the same time would create a disconnection between costs and benefits, contributors and beneficiaries.

Table 8. Participation and funding, a comparison of different options

Additional issues	Pros	Cons
EU28 participation	Higher stabilisation capacity	Politically more challenging to approve
Eurozone participation	Easier political link to monetary union	Less stabilisation capacity
Funding by labour taxation	Direct link between revenue and benefits both individually and nationally	Can increase labour tax wedge in countries with already high labour taxation
Funding by national fiscal contribution	Does not contribute to increasing labour tax wedge	Does not provide the direct link between revenue and benefits
Conclusions: The simulation will be based on the EU28 to demonstrate stabilisation effects for all EU economies, particularly given the ever-expanding euro area membership. The simulation will also provide two alternative approaches consistent with the logic of the two basic options. The harmonised unemployment benefit option will rely on direct labour taxation. The reinsurance option will be based on general subsidy to and from national governments.		

Source: Authors' elaboration.

4. European unemployment insurance: Simulation results

In this chapter, we analyse in detail the two main existing proposals for the set-up of a European system of unemployment benefits. We will show the scale of expenditure and the necessary revenues these two options would entail. Before moving to this and independently of the exact design, it is worth summarising the ideal characteristics of such a system. There are obviously many trade-offs, but given that insurance schemes have been in place in Europe for more than a century, enough has been learned from experience to design an appropriate mechanism. In our opinion, the EUI should ideally:

- be organised in such a way that each country has its funds balanced over the cycle;
- involve all EU member states; and
- be based on mandatory participation.

We present the results of our Excel-based simulations of how the European unemployment insurance system would work. We quantify four scenarios, as shown in the following table. These scenarios present two radically different versions of the EUI and then we tweak them. Option 1 is the harmonised European unemployment benefit, which would cover all eligible EU citizens and at least partially replace the current national unemployment insurance. Option 2 is the unemployment reinsurance for states where national unemployment insurance systems would remain intact and member states would get financial assistance from the EU system only if they experience a large negative unemployment shock. For both options, we quantify a simple 'a' version and a 'b' version with long-term country-level budgetary neutrality. The second option was added to allow the avoidance of a transfer union if that is an important policy objective in setting up the system.

Table 9. Matrix of scenarios explored in the chapter

	No long-term country-level budgetary neutrality	Long-term country-level budgetary neutrality
Harmonised European unemployment benefit	Option 1a	Option 1b
Unemployment reinsurance	Option 2a	Option 2b

Source: Authors' elaboration.

We focused on two principles in setting up the options: simplicity and comparability. We tried to keep the option design as simple as possible to allow readers to understand how the simulation works. We also set up both options and both approaches to country-level budgetary neutrality in a similar way, calibrating them similarly. This enables us to compare them easily and to see similarities as well as differences.

The simulation is based on historical data from 1999 to 2012, which gives us 14 years of the simulation. For some countries, there are some missing values, but this does not materially influence results. Thus, the simulation shows how the EUI would have worked if these mechanisms had existed at the time. Since it is an intellectual exercise, it includes countries that joined in the 2004 and 2007 waves (and Croatia in 2013) as if they had been EU members at the time. The point is to show potential effects of the EUI based on historical data as a counterfactual, not to simulate history. The decision to start in 1999 was based on a combination of data availability (particularly for the new member states) and the symbolism of the euro area establishment in 1999.

Calibration of the EUI expenditure (generosity) was based on findings in chapters 2 and 3. Calibration of the EUI revenue was set up to achieve rough financial balance over the long run.

For each option, we show:

- the size of the contribution to the system;
- the size of the contribution paid by the system to the country;
- the annual balance at country level, i.e. the net stimulus provided by the EUI; and
- the cumulative balance, i.e. long-term balance of each country vis-a-vis the EUI.

In addition, we also illustrate revenues, expenditures, annual and cumulative balance for the system as a whole.

From a methodological point of view, it should be emphasised that Excel-based simulation has advantages and limits. The key advantage is that we can simulate a variety of options at both the EU and country level quickly and with limited resources. It is suitable for the calculation of revenues and expenditures and gives a flavour of how important the system would be compared to the existing national stabilisers.

On the other hand, it is not a general or partial equilibrium model that would show dynamic effects of such a system on the member states, or for the EU economy as a whole. Nonetheless, what emerges from the simulation is that the size of the stimulus would in any case be not large enough to have material substantial second-order effects.

As a source of data, we used AMECO, the annual macro-economic database of the European Commission's Directorate General for Economic and Financial Affairs.

For some countries, we had to simulate short-term unemployment data for some years. This was done by calculating the share of short-term unemployment in overall unemployment for the available years and then extrapolating for the missing years from overall unemployment.

Before presenting the fiscal effects of the simulation, let us now present a comparison of the generosity of the simulated European unemployment insurance system with current national systems. We present this here because we use the same level of generosity for both options, but under Option 2 the national governments would *not* be required to spend the money in this way.

Table 10. Comparison of proposed EUI with actual national unemployment insurance systems, as of 2010

	Gross replacement rate*	Gross replacement rate**	Coverage (% of Labour Force)	Duration (in weeks)
Austria	0.40	0.32	0.68	30
Belgium	0.50	0.37	0.66	unlimited
Bulgaria	0.60	0.52	0.66	40
Cyprus	0.63	0.55	0.79	26
Czech Republic	0.56	0.43	0.91	26
Denmark	0.52	0.47	0.72	105
Estonia	0.50	0.37	0.74	50
Finland	0.54	0.44	1.00	100
France	0.57	0.42	0.61	104
Germany	0.42	0.34	0.67	50
Greece	0.58	0.45	1.00	50
Hungary	0.34	0.27	0.87	40
Ireland	0.47	0.44	1.00	50
Italy	0.50	0.37	0.53	34
Latvia	0.55	0.46	0.75	40
Lithuania	0.34	0.26	0.67	21
Luxembourg	0.83	0.71	0.95	50
Malta	0.20	0.18	0.88	26
Netherlands	0.75	0.59	0.83	44
Poland	0.24	0.20	0.54	26
Portugal	0.65	0.50	0.76	78
Romania	0.27	0.22	0.43	26
Slovakia	0.46	0.35	0.57	26
Slovenia	0.70	0.60	0.80	26
Spain	0.63	0.49	0.58	102
Sweden	0.57	0.43	0.96	62
United Kingdom	0.13	0.11	0.86	26
EUI	**NA**	**0.40**	**0.75**	**52**

*Ratio with denominator gross wages (Source: SPIN).

** converted to ratio with total compensation as denominator (Source: AMECO).

Sources: European Commission and SPIN database.

The table shows that the proposed coverage ratio in the EUI system is above that of most non-euro area member states, with the exception of Sweden, the Czech Republic, Hungary

and the UK (and is equal to the Latvian ratio). Within the euro area, the group is split evenly with eight below and nine above the EUI's 75% coverage ratio.

The maximum duration of entitlements has been chosen to be rather high. It is based on the logic that if the EUI is supposed to cover unemployment benefits for the cyclically unemployed, then the benefit should cover all short-term unemployed.

The most controversial item, the replacement ratio, is set at 40% relative to total compensation. This is closer to the higher end than the lower end of the distribution, which within the EU is very heterogeneous.

4.1   Option 1: Harmonised European unemployment benefit

Option 1 in the simulation is the harmonised European unemployment benefit (see chapter 1 for a summary of existing proposals). The harmonised system applies automatically to every eligible unemployed person.

We quantify the following scenario for the joint European benefits system:

- It would apply to short-term unemployed workers. Our reference unemployed population does not therefore include all unemployed workers, but only those who have been unemployed for less than one year. We set the maximum duration of benefit to 12 months. However, our calculation is based on an average recipient duration of 6 months, so we expect a symmetric pattern of people leaving the register. In the absence of data on the duration profiles of the unemployed across European countries, this appeared to be the best option.

- The coverage ratio is set at 75%, meaning that among those unemployed for less than a year, three-quarters are eligible to receive benefits.

- The benefit is equivalent to 40% of the average monthly national nominal compensation. It should be noted that 40% of nominal compensation is not as low as it sounds, since it is calculated not from a gross wage but from nominal compensation, which also includes employer social security contributions.

The member states would be free to set eligibility rules and replacement rates. If the cost were to be less than the formula below, the member state would receive the actual amount. If the cost were to be higher than the formula, the member state would receive an amount equivalent to the 75%*40% formula. This would avoid difficult-to-achieve formal harmonisation, while ensuring that there would be *de facto* harmonisation since member states would be incentivised to set up the system in such a way as to be close to the 75%*40% formula. In other words, more generous systems would be allowed, but on top of the harmonised one.

$$Gross\ Expenditure = 0.75\ U_{12months}\ \text{x}\ 0.4\ MNCE\ \text{x}\ 6\ months$$

where U stands for unemployment and *MNCE* indicates the monthly nominal compensation per employee.

How would the system be financed? We choose as the source of funding a dedicated labour taxation equivalent to 0.5% of nominal compensation. The rate was set up to roughly balance the system as shown in this chapter.

$$Gross\ Revenue = (LF - U)\ \text{x}\ 0.5\%\ MNCE\ \text{x}\ 12\ months$$

As previously anticipated, we present two versions of the system. In Option 1a, the system does not require a country-level neutral budgetary position. In other words, countries can be

permanently in deficit or in surplus vis-à-vis the system, without any corrective mechanisms. This represents a truly European system, which essentially ignores boundaries in the fiscal sense and is able to redistribute resources in the case of shocks.

We modify the system in the simulation 1b, where each country needs to restore a neutral budgetary position. How? Fiscal neutrality would be achieved by doubling the contribution rate from 0.5% to 1% of the base for countries that have a cumulative deficit with the system of at least 1% of GDP. The double contribution rate would stop once the cumulative deficit falls below 1% of GDP.[17]

The choice of the medium-to-long run is because a quicker adjustment would hinder the stabilisation capacity by imposing a fiscal effort on countries that are already facing difficulties due to high unemployment rates.

4.1.1   The harmonised unemployment system with no fiscal rule (Option 1a)

As previously anticipated, for each of the four scenarios we show:

- system revenues by country (who pays how much in);
- system expenditure by country (who gets how much out);
- annual balance at the country-level, i.e. the net stimulus provided by the EUI;
- cumulative balance, i.e. the long-term balance of each country with the EUI; and
- revenues, expenditures, and annual and cumulative balance for the system as a whole.

We start with revenues by country as a percentage of GDP for the period 1999-2012 that result from a contribution of 0.5% of nominal compensation of employees for each worker. Given that they tend to be stable over time, we do not show the annual values, only the minimum value achieved over the entire period, the maximum value and the mean.

The mean value oscillates between 0.24 and 0.36, with Luxembourg being the only exception. The total range for all countries and all years oscillates between 0.22% and 0.39% of GDP, again with Luxembourg as the only exception.

Given that the contribution mechanism is set up as the same percentage of nominal compensation, differences primarily reflect different shares of labour compensation in GDP. In that sense, it is mildly cyclical as it tends to decline in periods of high unemployment, but only to a limited extent.

The countries with the highest contribution over the whole period are the Netherlands (0.36%), Austria (0.33%), Belgium, France Romania, Slovenia and the UK (all 0.31%). At the other extreme are Luxembourg (0.16%), Hungary and Lithuania (0.24%), and Bulgaria, the Czech Republic, Ireland, Latvia and Poland (all 0.25%). Figures are presented in Table 11.

Table 11. EUI annual revenues by country as % of GDP (minimum, maximum and mean values)

	Min	**Max**	**Mean (1999-2012)**
Belgium	0.3	0.32	0.31
Bulgaria	0.23	0.27	0.25
Czech Republic	0.23	0.26	0.25
Denmark	0.28	0.31	0.29
Germany	0.28	0.3	0.29
Estonia	0.24	0.29	0.26

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[17] Alternatively, the stop could be set to balance – 0% of GDP. This would not have much of an effect on the current simulation.

