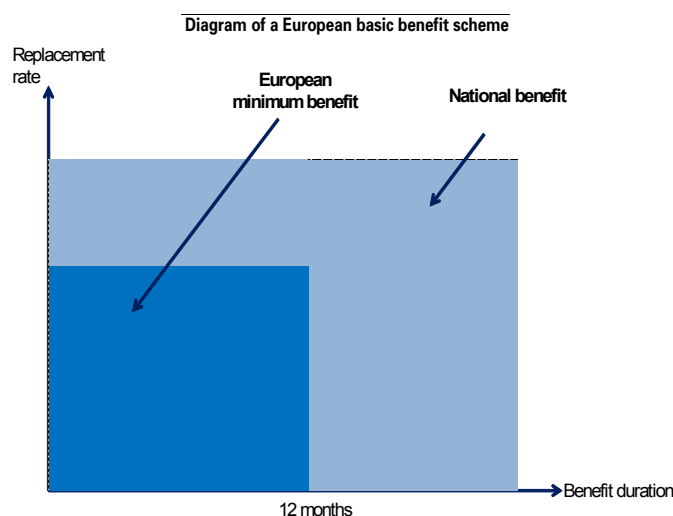


## An unemployment insurance scheme for the euro area

- Pooling a part of unemployment insurance within the euro area would provide a new instrument for solidarity that would in turn be a concrete incarnation of the social dimension of EMU while enhancing stabilisation of the euro area as a whole. The crisis made it clear that the euro area has no central fiscal instrument that is able to cushion the impact of macroeconomic shocks. Setting up a common unemployment insurance scheme would be an ambitious response to this situation that would send a strong political message to citizens, with structural implications for the integration of the euro area.
- This instrument could take the form of a common basic benefit scheme, in view of the widely differing principles that govern national unemployment benefit schemes. This common basic benefit scheme could, for example, provide those who have been out of work for up to one year (the most cyclical component of unemployment) with benefits worth 50% of their previous wage. Financing for the scheme could be levied on a harmonised tax base, such as the total wage bill. The basic benefit scheme could be topped up by a national benefit in accordance with the preferences of each Member State, thus ensuring the same level of unemployment benefits as today while preserving the prerogatives of national social partners.
- To reduce the risk of moral hazard stemming from the temptation to benefit from the scheme without trying to reduce structural unemployment, their initial contributions to finance the common basic benefit scheme could be calibrated to ensure fiscal neutrality, with no lasting transfers between countries in the medium term. Individualised contribution rates based on each Member State's unemployment rate, updated periodically based on past trends, would ensure *ex ante* fiscal neutrality between Member States. In the interval between two updates, joint debt issuance to cover the potential cash requirements of the common scheme would enhance stabilisation capacity.
- In the longer term, and after some convergence of the different Member States' unemployment rates, a scheme featuring greater solidarity between Member States could be considered with funding based on a single contribution rate. To prevent moral hazard, such a scheme would require greater coordination of employment and labour market policies, with the close involvement of European social partners. Such an arrangement would require a greater degree of solidarity and transfers between countries than that needed solely for the purposes of business cycle stabilisation.



Source: DG Trésor calculations.

## 1. Pooling a portion of the national unemployment benefits would mark a further step towards euro area integration and solidarity that would strengthen macroeconomic stabilisation

The euro area's sovereign debt crisis highlighted the shortcomings of its current architecture in terms of macroeconomic stabilisation. Following the financial crisis, some Member States that had accumulated imbalances in the past were deemed vulnerable by the markets resulting in large increases in the yields on their sovereign debt. This forced them to implement highly procyclical fiscal policies, leading to a negative spiral of recession and fiscal consolidation<sup>1</sup>. This spiral was exacerbated by the fact that fiscal consolidation takes a very heavy toll on economic activity during a recession<sup>2</sup>. More specifically, national automatic stabilisers were unable to play their full role in these countries, in a situation where the traditional adjustment mechanisms in a monetary union (mobility of production factors, particularly labour; price and wage flexibility) are not perfect. Governments that are deprived of the instrument of exchange-rate policy must implement internal adjustment strategies to cope with asymmetrical shocks. Such strategies weigh significantly on growth and jobs, especially when monetary policy area is not adapted to situation of the individual Member State. Temporary fiscal transfers from the central level would help cushion the impact of such asymmetrical shocks.

A fiscal mechanism for sharing cyclical risks within the euro area would send a strong political message about integration and solidarity that would in turn improve the euro area's stabilisation. This solidarity could reduce the *ex ante* likelihood that a Member State will be affected by self-fulfilling crises on its sovereign debt. This would strengthen the euro area's macroeconomic and financial stabilisation substantially. Such a mechanism would also enable Member States hit by major shocks and financial tensions to receive temporary transfers from the central level that would ease their borrowing requirements and make their fiscal policies less procyclical. Even though this effect is small when the size of pooling remains modest, the greater capacity of distressed countries to respond to shocks would benefit all the other euro area countries through potential large positive spillover effects, in view of

the high degree of trade and financial integration in the euro area. All in all, this arrangement could be a useful complement to the major reforms of the euro area architecture implemented since the crisis, with the establishment of banking union, the ESM and enhanced economic and fiscal governance.