Ireland	0.23	0.28	0.25
Greece	0.25	0.29	0.27
Spain	0.29	0.31	0.3
France	0.31	0.32	0.31
Croatia	0.28	0.31	0.29
Italy	0.27	0.31	0.29
Cyprus	0.27	0.3	0.28
Latvia	0.23	0.28	0.25
Lithuania	0.22	0.27	0.24
Luxembourg	0.14	0.18	0.16
Hungary	0.23	0.25	0.24
Malta	0.25	0.26	0.26
Netherlands	0.35	0.38	0.36
Austria	0.32	0.34	0.33
Poland	0.23	0.29	0.25
Portugal	0.28	0.3	0.29
Romania	0.27	0.39	0.31
Slovenia	0.3	0.33	0.31
Slovakia	0.22	0.25	0.23
Finland	0.27	0.3	0.28
Sweden	0.28	0.3	0.29
United Kingdom	0.3	0.32	0.31

Source: Authors' elaboration based on AMECO data.

Expenditure figures, as a percentage of GDP, are presented in Table 12. A quick glance at the data shows that expenditure oscillates much more than revenue and thus provides the main anti-cyclical element. It exceeds 0.5% of GDP in the worst year for Estonia (0.76%), Ireland (0.57%), Greece (0.73%), Spain (1.3%), Cyprus (0.58%), Latvia (0.89%), Lithuania (0.72%), Poland (0.66%) and Portugal (0.59%). However, only for Spain does this translate into a mean expenditure over the period that is greater than 0.5% of GDP (0.71%). For the rest, increased expenditure is a temporary phenomenon, reflecting primarily, though not exclusively, the period of the Great Recession.

Table 12. EUI annual expenditure by country as % of GDP (minimum, maximum and mean values)

	Min	**Max**	**Mean**
Belgium	0.18	0.3	0.25
Bulgaria	0.13	0.43	0.28
Czech Republic	0.13	0.28	0.21
Denmark	0.15	0.36	0.25
Germany	0.2	0.36	0.29
Estonia	0.13	0.76	0.36
Ireland	0.13	0.57	0.25
Greece	0.24	0.73	0.35
Spain	0.43	1.3	0.71

France	0.3	0.42	0.36
Croatia	0.16	0.44	0.33
Italy	0.18	0.35	0.24
Cyprus	0.16	0.58	0.27
Latvia	0.25	0.89	0.42
Lithuania	0.18	0.72	0.42
Luxembourg	0.07	0.15	0.11
Hungary	0.18	0.37	0.25
Malta	0.14	0.19	0.16
Netherlands	0.11	0.25	0.17
Austria	0.2	0.29	0.24
Poland	0.25	0.66	0.45
Portugal	0.16	0.59	0.29
Romania	0.14	0.3	0.22
Slovenia	0.16	0.38	0.26
Slovakia	0.15	0.46	0.3
Finland	0.28	0.46	0.37
Sweden	0.23	0.4	0.3
United Kingdom	0.19	0.34	0.24

Source: Authors' elaboration based on AMECO data.

Table 13 presents average annual and cumulative balance of each country vis-à-vis the system. The first column shows the average annual balance for the whole period (1999-2012). The second column shows the average annual balance for the period prior to the Great Recession (1999-2008). The third column shows the average annual balance for the Great Recession period and its aftermath (2009-2012).

We see that during good times, only Spain and Poland had larger annual negative balance – 0.22% and 0.21% of GDP. By the same token, only the Netherlands had a significant average annual surplus (0.21%). After 2009, Estonia, Greece, Spain, Latvia and Lithuania exceed average annual negative balance of more than 0.2% of GDP. During this period, no country has an average surplus of more than 0.2% of GDP.

However, even smaller surpluses or deficits can accumulate into larger totals over a period of more than a decade. If we set 1% of GDP as the threshold for triggering the increase in the contribution, then Greece, Spain, Latvia, Lithuania, Poland and Finland accumulate deficits of such magnitude that in option 1b they trigger an increase in the contribution.

Malta, the Netherlands and Austria instead cumulatively contribute more than 1% of 2012 GDP compared to what they pay in.

Table 13. EUI average annual balance and cumulative balance by country, % of GDP

	Average annual balance 1999-2012	Average annual balance 1999-2008	Average annual balance 2009-2012	Cumulative balance (% of 2012 GDP)
Belgium	0.06	0.08	0.03	0.70
Bulgaria	-0.03	-0.03	-0.03	-0.13
Czech Republic	0.03	0.05	-0.01	0.35
Denmark	0.04	0.08	-0.04	0.48
Germany	0.00	-0.02	0.05	0.07
Estonia	-0.10	-0.05	-0.25	-0.88
Ireland	0.00	0.07	-0.18	-0.03
Greece	-0.08	0.00	-0.28	-1.16
Spain	-0.41	-0.22	-0.88	-5.36
France	-0.05	-0.03	-0.08	-0.55
Croatia	-0.04	-0.04	-0.03	-0.30
Italy	0.05	0.06	0.01	0.59
Cyprus	0.02	0.07	-0.13	0.03
Latvia	-0.17	-0.10	-0.36	-1.70
Lithuania	-0.18	-0.11	-0.33	-1.57
Luxembourg	0.05	0.06	0.03	0.45
Hungary	-0.01	0.04	-0.13	-0.27
Malta	0.10	0.10	0.09	1.05
Netherlands	0.20	0.21	0.15	2.34
Austria	0.10	0.10	0.10	1.12
Poland	-0.20	-0.23	-0.11	-1.65
Portugal	0.00	0.07	-0.17	-0.15
Romania	0.09	0.12	0.02	0.73
Slovenia	0.06	0.09	-0.03	0.63
Slovakia	-0.07	-0.07	-0.06	-0.37
Finland	-0.09	-0.10	-0.08	-1.00
Sweden	-0.01	0.01	-0.07	-0.18
United Kingdom	0.07	0.09	0.01	0.87

Source: Authors' elaboration based on AMECO data.

We aggregate figures to present the overall balance at the EU level. Figure 8 shows revenues and expenditures for the whole system as a percentage of GDP. We can see that while the revenues are essentially flat at around 0.3% of GDP, expenditures oscillate much more – between 0.25% just prior to the Great Recession and 0.4% during most of it. Expenditure is therefore sensitive to the business cycle, in an anti-cyclical fashion (as it is supposed to be) whereas revenues are rather constant.

*Figure 8. Revenue and expenditure at the EU level as % of GDP*
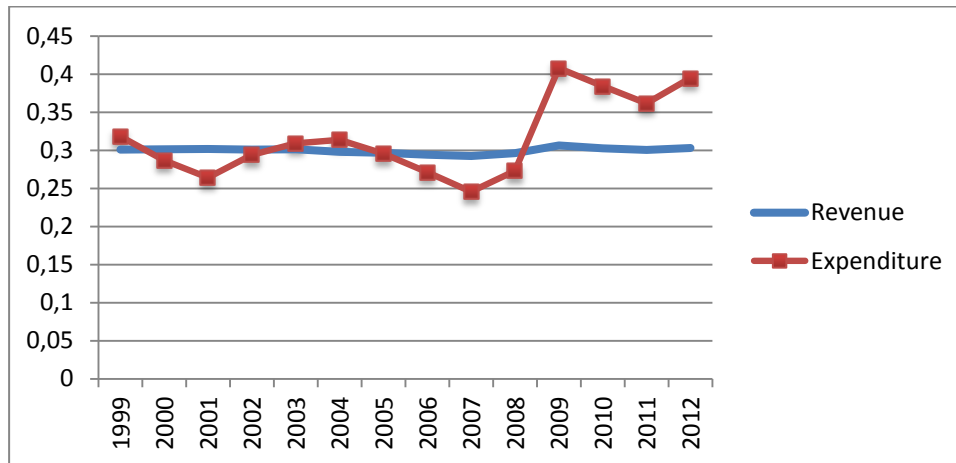
Source: Authors' elaboration based on AMECO data.

Figure 9 shows annual and cumulative balances at the EU level. The annual balance line is unsurprising as it is essentially the difference between revenue and expenditure in the first chart. It is mildly positive for most of the years before the Great Recession and then it stays in negative territory, showing annual deficits of between 0.05% and 0.1% of GDP.

A more interesting piece of information is the cumulative balance of the whole system expressed as a percentage of a given year's GDP. Had the system been in place since 1999, the EUI would not have required additional financial injection after its start. Indeed, it would have accumulated reserves all the way up to 2008. However, the reserves would then all have been spent in 2009 and the cumulative deficit would continue to increase during the 2010-2012 period. This raises the issue of additional EUI financing needs under such circumstances. Given the system performance prior to 2009, there could be a reasonable expectation that the money would be recovered over the long run, but the interim period could be an extended one.

Figure 9. Annual and cumulative balance at the EU level as % of GDP
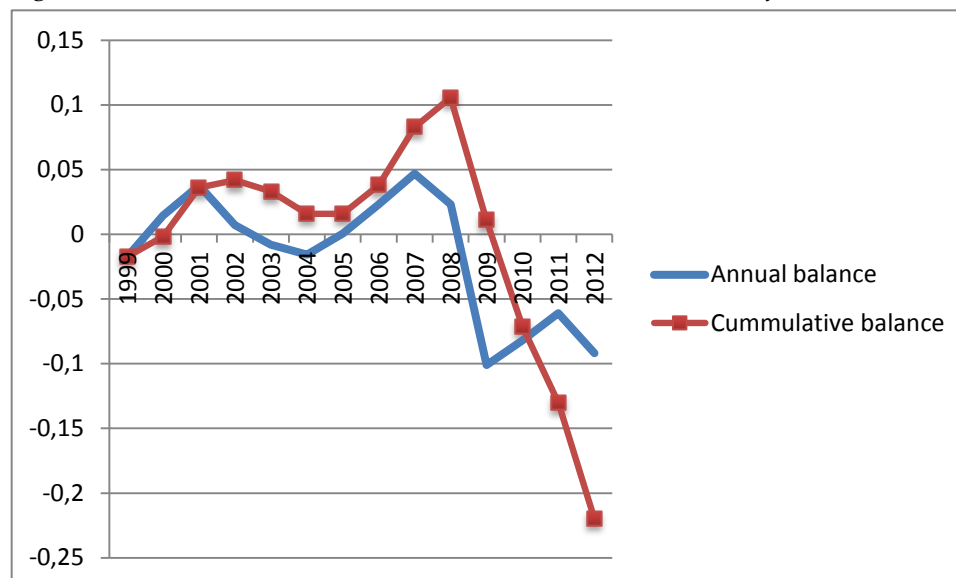
Source: Authors' elaboration based on AMECO data.

4.1.2 *The harmonised unemployment system with long-term country-level neutral budgetary position (Option 1b)*

We now move from Option 1a to Option 1b. The two differ in a single but crucial element: we now have a system that aims to be balanced in the medium-to-long run for each member state. This means that a state can run a yearly deficit vis-à-vis the system in case of recessions, but needs to repay the loan in the medium-to-long run. As a consequence, redistribution between countries is allowed, but only temporarily.

The rebalancing is achieved by doubling the contribution rate from 0.5% to 1% of the base for countries that have a cumulative deficit with the system of at least 1% of GDP. The double contribution rate would stop once the cumulative deficit falls again to below 1% of GDP.[18]

For this option, we do not provide expenditure data on a country basis since the expenditure is identical to Option 1a, the difference lies on the revenue side.

Table 14 shows revenues by country as a percentage of GDP for the period 1999-2012. As with the previous option, we show the minimum value achieved annually, the maximum value and the mean. The bottom values remain the same as in Option 1a – if we take out Luxembourg, then 0.22% of GDP is the lowest any country (Slovakia) pays in any year, and 0.23% of GDP is the lowest average contribution by a country (also Slovakia).

To repeat from Option 1a, given that the contribution mechanism is set up as the same percentage of nominal compensation, the differences primarily reflect different shares of labour compensation in GDP. In that sense, it is mildly anti-cyclical as it tends to decline in periods of high unemployment, but only to a limited extent.

Table 14. EUI annual revenues by country as % of GDP (minimum, maximum and mean values)

	Min.	Max.	Mean (1999-2012)
Belgium	0.3	0.32	0.31
Bulgaria	0.23	0.27	0.25
Czech Republic	0.23	0.26	0.25
Denmark	0.28	0.31	0.29
Germany	0.28	0.3	0.29
Estonia	0.24	0.29	0.26
Ireland	0.23	0.28	0.25
Greece	0.25	0.29	0.27
Spain	0.29	0.62	0.43
France	0.31	0.32	0.31
Croatia	0.28	0.31	0.29
Italy	0.27	0.31	0.29
Cyprus	0.27	0.3	0.28
Latvia	0.23	0.49	0.3
Lithuania	0.23	0.44	0.28
Luxembourg	0.14	0.18	0.16
Hungary	0.23	0.25	0.24

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[18] Alternatively, the stop could be set to balance – 0% of GDP. This would not have much of an effect on the current simulation.

Malta	0.25	0.26	0.26
Netherlands	0.35	0.38	0.36
Austria	0.32	0.34	0.33
Poland	0.23	0.53	0.32
Portugal	0.28	0.3	0.29
Romania	0.27	0.39	0.31
Slovenia	0.3	0.33	0.31
Slovakia	0.22	0.25	0.23
Finland	0.27	0.3	0.28
Sweden	0.28	0.3	0.29
United Kingdom	0.3	0.32	0.31

Source: Authors' elaboration based on AMECO data.

Where it becomes different and interesting, of course, is with regard to maximum values. Given their accumulated deficit of more than 1% of GDP at some point, Spain, Latvia, Lithuania and Poland have to contribute more for a period of time. For Spain, this applies to 2005 and the period from 2008 onwards. Latvia has to double its contributions in 2010 and since, as did Lithuania in 2011 and 2012. For Poland, the relevant period is 2003-2006. In 2013, they would be joined by Greece, which hit a cumulative deficit of 1.16% of GDP in that year. This also shows the disadvantage of the balancing system. The 1% benchmark provides breathing space when a country pays regular contributions but receives much higher benefits, but if there is a sustained spell of high unemployment, the doubled contributions can erase the anti-cyclical impact in those later years.

The annual and cumulative balance numbers do not change for most countries, meaning that they do not cross the 1% line. Both their revenues and expenditures stay the same compared to Option 1a. However, for the four countries mentioned above, the need to contribute more improves their balance vis-à-vis the system.

Table 15. EUI average annual balance and cumulative balance by country, % of GDP

|	Average annual balance 1999-2012	Average annual balance 1999-2008	Average annual balance 2009-2012	Cumulative balance (% of 2012 GDP)	Option 1a cumulative balance (% of 2012 GDP)
Spain	-0.28	-0.16	-0.58	-3.54	-5.36
Latvia	-0.12	-0.10	-0.19	-1.06	-1.70
Lithuania	-0.14	-0.11	-0.22	-1.14	-1.57
Poland	-0.13	-0.13	-0.11	-1.06	-1.65

Source: Authors' elaboration based on AMECO data.

The increased revenue ensures that, during good times, no country has an average annual deficit of 0.2% of GDP or higher (this was the case for Poland and Spain in option 1a). It also ensures that the cumulative balance is cut from 5.36% of GDP to 3.54% of GDP for Spain, and from the 1.5-1.7% range to the 1-1.2% for the three others. Of course, the decrease would continue further in 2013 and onwards.

The increased revenue for certain countries also increases system-wide revenues in certain years, as we can see in Figure 10. Compared to option 1a, the expenditure profile stays the

same, but we see a slight increase in revenue in the early to mid-2000 due to higher Spanish and Polish contributions, and then much higher contributions from 2009 onwards.

Figure 10. Revenue and expenditure at the EU level, % of GDP
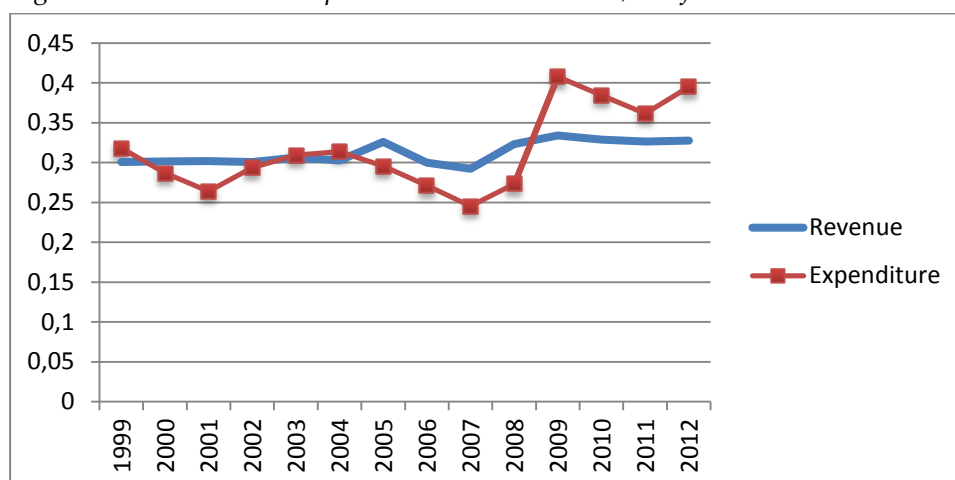
Source: Authors' elaboration based on AMECO data.

This leads to higher annual surpluses in good times and smaller annual deficits during the Great Recession, as Figure 11 shows. It also makes the system much more solvent; despite the Great Recession, it is only in 2012 that it would require additional injection.

Figure 11. Annual and cumulative balance at the EU level, % of GDP
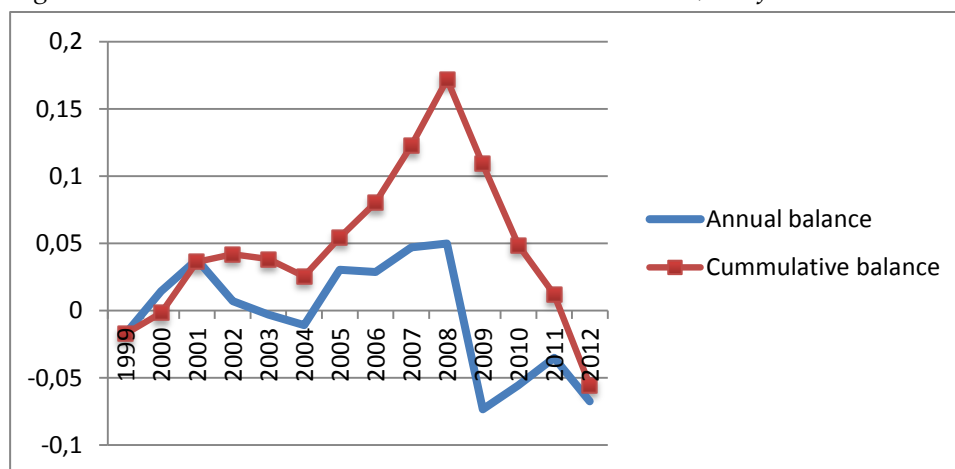
Source: Authors' elaboration based on AMECO data.

4.2 The reinsurance system

We call option 2 the reinsurance scheme. The insured identity is not the single worker at risk of unemployment, as in option 1, but states or, more precisely, national insurance funds. The basic idea is to transfer funds from the centre to the periphery to finance unemployment benefits when unemployment is measurably higher than normal.

In our simulation, the assistance is triggered when the unemployment rate is higher than NAWRU by two percentage points in a certain country. This choice of trigger is arbitrary and

smaller values could be chosen.[19] However, the value is consistent with the idea of reinsurance intervening only in exceptional or catastrophic circumstances, in other words, a major increase in the unemployment rates.

The payout is a subsidy to the national budget equivalent to the sum of all unemployment benefits for a six-month benefit period calculated on the same basis as option 1 (40% of nominal compensation, 75% of unemployed for less than one year covered). The payout would not be conditional; gross transfers from the EUI could be used as national governments see fit (though of course if conditionality were imposed, this would have no impact on the fiscal calculations that follow).

The insurance would be funded by member states' contributions. These would amount to 0.1% of GDP annually until 0.5% of EU GDP is accumulated. Then contributions would stop and would be restarted if the fund fell to under 0.5% of EU output.

On the expenditure side, we model the following rule: if the difference between the annual unemployment rate and NAWRU in each country is higher than 2%, then the country in question receives a payout equal to 75% of the number of unemployed workers (below 12 months) multiplied by 40% of their average nominal compensation.

$$if\ U_{t,i} - NAWRU > 2 => Country\ pay-out_{i,t} = 0.4\ MNCE\ \text{x}\ .75\ U$$

As with option 1, we present results for the two versions of this second option. In the first (option 2a), no fiscal rule is applied. In other words, countries can be permanently in deficit or surplus vis-à-vis the system without any corrective mechanisms. This represents a truly European system, which essentially ignores boundaries in the fiscal sense, and also a real insurance based on the idea that such a shock is randomly distributed.

In the second version (option 2b), countries are required to maintain a neutral budgetary position. The system would aim to be balanced in the medium-to-long run for each member state. This would be achieved by setting an additional contribution of 0.2% of GDP payable annually by countries that have a cumulative deficit with the system of at least 1% of GDP. The additional contribution is due every year, regardless of whether the regular contribution is being paid and stops once the cumulative deficit falls below 1% of GDP.[20]

4.2.1   *The reinsurance scheme with no fiscal rule (option 2a)*

As with Options 1a and 1b, we show detailed results of our simulation. This includes:

- system revenues by country (who pays how much in);
- system expenditure by country (who gets how much out);
- annual balance at the country-level, i.e. the net stimulus provided by the EUI;
- cumulative balance, i.e. long-term balance of each country with the EUI; and
- revenues, expenditures, and annual and cumulative balance for the system as a whole.

Revenues are easily counted in this case since every country pays the same – zero or 0.1% of GDP, depending on the aggregate balance of the fund. Between 1999 and 2004, all countries pay to gradually build up the fund. Then between 2005 and 2009, we see the stop-start mechanism of contributions and at the same time, only minor or no payouts. The situation changes in 2010: contributions restart on a sustained basis to replenish the fund.

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[19] Values greater than NAWRU + 2 percentage points would instead make no sense as they would apply to an extremely limited number of cases.

[20] Alternatively, the stop could be set to balance – 0% of GDP. This would not have much effect on the current simulation.

Figure 12. EUI annual revenues for each country, % of GDP
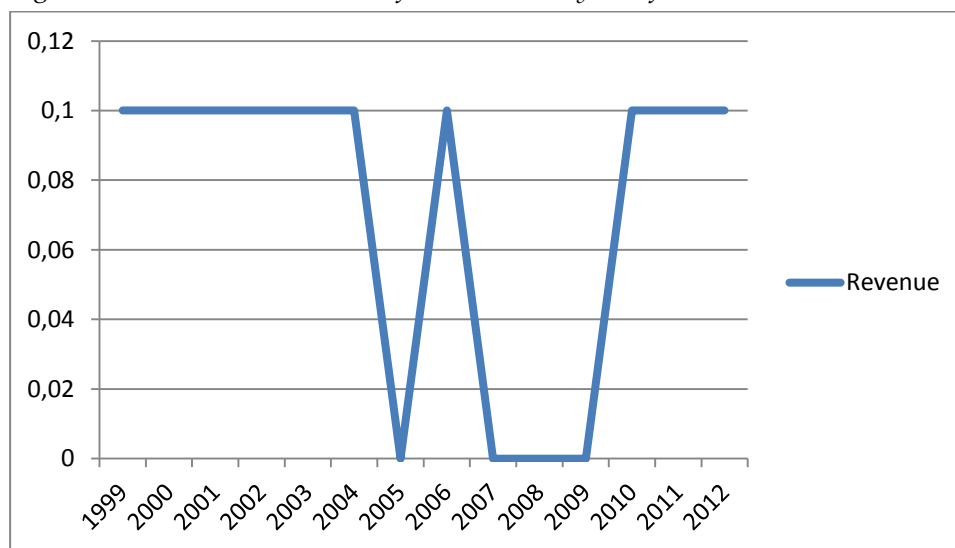
Source: Authors' elaboration based on AMECO data.