The need for a common fiscal instrument for the euro area has been discussed since the early days of Economic and Monetary Union, and is still a topic of recent work. Back in the 1970s and 1980s, several reports, such as the MacDougall Report and the Delors Report, stressed the need for a common fiscal mechanism, featuring a federal budget for the monetary area. More recently, the European Commission's November 2012 Blueprint<sup>3</sup> and the "Four Presidents' Report"<sup>4</sup> promoted the idea of a common fiscal capacity that could cushion asymmetrical shocks. The IMF (Allard & al., 2013)<sup>5</sup> studied the various options to create a common fiscal capacity in the euro area, with a stabilisation fund, a central budget and unemployment insurance. Enderlein & al.<sup>6</sup> proposed an insurance mechanism for asymmetrical shocks, where transfers are based on the differential between national output gaps and the euro area output gap. S. Dullien (2007 and 2013)<sup>7</sup> published several studies on the possibility of establishing unemployment insurance at the European level. Finally, D. Gros from the Centre for European Policy Studies (2014)<sup>8</sup> proposed setting up an insurance fund for exceptional shocks that would only be triggered during major recessions.

Such a common instrument would create greater solidarity between countries. It could take one of the following two forms:

- The first option to be considered would be to set up a stabilisation fund that makes temporary transfers between Member States according to their position in the business cycle. This arrangement could be permanent (annual transfers) or contingent (triggered only during major recessions). In the case of a permanent arrangement for instance, a

- 
- (1) De Grauwe and Ji (2012) show that the increase in the risk premiums of the euro area Member States that came under attack on the markets in 2010 and 2011 could not be explained solely by their underlying economic fundamentals, but were the result of self-fulfilling speculative attacks (see "Self-Fulfilling Crises in the Eurozone: An Empirical Test", *CEPR working paper*).
- (2) Auerbach and Gorodnichenko, (2011), "Fiscal Multipliers in Recession and Expansion," *NBER Working Papers*; Baum, Poplawski-Ribeiro and Weber, (2012), "Fiscal Multipliers and the State of the Economy," *IMF working paper*; Creel, Heyer and Plane, (2011), "Petit précis de politique budgétaire par tous les temps", *La revue de l'OFCE*.
- (3) European Commission, (2012), "A Blueprint for a deep and genuine EMU - Launching a European Debate."
- (4) Van Rompuy, H., in close collaboration with Barroso, J-M., Juncker, J-C. and Draghi, M., (2012), "Towards a Genuine Economic and Monetary Union".
- (5) Allard & al, (2013), "Toward a Fiscal Union for the Euro Area", *IMF staff discussion note*.
- (6) Enderlein, Guttenberg, Spiess, (2013) "Blueprint for a Cyclical Shock Insurance for the Euro Area", *Notre Europe*.
- (7) Dullien, (2007), "Improving Economic Stability in Europe: What the Euro Area can Learn from the United States' Unemployment Insurance", *SWP Discussion Paper*.  
Dullien, (2013), "A European unemployment insurance as a stabilization device - Selected issues" and "A euro-area wide unemployment insurance as an automatic stabilizer: Who benefits and who pays?," *European Commission DG EMPL*.  
Dullien and Fichtner, (2013), "A common unemployment insurance system for the Euro area," *DIW Economic Bulletin*.
- (8) Gros, (2014), "A fiscal shock absorber for the Eurozone? Lessons from the economics of insurance," *Vox EU*.

country where unemployment is higher than structural unemployment would receive a net transfer of funds, and it would contribute to the fund in the opposite case<sup>9</sup>.

- **A second, more ambitious option would be to phase in genuine fiscal integration in the euro area, starting with a common unemployment insurance scheme.** Under this option, temporary transfers would be made by shifting some of the national automatic stabilisers to the central level. As a major automatic stabiliser (see Appendix 1), an unemployment insurance scheme for the euro area would be a interesting first step towards achieving a genuine central budget.