The clear difference between the two scenarios is that the contribution demanded for reinsurance is much smaller than under the harmonised system. We see that the mechanism is indeed much smaller – on average 0.07% of GDP annually, and that included building up the fund. In the years since the 0.5% of GDP level was reached (in 2006), it would have been only 0.05% of GDP on average.

The payouts are much more varied and many member states would not have received any during the period, since their unemployment rates stayed below the trigger. However, countries that do receive a payout receive support that is comparable in size to the harmonised scheme. As a consequence:

- the stabilising effect of reinsurance is bigger because a similar premium is received for a smaller annual contribution; and
- the same goal is achieved at a smaller cost with the reinsurance scheme.

Table 16 provides detailed information on the annual expenditure, divided into the pre- and post-crisis periods.

Table 16. Overall EUI annual expenditure since 2009 by country and maximum value as % of GDP

	Total payout 1999-2012	**Total payout 2009-2012**	**Highest annual payout**
Belgium	0.00	0.00	0.00
Bulgaria	0.80	0.00	0.43
Czech Republic	0.00	0.00	0.00
Denmark	0.36	0.36	0.36
Germany	0.00	0.00	0.00
Estonia	1.46	1.46	0.76
Ireland	1.76	1.76	0.57
Greece	1.94	1.37	0.73
Spain	4.75	4.75	1.30
France	0.00	0.00	0.00

Croatia	0.00	0.00	0.00
Italy	0.00	0.00	0.00
Cyprus	0.00	0.00	0.00
Latvia	2.43	2.43	0.89
Lithuania	3.66	2.26	0.72
Luxembourg	0.00	0.00	0.00
Hungary	0.00	0.00	0.00
Malta	0.00	0.00	0.00
Netherlands	0.00	0.00	0.00
Austria	0.00	0.00	0.00
Poland	2.27	0.00	0.66
Portugal	0.00	0.00	0.00
Romania	0.00	0.00	0.00
Slovenia	0.00	0.00	0.00
Slovakia	0.89	0.00	0.46
Finland	0.00	0.00	0.00
Sweden	0.00	0.00	0.00
United Kingdom	0.00	0.00	0.00

Source: Own elaboration based on AMECO data.

The countries receiving more than 1% of GDP overall are: Estonia (1.46%), Ireland (1.76%), Greece (1.94%), Spain (4.75%), Latvia (2.43%), Lithuania (3.66%) and Poland (2.27%). The vast majority of payouts for these countries occur after 2009, but there are exceptions (Lithuania in 2000-2002, Poland in 2002-2005, and Greece in 1999-2000).

If we look at total balance, we get a similar though more sophisticated picture. Only for Spain is the total annual average balance greater than 0.2% of GDP (0.27%), and only for Latvia and Lithuania is it also more than 0.1% (0.1% and 0.19%, respectively). This illustrates how the system is less likely than option 1 to produce significant long-term beneficiaries even without additional contributions (which will be added in option 2b). By design, it is impossible for any country to be a net payer of the order of magnitude of 0.2% of GDP or more for any sustained period of time.

However, during the Great Recession and its aftermath, Estonia, Ireland, Greece, Spain, Latvia and Lithuania all receive on average over 0.2% of GDP more than they pay in annually. Spain (4%), Latvia (1.52%) and Lithuania (1.95%) also accumulate a total negative cumulative balance of more than 1% of GDP by 2012. No country accumulates more than 1% of GDP of cumulative surplus, though Portugal and some other countries come close. The Portuguese case also demonstrates one disadvantage of this option: a country with consistently poor performance can be in a situation where its deviation from its 'normal' is never large enough to warrant assistance and it ends up as a net payer despite its significant suffering.

Table 17. Annual balance overview

	Average annual balance 1999-2012	Average annual balance 1999-2008	Average annual balance 2009-2012	Cumulative balance (% of 2012 GDP)
Belgium	0.07	0.07	0.08	0.80
Bulgaria	0.01	-0.01	0.08	0.28
Czech Republic	0.07	0.07	0.08	0.67
Denmark	0.05	0.07	-0.01	0.48
Germany	0.07	0.07	0.08	0.85
Estonia	-0.03	0.07	-0.29	-0.58
Ireland	-0.05	0.07	-0.36	-0.88
Greece	-0.07	0.01	-0.27	-0.91
Spain	-0.27	0.07	-1.11	-4.00
France	0.07	0.07	0.08	0.83
Croatia	0.07	0.07	0.08	0.76
Italy	0.07	0.07	0.08	0.88
Cyprus	0.07	0.07	0.08	0.75
Latvia	-0.10	0.07	-0.53	-1.52
Lithuania	-0.19	-0.07	-0.49	-1.95
Luxembourg	0.07	0.07	0.08	0.70
Hungary	0.07	0.07	0.08	0.79
Malta	0.07	0.07	0.08	0.76
Netherlands	0.07	0.07	0.08	0.84
Austria	0.07	0.07	0.08	0.80
Poland	-0.09	-0.16	0.08	-0.59
Portugal	0.07	0.07	0.08	0.90
Romania	0.07	0.07	0.08	0.58
Slovenia	0.07	0.07	0.08	0.80
Slovakia	0.01	-0.02	0.08	0.29
Finland	0.07	0.07	0.08	0.81
Sweden	0.07	0.07	0.08	0.75
United Kingdom	0.07	0.07	0.08	0.90

Source: Own elaboration based on AMECO data.

At the EU level, the system is much more volatile on both the revenue and the expenditure side than Option 1, as befits a reinsurance system. The following figure shows that revenues for the whole system are identical to the national-level revenues shown above. Expenditures are quite low during the 'good times', with small payouts of less than 0.02% of EU GDP between 1999 and 2008 and a few years of no payouts. After 2009, the system would be paying out between 0.11% and 0.12% of EU GDP annually.

Figure 13. Revenue and expenditure at the EU level, % of GDP
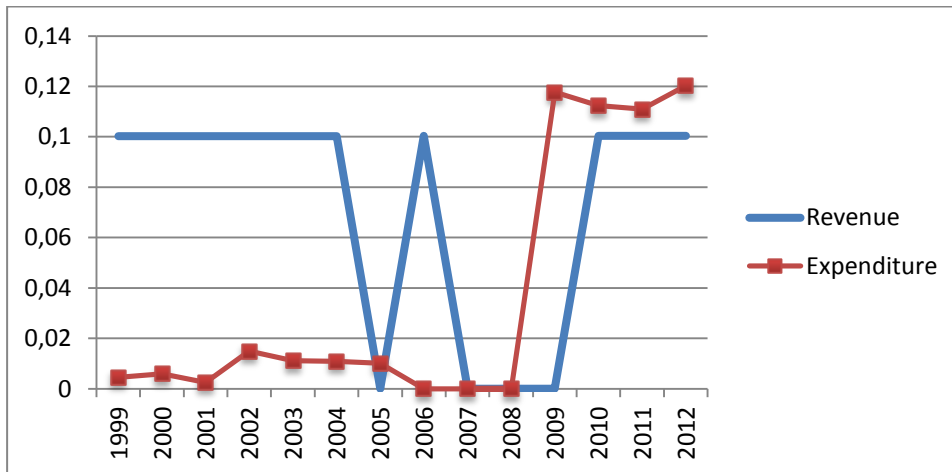
Source: Own elaboration based on AMECO data.

The annual balance of the system is determined by interaction between the start-and-stop revenue system and catastrophic event-based payouts. In early years, it is mostly in surplus of close to 0.1% of GDP as member states pay to build up the fund and do not get much in return. Since then, with the exception of 2009, the balance is zero or close to zero as significant payouts are balanced or nearly balanced by restart of the contributions. As a result, the cumulative fund balance shows the initial build-up to 0.5% of GDP, then stagnation, then a sharp cut in 2009 and since then a gradual mild erosion as payouts are somewhat larger than the restarted contributions.

Figure 14. Annual and cumulative balance at the EU level, % of GDP
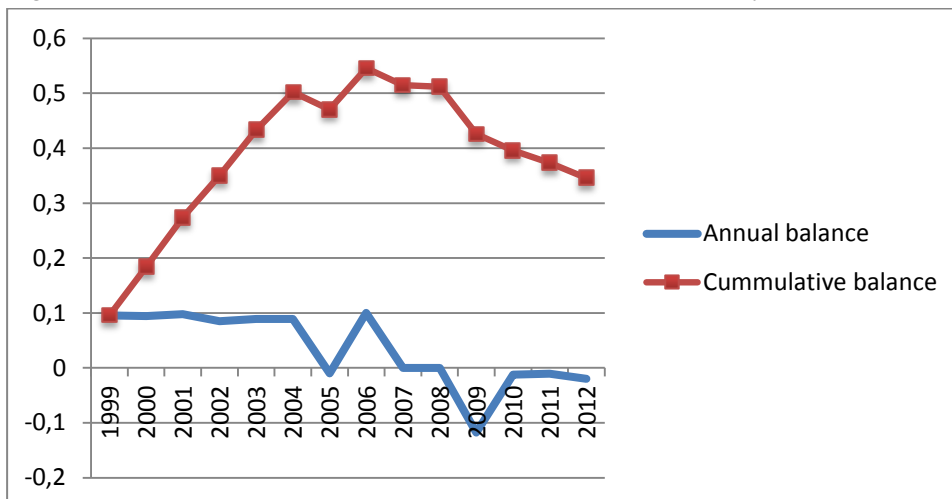
Source: Own elaboration based on AMECO data.

4.2.2 *The reinsurance scheme with long-term country-level neutral budgetary position (option 2b)*

Option 2b is identical to option 2a but with the added need for a country-level neutral budgetary position. The system would aim to be balanced in the medium-to-long run for each member state. This would be achieved by setting an additional contribution of 0.2% of GDP payable annually by countries that have a cumulative deficit with the system of at least 1% of GDP. The additional contribution is due every year, regardless of whether the regular

contribution is being paid and would stop once the cumulative deficit falls below 1% of GDP.

Table 18. EUI annual revenues by country, % of GDP (mean value)

Country	Average contribution
Belgium	0.07
Bulgaria	0.07
Czech Republic	0.07
Denmark	0.07
Germany	0.07
Estonia	0.07
Ireland	0.07
Greece	0.07
Spain	0.10
France	0.07
Croatia	0.07
Italy	0.07
Cyprus	0.07
Latvia	0.10
Lithuania	0.11
Luxembourg	0.07
Hungary	0.07
Malta	0.07
Netherlands	0.07
Austria	0.07
Poland	0.10
Portugal	0.07
Romania	0.07
Slovenia	0.07
Slovakia	0.07
Finland	0.07
Sweden	0.07
United Kingdom	0.07

Source: Own elaboration based on AMECO data.

This would mean that, unlike in option 2a, countries would not all have equal average contributions over a longer period. As shown in the table below, most would still pay 0.07% of GDP on average (due to the fact that the contribution of 0.1% would not be payable in every year), but Spain, Latvia, Lithuania and Poland would pay more, at 0.1%.

We do not provide expenditure data on a country basis since the expenditure is identical to option 2a. The difference is on the revenue side.

What changes is the balance, of course, for the four countries that would have to pay additional revenue. By 2012, Latvia and Lithuania would be close to rebalancing their relationship with the system and Poland would have already rebalanced it. On the other

hand, the ongoing unemployment crisis in Spain and its severity would mean that even higher contributions would not have changed its fiscal relationship with the system by much in 2012.

Table 19. EUI average annual balance and cumulative balance by country, % of GDP

	BALANCE 1999-2012	BALANCE 2009-2012	BALANCE 1999- 2008	Cumulative balance	Option 2A Cumulative balance (% of 2012 GDP)
Belgium	1.0	0.3	0.7	0.80	0.80
Bulgaria	0.2	0.3	-0.1	0.28	0.28
Czech Republic	1.0	0.3	0.7	0.67	0.67
Denmark	0.6	-0.1	0.7	0.48	0.48
Germany	1.0	0.3	0.7	0.85	0.85
Estonia	-0.5	-1.2	0.7	-0.58	-0.58
Ireland	-0.8	-1.5	0.7	-0.88	-0.88
Greece	-0.9	-1.1	0.1	-0.91	-0.91
Spain	-3.4	-4.1	0.7	-3.60	-4.00
France	1.0	0.3	0.7	0.83	0.83
Croatia	1.0	0.3	0.7	0.76	0.76
Italy	1.0	0.3	0.7	0.88	0.88
Cyprus	1.0	0.3	0.7	0.75	0.75
Latvia	-1.0	-1.7	0.7	-1.14	-1.52
Lithuania	-2.1	-1.4	-0.7	-1.39	-1.95
Luxembourg	1.0	0.3	0.7	0.70	0.70
Hungary	1.0	0.3	0.7	0.79	0.79
Malta	1.0	0.3	0.7	0.76	0.76
Netherlands	1.0	0.3	0.7	0.84	0.84
Austria	1.0	0.3	0.7	0.80	0.80
Poland	-0.9	0.3	-1.2	-0.32	-0.59
Portugal	1.0	0.3	0.7	0.90	0.90
Romania	1.0	0.3	0.7	0.58	0.58
Slovenia	1.0	0.3	0.7	0.80	0.80
Slovakia	0.1	0.3	-0.2	0.29	0.29
Finland	1.0	0.3	0.7	0.81	0.81
Sweden	1.0	0.3	0.7	0.75	0.75
United Kingdom	1.0	0.3	0.7	0.90	0.90

Source: Own elaboration based on AMECO data.

Looking at the revenues and expenditures at the system level, the results are similar to option 2a. The differences are on the revenue side and are relatively small. We can see that, after 2010, the overall revenue gradually rises from the standard 0.1% of GDP to 0.12% as some countries pay additional contributions.
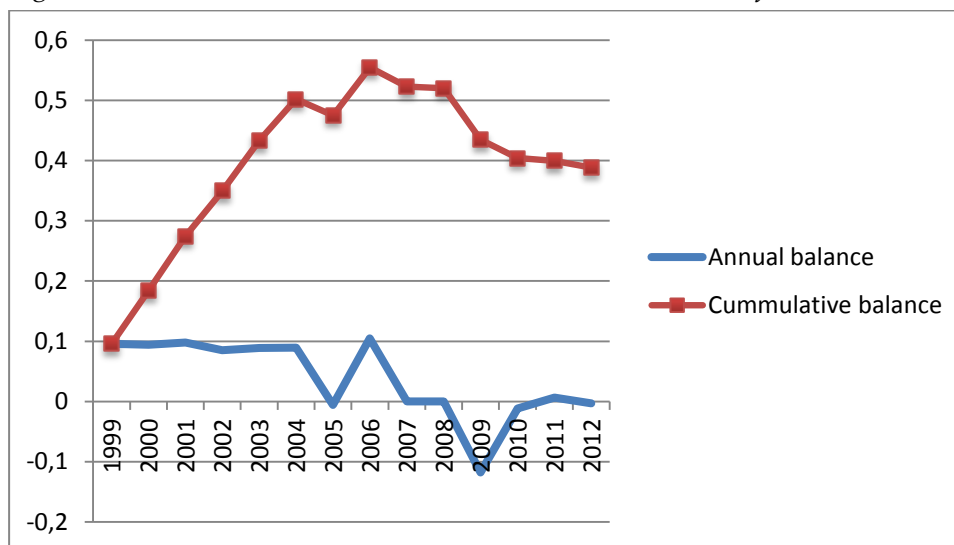
Figure 15. Revenue and expenditure at the EU level, % of GDP
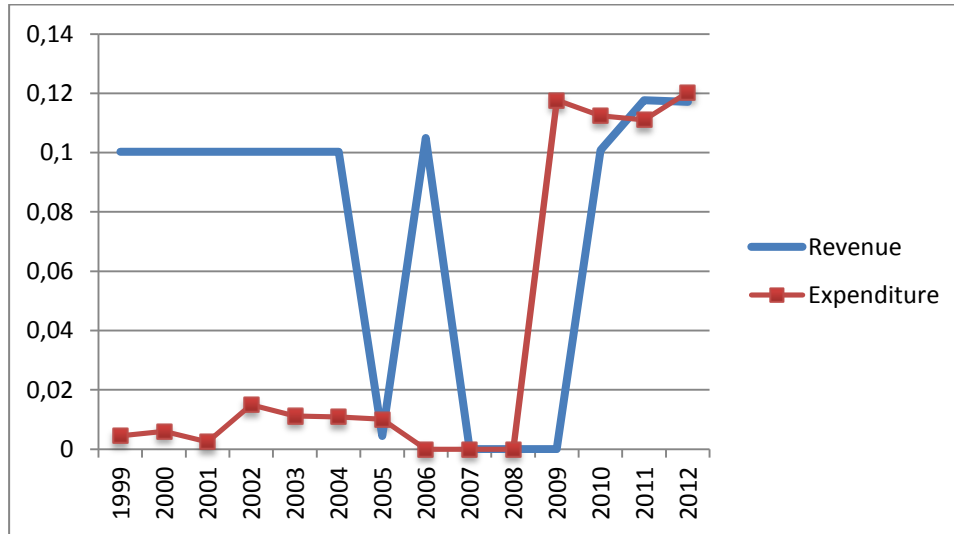
Source: Own elaboration based on AMECO data.

Looking at the fund balance, the additional revenue is sufficient to stabilise the fund at 0.4% of GDP during the Great Recession and its aftermath, but the difference is fairly small.

Figure 16. Annual and cumulative balance at the EU level, % of GDP

Source: Own elaboration based on AMECO data.

Overall, at the system level we see that the additional contributions paid by countries with deep deficits can be important for those countries' fiscal relationship vis-à-vis the system, but do not make much difference to the system as a whole. On the other hand, such statements are based on re-running a historical situation in which none of the truly largest economies (France, Germany, Italy and the UK) was eligible for the payout on a sustained basis.

4.3   Comparisons of options

In this section, we compare the four options to better present their similarities and differences to the reader. We start with the EU level and then proceed to present the simulation for several member states as an illustration.

4.3.1 Comparison of the options at the EU level

We start with revenues. The following figure shows stark differences between options 1 and 2. Option 2, despite the initial five-year period to build up the fund, is much less costly than option 1, since it is a form of catastrophe insurance for member states, whereas option 1 is a form of permanent redistribution. Of course, option 1, unlike option 2, can replace the national schemes to some extent, so this does not imply that the overall public revenue and expenditure in member states plus the EU would be increased. It could simply be transferred from member states to the supranational level.

In the 14-year period we simulate, differences between the a and b options appear to be relatively small for option 2, but more significant for option 1, where the need to rebalance a country's relationship with the system if the accumulated deficit exceeds 1% of GDP leads to a more sustained increase in revenues.

Figure 17. EUI revenues and expenditure under various options, as % of GDP
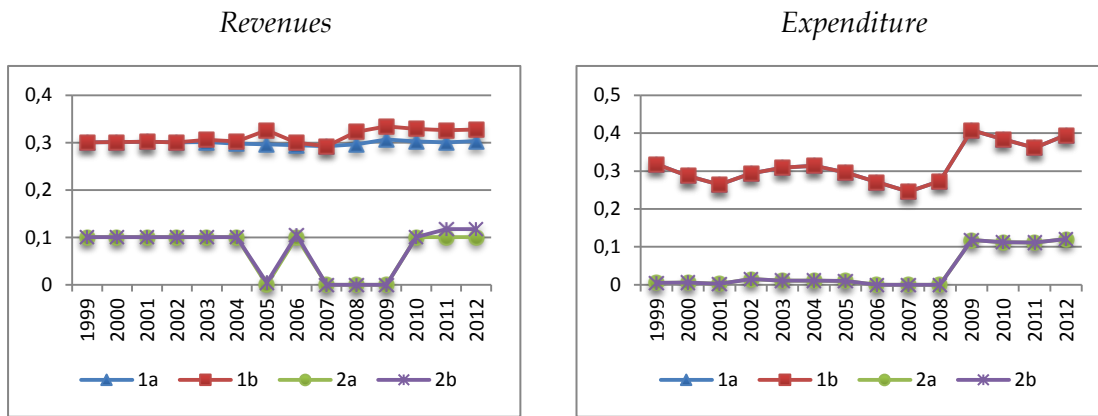
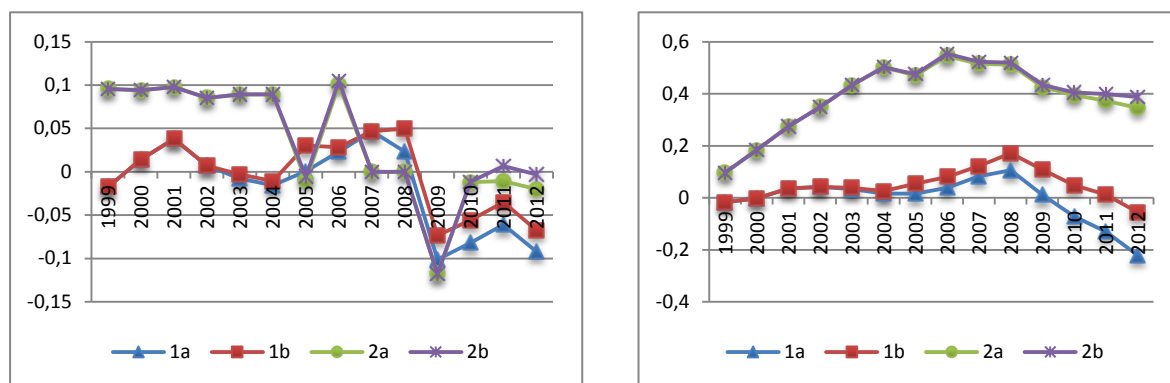*Source*: Own elaboration based on AMECO data.

Expenditure does not differ between the a and b options as the difference is on the revenue side. Therefore, we can only compare expenditure overall under options 1 and 2. What we can see in the figure is the same as in the revenue figure, only more pronounced. The reinsurance option lies essentially dormant (helping an individual member state here and there) until the Great Recession, when it kicks into action. Expenditure for option 1 is also effectively anti-cyclical at the EU level, ranging from 0.25% of GDP to 0.4%, but with a baseline component that distributes significant amounts even at the best of times.

The most complicated figure so far is the comparison of annual balances. In good times, options 1 and 2 are both neutral as assistance to individual countries is not sufficient to significantly influence the overall system balance. The only exception is the initial build-up of funding under option 2. However, in difficult times after 2009, both options initially go deeply into deficit. Afterwards, their reactions differ. At one end of the range, option 2b quickly regains balance at the EU level, while at the other end, Option 1a continues with a deficit of between 0.05% and 0.1% of GDP until 2012. Therefore, the desirability of the various options at the EU level depends also on what policy-makers view as a preferable approach.

Figure 18. EUI annual and cumulative balance of the EU under various options, % of GDP

<div align="center">

Annual balance   *Cumulative balance*

</div>

Source: Own elaboration based on AMECO data.

Different annual balances also translate into different cumulative balances. For option 2, the differences between a and b lead to a small cumulative difference. The real difference is between option 1 and 2. Option 1 goes into cumulative deficit, which becomes a system-wide deficit under both a and b by 2012 (though the b option, by increasing revenue, results in a much smaller deficit). The calibration of the various options is, of course, only an illustration, but it shows that for option 1, policy-makers would need to have a financial backstopping facility of some kind (e.g. an extraordinary contribution or loans).

4.3.2 *Comparison of the options for selected countries*

In this part of the report, we present a comparison of the four options for individual member states. To help the reader, in this section we reproduce the table that summarises the four scenarios analysed: the harmonised European unemployment benefit system and the reinsurance scheme, each with two different fiscal rules.

We focus on two groups where the results are likely to be of interest: countries suffering most from the Great Recession, and countries that are likely to be long-term net payers. Specifically, we look at Spain, Greece, Latvia, Ireland, the Netherlands, Austria and Germany. We present the four options for each of these countries, together with the annual and cumulative balance.

Table 20. Matrix of scenarios explored

	No long-term country-level budgetary neutrality	Long-term country-level budgetary neutrality
Harmonised European unemployment benefit	Option 1a	Option 1b
Unemployment reinsurance	Option 2a	Option 2b

Source: Own elaboration.

Spain

Spain is the heaviest user of the EUI under all options. It is therefore not surprising that, with the balancing requirement of option b, this also leads to higher payments into the system. Under option 1b, this reaches approximately 0.6% after 2008. It is milder under option 2b, but Spain would still be paying 0.3% of GDP (three-times higher than most other member states since 2011).

*Figure 19. EUI revenues and expenditure paid by and to Spain under various options, as % of GDP*
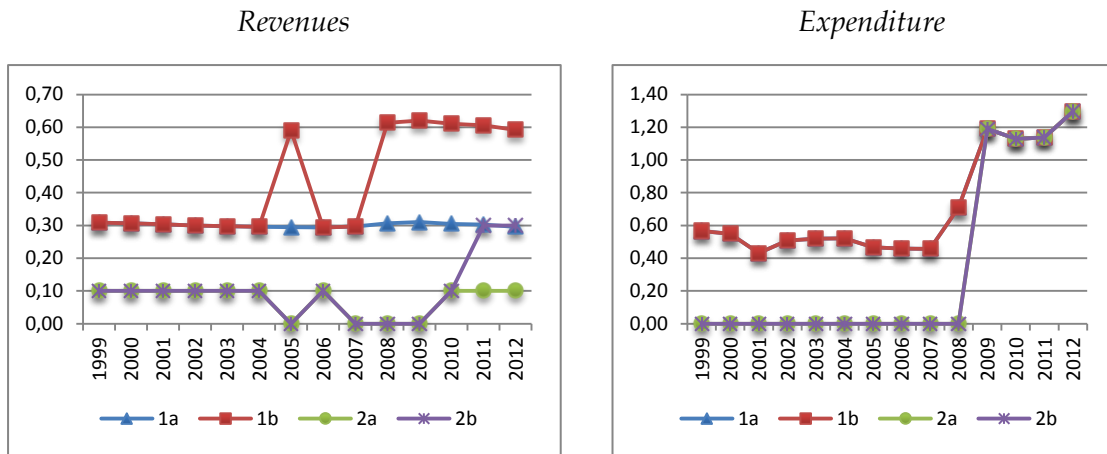
Source: Own elaboration based on AMECO data.

What Spain would receive from the EUI varies dramatically during the good times, but less so during the bad times. Until 2008, reinsurance would not pay Spain anything since its situation is not dramatic enough. Under the harmonised system, however, Spain would receive between 0.4% and 0.6% of GDP, significantly more than other member states even prior to the Great Recession. However, during the recession and its aftermath, the EUI expenditure of both systems converges at a very high level, approximately 1.3% of GDP, reflecting the dramatic deterioration in Spanish unemployment.

The heavy reliance of Spain on the EUI is also demonstrated by its annual balance, which is negative even during the good times under the harmonised system, though not under reinsurance. It becomes very negative during the Great Recession, though the balance depends heavily on the option chosen, ranging from approximately 0.6% of GDP annually under reinsurance with a tighter fiscal rule to 1-1.2% annually under the harmonised system with no budgetary neutrality.

Figure 20. EUI annual and cumulative balance of Spain under various options, % of GDP
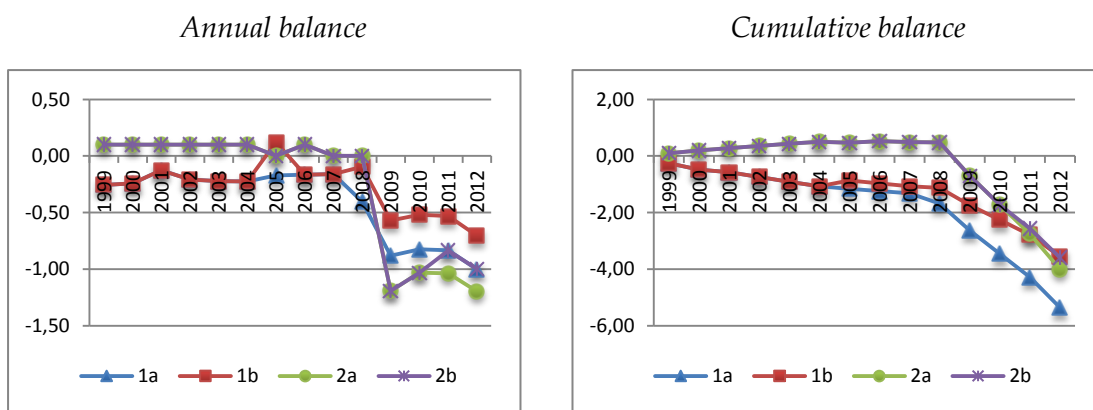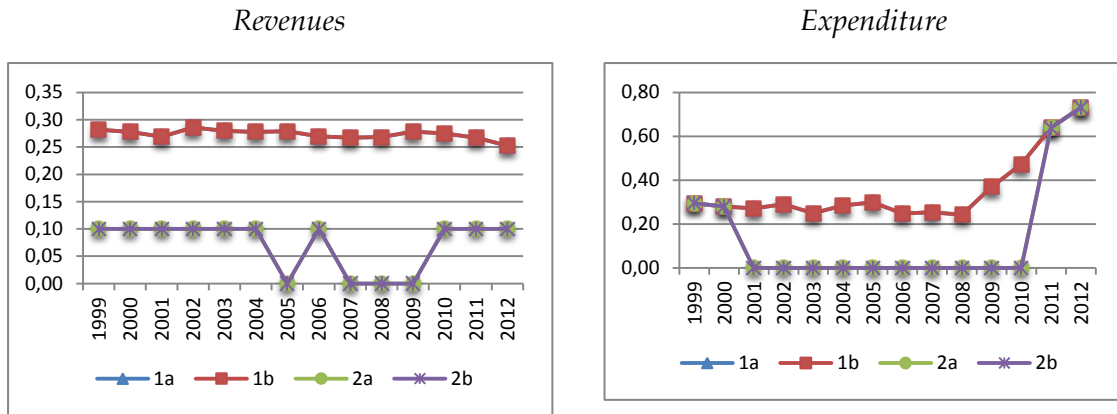

Source: Own elaboration based on AMECO data.

Consequently, the cumulative balance of Spain with the system worsens throughout the entire period (if one discounts the initial fund-building period in Option 2). By the end of 2012, it would have been in the red to the tune of between 3.5% and 4% of GDP under all options except for 1a, where it would have been even higher (around 5% of GDP).

Greece

Greece pays standard revenues into the system despite its repeated use, since it did not cross the 1% accumulated deficit threshold before 2012 (though it would in the following years). We can see a gradual decline in revenues as its employment decreases during the crisis.

Figure 21. EUI revenues and expenditure paid by and to Greece under various options, as % of GDP
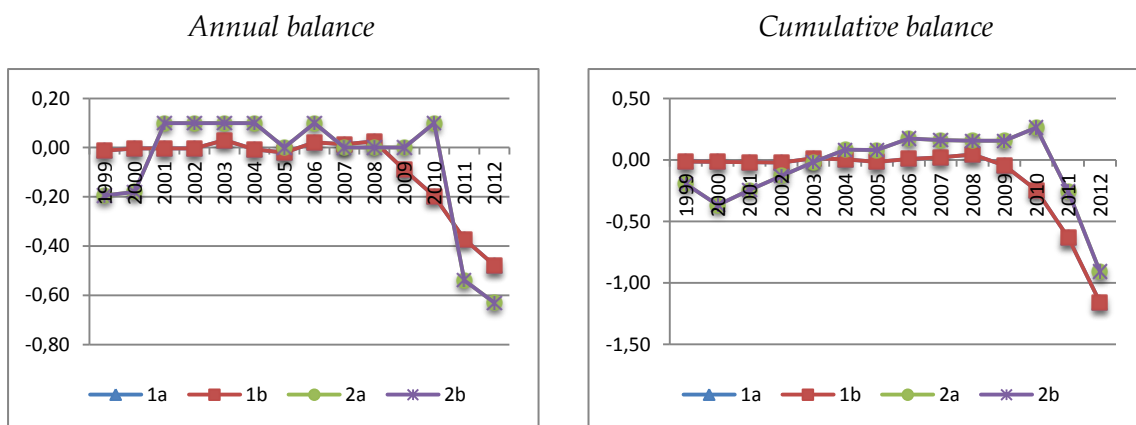

Source: Own elaboration based on AMECO data.

Greece's payout from the EUI would reach high levels of 0.6-0.7% of GDP annually during the Great Recession under both options, but it would arrive later under Option 2.

Greece's annual balance turns dramatically negative during the Great Recession as one would expect, reaching 0.5% to 0.6% of GDP annually. The main difference between the two options in terms of annual balance is when and how much. Reinsurance would kick in later but with a stronger stimulative effect, due to lower revenues paid into the EUI.

Figure 22. EUI annual and cumulative balance of Greece under various options, % of GDP
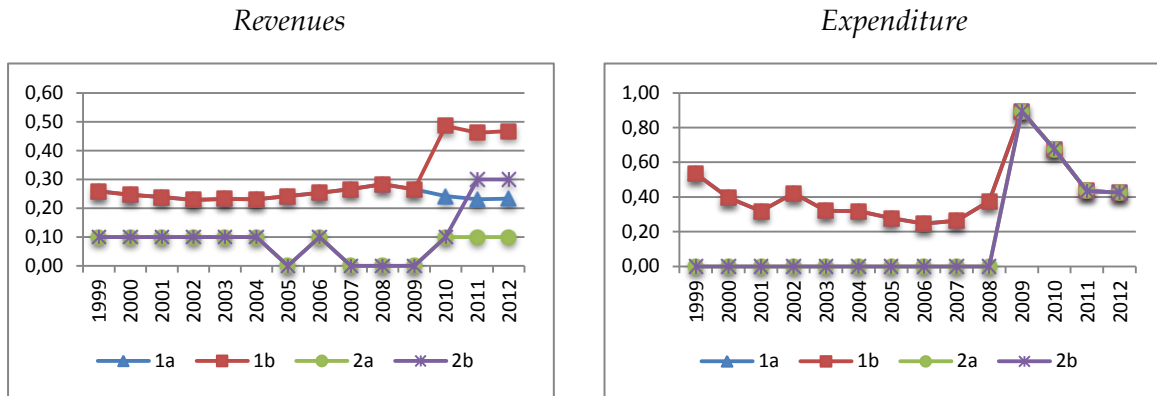

Source: Own elaboration based on AMECO data.

The cumulative balance of Greece vis-à-vis the system turns sharply negative during the Great Recession and its aftermath. There is no difference between the a and b options (with or without rebalancing) and even the difference between the two systems proposed is not dramatic, at approximately 0.2% of GDP on a cumulative basis.

Latvia

Latvia is an example of a country where the balancing requirements might make a dramatic difference. As a heavy user, it would, under both options, have to pay in much more after 2010, but the difference is between roughly 0.25% of GDP under option 1a and 0.5% of GDP under 1b. For option 2, it is similar: 0.1% for 2a and 0.3% for 2b.

Figure 23. EUI revenues and expenditure paid by and to Latvia under various options, as % of GDP
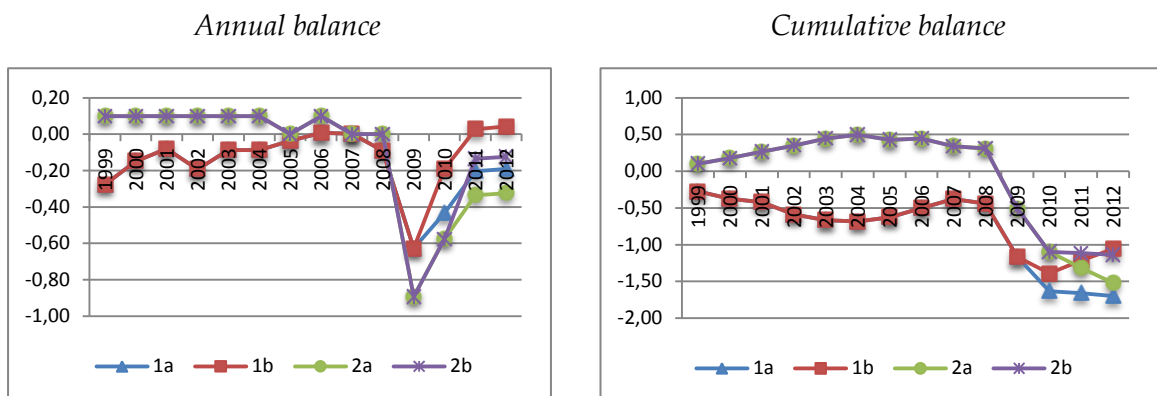

Source: Own elaboration based on AMECO data.

On the expenditure side, Latvia illustrates well that reinsurance (option 2) comes with limitations since it is essentially a binary mechanism, either activated or not. In the early 2000s, when Latvia suffered high unemployment, option 2 would not help because the difference was not dramatic enough and the benchmark value started from a high historical level. Option 1 provides a more calibrated assistance and expenditure by the EUI gradually declines from a high level. On the other hand, in the Great Recession, both options perform similarly in terms of payouts because the shock was severe.

The annual balance of the Latvia-EUI financial relationship has a similar pattern under all options: worsening dramatically in 2009 and then recovering. What distinguished the various options is how quickly and to what extent they bring the relationship back to annual balance. Option 1b is the quickest and 2a has the most gradual return, with a deficit of more than 0.3% of GDP even in 2012.

Figure 24. EUI annual and cumulative balance of Latvia under various options, % of GDP

Source: Own elaboration based on AMECO data.

The difference in annual balance development understandably shows in the cumulative balance, where the Latvians accumulate significant deficit, but its size differs. The differences are significant – between 1% and 1.5% of GDP by 2012. Options 1b and 2b bring the cumulative balance almost back to 1%, while 2a has the highest cumulative deficit.

Ireland

Irish employees produce an annual revenue under the harmonised scheme of around 0.25% of GDP with minor fluctuations. Under reinsurance, the contribution remains fixed at 0.1% and drops to zero once the balance reaches 0.5% of GDP. Expenditure co-moves in the two systems: it is essentially zero for reinsurance and under 0.2% for the harmonised scheme up to 2008. Afterwards, with the start of the Great Recession, it suddenly peaks at 0.6% and then starts decreasing again to reach 0.35% in 2012. This increase is a natural consequence of the abrupt deterioration in unemployment figures, which multiply four-fold in less than a decade.

Figure 25. EUI revenues and expenditure paid by and to Ireland under various options, as % of GDP

Source: Own elaboration based on AMECO data.

The annual balance remains positive until 2008 and then turns suddenly negative, at up to -0.3% of GDP for the harmonised case and -0.6% for reinsurance, with the latter therefore providing a stronger relief to public finances in the case of extreme need. All in all, the cumulative balance remains close to zero in the harmonised EUI, whereas it reaches -0.9% of GDP for reinsurance. Had the latter system been in place, therefore, Ireland would have been very close to the need for readjustment in the next few years to restore the balance in the medium term.

Figure 26. EUI annual and cumulative balance of Ireland under various options, % of GDP
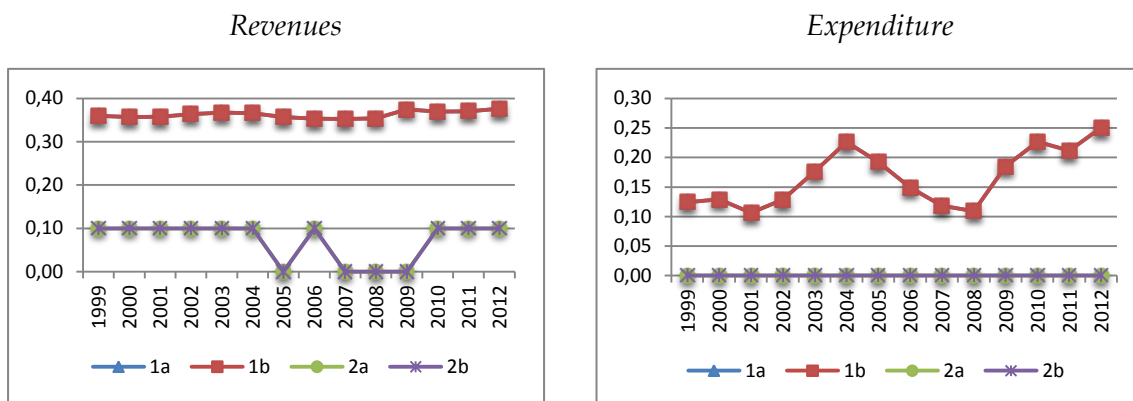
Annual balance *Cumulative balance*
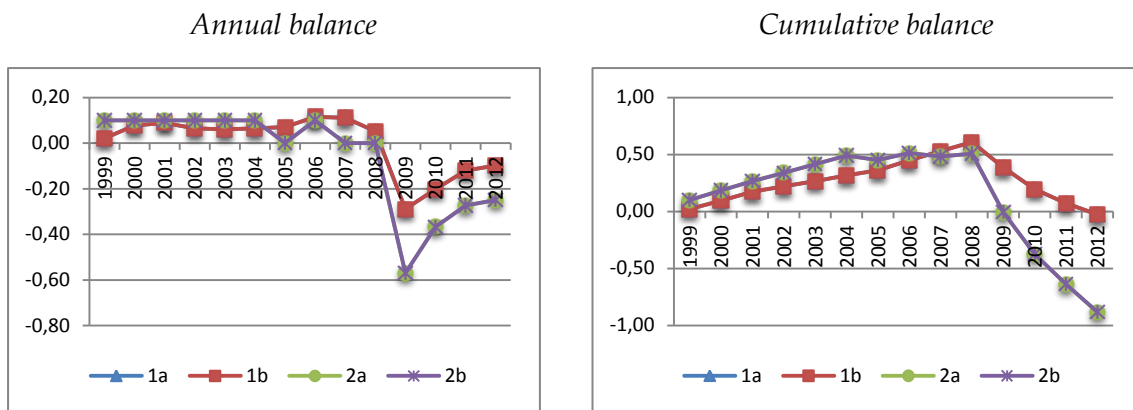
Source: Own elaboration based on AMECO data.

All in all, the Irish case illustrates well the conceptual difference between the two systems simulated: the harmonised scheme protects against all downturns up to a certain level, whereas reinsurance only intervenes in extreme cases, but with more proportional support.

The Netherlands

On the revenue side, Dutch workers generate annually a stable income of 0.35-0.38% of GDP during the period 1999-2012 for the harmonised scheme and 0.1% for reinsurance. The latter is never used during the period analysed, due to the fact that shocks fall under the 'business as usual' category. The harmonised scheme, instead, follows an upward trend because the number of unemployed workers doubles after reaching a minimum in 2001 (from 205,700 to 469,000), despite the positive performance observed just before the start of the Great Recession.

Figure 27. EUI revenues and expenditure paid by and to the Netherlands under various options, as % of GDP

Revenues *Expenditure*

Source: Own elaboration based on AMECO data.

The annual balance strongly reflects the unemployment cycle in the harmonised system but in cumulative terms as a result of the good performance of its labour market, the Netherlands would accumulate a balance of 1.2%.

Figure 28. EUI annual and cumulative balance of the Netherlands under various options, % of GDP
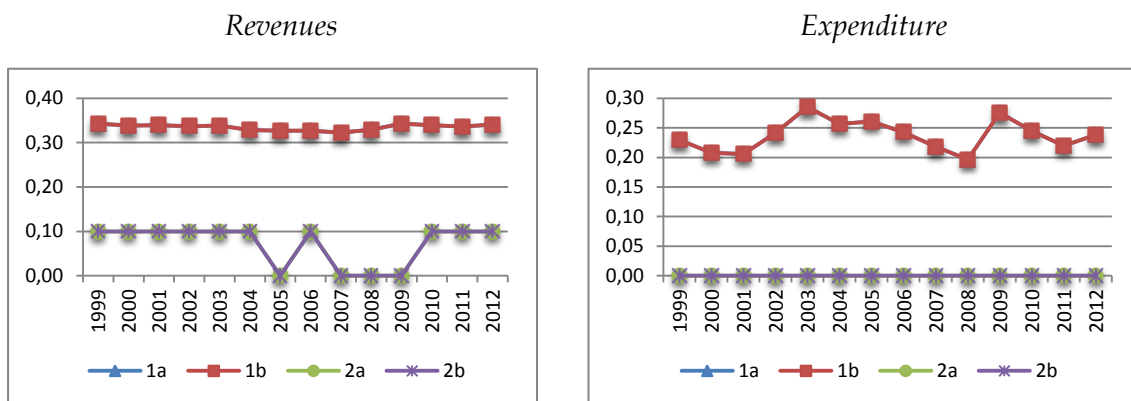
Annual balance   Cumulative balance
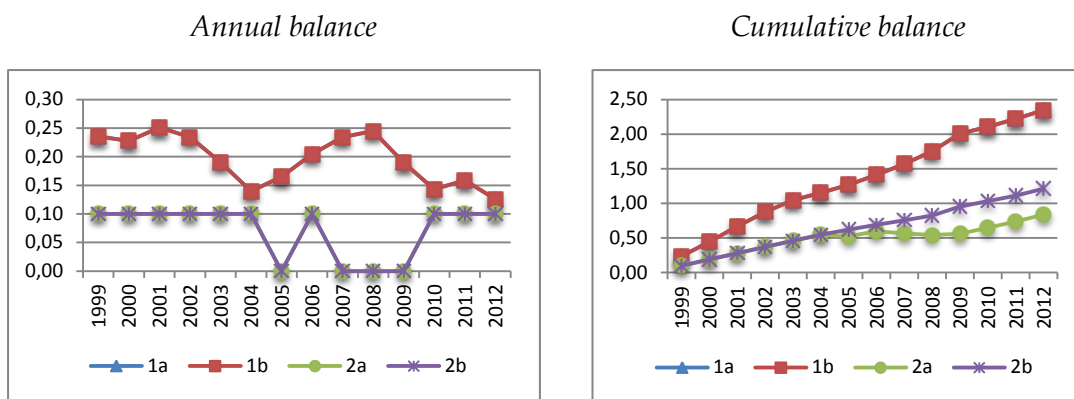
Source: Own elaboration based on AMECO data.

Austria

The Austrian case is straightforward. In terms of revenue, it produces 0.33-0.34% of GDP every year in the harmonised system and 0.1% for reinsurance, with an exception made for years where the contribution stops. Expenditure under the latter is zero between 1999 and 2012; unemployment remains well below the trigger of NAWRU +2%.

Figure 29. EUI revenues and expenditure paid by and to Austria under various options, as % of GDP

Revenues   Expenditure

Source: Own elaboration based on AMECO data.

As a consequence of the good performance of its labour market, Austria keeps a positive balance vis-à-vis the system every year, which translates into a cumulative balance of at least 0.8% of GDP in 2012.

Figure 30. EUI annual and cumulative balance of Austria under various options, % of GDP

Annual balance	Cumulative balance
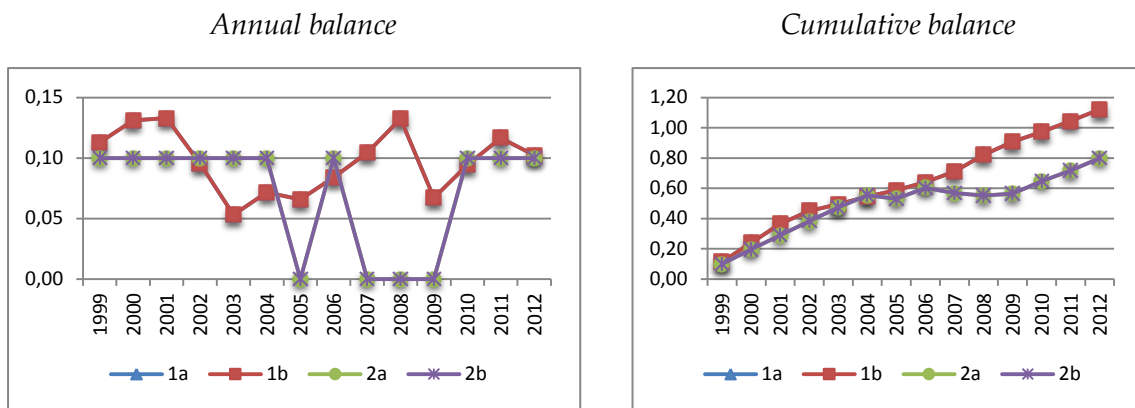
Source: Own elaboration based on AMECO data.

Germany

In both options, Germany generates stable annual revenues, amounting to 0.3% of GDP in the harmonised system and 0.1% in the reinsurance scheme (with an exception made for years where the contribution stops).

On the expenditure side, Germany's performance is strongly positive – no use of the reinsurance is made between 1999 and 2012 – while in the harmonised unemployment benefit system, it shows an overall declining trend due to the good performance of the labour market, after a peak in 2003-2005. During the period analysed, the unemployment rate drops from 8.6 to 5.5% and so too would have expenditure under the harmonised unemployment benefits, from 0.32% in 1999 to 0.2% of GDP in 2012.

Figure 31. EUI revenues and expenditure paid by and to Germany under various options, as % of GDP

Revenues	Expenditure
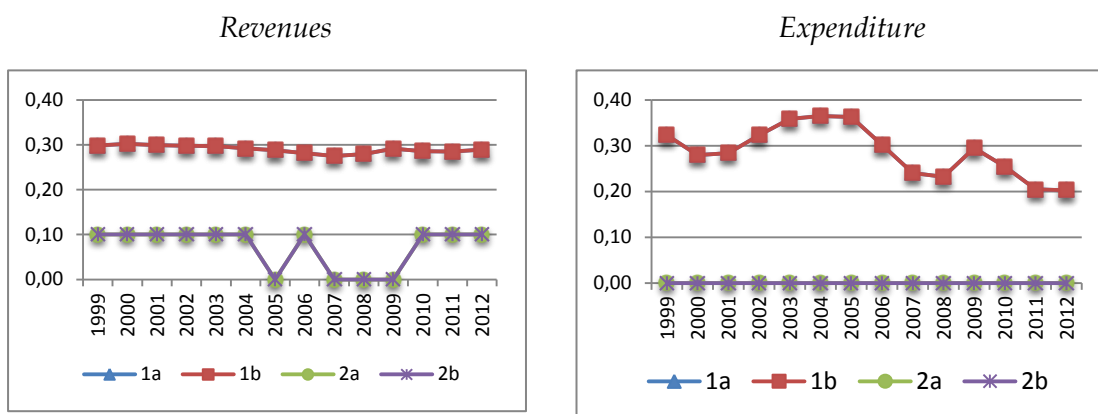
Source: Own elaboration based on AMECO data.

The overall balance remains positive at the end of the simulated period, yet with large differences between the two systems. The harmonised European unemployment benefit scheme ends up very close to zero after an alternation of positive (2000-2001 and 2007-2012) and negative contributions (1999 and 2002-2006). With the reinsurance, Germany remains a net contributor over the entire period because ups and downs in the unemployment rates exist but are in the range of a normal business cycle.

Figure 32. EUI annual and cumulative balance of Germany under various options, % of GDP

Annual balance

Cumulative balance
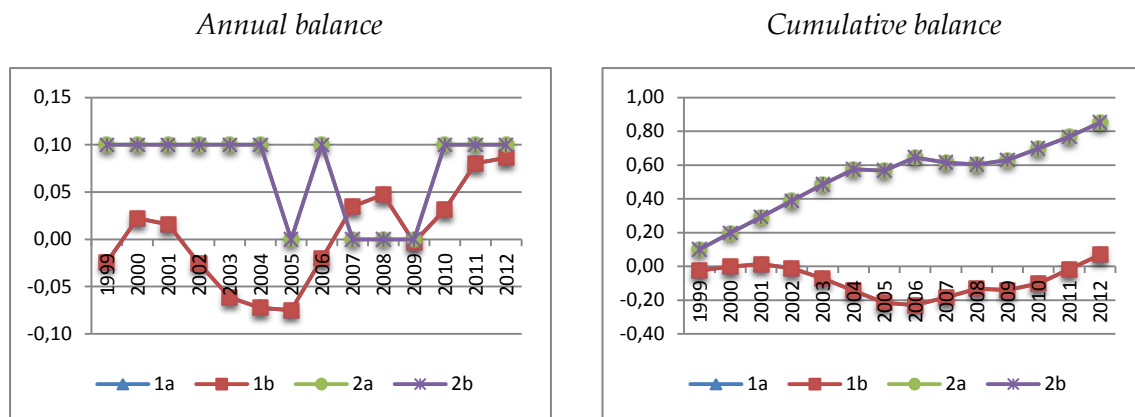
Source: Own elaboration based on AMECO data.

4.4 Impact of the EUI on stabilisation and growth

This section presents a range of estimates of stabilisation effects of the European unemployment insurance system. We present the estimates for national episodes of major distress, sufficient to trigger assistance under both options. We use a simple estimate of the stabilisation effect: every year starting from 2008, we multiply the net inflow coming from the EUI fund by a multiplier.

The rationale is that this allows us to calculate the value added of the European mechanism if it had existed at the time. We propose calculations only for major shocks because, for minor shocks, the shock absorption value is non-existent; national governments are more than able to weather them on their own. This does *not* exclude other rationales for creating an EUI even for minor shocks (as presented by the harmonised unemployment insurance system compared to the reinsurance scheme).

Deciding on the multiplier is a non-trivial and somewhat subjective exercise. As shown in Box 2, estimations provided by the literature on this issue vary between $0.7 and $3 for every $1 spent on unemployment insurance. The issue is complicated further by the fact that estimates vary not only according to the methodology chosen, but also by country. An additional obstacle is given by the fact that most studies analyse the US example, which on the one hand is the closest to the European one in terms of size among advanced economies, but on the other, cannot be considered identical due to the fact that the US economy is structurally different. We therefore need to make a choice.

Despite such complications, we consider a multiplier of 1.5 to be safe, which is a conservative estimate close to the four of the five studies selected (see Box 2). We apply this multiplier to the net inflow from the EUI funds for the period 2008-2012 to six countries as an illustration (those that suffered most during the Great Recession).

Box 2. *A review of the literature on the multiplier effect of unemployment benefits*

Among the different categories of public expenditure, unemployment benefits come out with the most virtues. First, they kick in automatically, as soon as unemployment starts soaring and workers that lose their jobs apply for them. A second important virtue is that this type of expenditure goes where it is most needed: to support the consumption capacity of households whose labour income has suddenly vanished.

Since Keynes' times, economists have believed that public expenditure generates an input to

growth that is higher than the expenditure itself due to the multiplier effect. This multiplier varies with the type of expenditure as well as according to the characteristics of the economy (IMF, 2009).

Quantifying this multiplier is extremely challenging, as witnessed by the fact that studies do not agree on a common number. Different methodologies lead to different results, even when the same case is analysed (IMF, 2009). Zandi (2008) calculates that in the US, a $1 increase in unemployment benefits generates an estimated $1.64 in near-term GDP. Vroman (2010) believes this impact to be larger: every $1 spent on unemployment insurance increases the economic activity by $2. An older study by the U.S. Department of Labor estimates that on average (over six periods defined between 1972 and 2001) $1 of unemployment insurance benefit generated GDP growth of $2.15. The single multiplier effects of these six periods range between $1.54 and $3.07. Monacelli et al. (2010) confirm that "in response to an increase in government spending normalized to 1 percent of GDP, we estimate an output multiplier well above one, in the range of 1.2-1.5 (at one-year and two-year horizon respectively)".

Less precise is a recent estimate by the US Congressional Budget Office (2010) according to which increasing the aid to the unemployed by $1 is estimated to increase GDP by between 0.7 and $1.9 during the period of 2010 to 2015.

As already explained, we look at episodes of major distress, where the value added of the EUI is most relevant. Since the net inflow during such episodes is identical for the harmonised and the reinsurance options, we do *not* show differences between options 1 (the harmonised scheme) and 2 (reinsurance), because under the circumstances of major shock they produce identical results in our simulation. Given our strong preference for it, we consider the case of a fiscal rule that allows deficits and surpluses each year, with the obligation to restore a fiscal balance over the cycle. Calculations are showed in Table 21.

Table 21. Example of stabilisation effect of the EUI during the Great Recession, selected countries

	2008	2009	2010	2011	2012	SUM
Estonia	0.00	1.15	0.89	-0.15	-0.15	1.74
Greece	0.00	0.00	-0.15	0.81	0.95	1.60
Ireland	0.00	0.85	0.55	0.41	0.37	2.19
Latvia	0.00	1.34	0.86	0.20	0.19	2.59
Lithuania	0.00	1.09	0.60	0.21	0.14	2.04
Spain	0.00	1.79	1.54	1.26	1.49	6.08

Source: Authors.

We start with the Spanish case, which in the current crisis is in the limelight due to skyrocketing unemployment figures. The net inflow, multiplied by the fiscal multiplier of unemployment benefits, generates an additional output equal to between €13 and 19 billion every year, starting from 2009. This is equal to 1.3% to 1.8% of GDP. Another interesting case is that of the Baltic countries, where the combined effect of the EUI funds and their (assumed) multiplier is slightly at above 1% of GDP in 2009. However, it declines faster than in Spain due to the faster recovery of the three economies. In Greece, the European mechanism kicks in later due to the deterioration of the NAWRU that accompanies the increase in unemployment. The total impact on the economy over the entire recession (up to 2012) is 1.6% of GDP. Finally, in Ireland, EUI funds are provided between 2009 and 2011 and, combined with their multiplier effect, generate an additional output equal to between 0.9% and 0.4% every year.

List of Abbreviations

AMECO	Annual Macroeconomic Database
CAIF	Cyclical Adjustment Insurance Fund
EB	Extended Benefit programme
EUC08	Emergency Unemployment Compensation 2008 programme
EC	European Commission
EFTA	European Free Trade Association
EGF	European Globalization Adjustment Fund
ESF	European Social Fund
EMU	Economic and Monetary Union
EU	European Union
EUI	European unemployment insurance
FUTA	Federal Unemployment Tax Act
GDP	Gross Domestic Product
ILO	International Labour Organization
IMF	International Monetary Fund
MS	Member States
NAWRU	Non-accelerating wage rate of unemployment
OECD	Organization For Economic Cooperation and Development
SMEs	Small and Medium Enterprises
SUTA	State Unemployment Tax Acts
TEC	Treaty of the European Community
TFEU	Treaty on the Functioning of the European Union
UC	US unemployment compensation programme
UTF	Unemployment Trust Fund

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