**Of these two options, the unemployment insurance scheme seems to be more complex to implement, but it will have structural implications on euro area integration that goes much further than just cyclical stabilisation.** The fund would primarily be an insurance arrangement between governments and would

operate like an intergovernmental entity. Its governance would have a hard time overcoming the net-return mindset. On the other hand, the unemployment insurance scheme would create solidarity directly between European citizens. More specifically, ownership of the system by citizens and social partners would be substantially enhanced because it would involve defining common parameters for basic benefit scheme, including eligibility criteria, income replacement rates and benefit duration, while each country could add its national scheme of supplementary benefits. Setting up a common unemployment insurance scheme for the euro system would be a concrete incarnation of the social dimension of EMU and send a strong political message to citizens, with a major impact on euro area integration that goes beyond stabilisation, notably in terms of coordination of employment and labour market policies. In this regard, pooling unemployment insurance could be a first step to genuine fiscal integration of the euro area. Our focus here will be on the latter option, looking at the practical procedures that could be considered for such a scheme

## **2. The common unemployment insurance scheme for the euro area could consist of a common basic benefit scheme for jobseekers**

**The overall system architecture could be based on a common basic benefit paid to unemployed Europeans that is financed by a European social contribution. Each Member State could then supplement the basic benefit in accordance with its national preferences.** Given the wide range of current national unemployment benefit schemes (see Box 1), which reflect each Member State's national preferences and history, it would be neither desirable nor realistic to impose a single common scheme on all Member States covering all unemployment benefit expenditure.

**For example, the European basic benefit could pay the unemployed up to 50% of their past earnings for 12 months<sup>10</sup>, which captures the most cyclical portion of unemployment benefits** (see Chart on the

first page). Reasoning in terms of a basic benefit would ensure that the current level of unemployment benefits is maintained in all countries and preserve the prerogatives of national governments and/or national social partners, who retain their full competencies to determine the national supplements to the basic benefit scheme. Moreover, the purpose of the common basic benefit scheme would be to preserve a basic level of unemployment benefits throughout the euro area. In addition, periods of unemployment that last for less than 12 months constitute one of the most cyclical components of unemployment (see Chart 4). It would therefore benefit most from pooling<sup>11</sup>. The basic benefit would not cover long-term unemployment, which has less connection to the business cycle<sup>12</sup>.

- 
- (9) In practice, however, it is difficult to link transfers to estimates of structural unemployment, which cannot be observed or estimated accurately in real time. In fact, estimates of structural unemployment, like those of the output gap, are often revised substantially over time. Nevertheless, it would be possible to get around the difficulty of measuring structural unemployment by using, for example the average unemployment rate over the last 5 or 10 years, for example. In this case, the fund could, make transfers based on the differential between current expenditure on unemployment benefits and the average over the last 5 or 10 years.
- (10) The income replacement rates and benefit durations correspond roughly to the common base of the euro-area Member States. In fact, only Malta, Slovakia, Italy, Austria and Slovenia have durations of less than 1 year, and only Ireland and Malta have coverage rates of less than 50%.
- (11) One alternative to cover an even more cyclical component of unemployment would be to restrict the euro area basic benefit to workers who have been unemployed for more than 3 months and less than 12 months, so as to avoid frictional unemployment, but at the cost of making the system less comprehensible for European citizens and jobseekers.
- (12) Nevertheless, the cyclical components of the national supplements to unemployment benefit expenditure would still be taken into account in the fiscal surveillance conducted as part of the Stability and Growth Pact.

## Box 1: Comparison of unemployment insurance schemes of the euro area Member States

The way the unemployment insurance schemes of the euro area Member States operate varies greatly as a result of national preferences in terms of social protection and each country's own history.

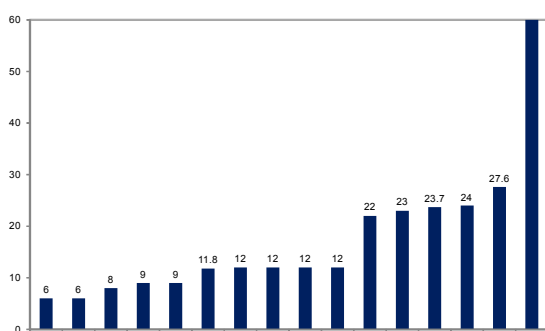
### 1. Duration of benefits (see Chart 1)

In 2012, five euro area Member States had maximum benefit durations of less than 1 year (6 months in Malta and Slovakia, 8 months in Italy and 9 months in Austria and Slovenia), whereas five other Member States had benefit durations of nearly 2 years or more (22 months in the Netherlands, 23 months in Finland and Spain, 24 months in France, 28 months in Portugal and no limit in Belgium).

### 2. Income replacement rate level and profile (see Chart 2)

The income replacement rate, meaning the percentage of past earnings replaced by the unemployment benefit, varies greatly from one Member State to the next. For the first six months, an unemployed person who had been earning the average wage, the replacement rate of net past earnings varies from less than 55% in Italy, Estonia, Greece, Austria, Ireland and Malta, to more than 70% in Portugal, Luxembourg, Slovenia, Greece and France)<sup>a</sup>. In addition to the replacement rate, some governments also set monthly benefit caps and floors (see Table 1). In some countries, like France, benefit caps are linked to the existence of caps in contributions.

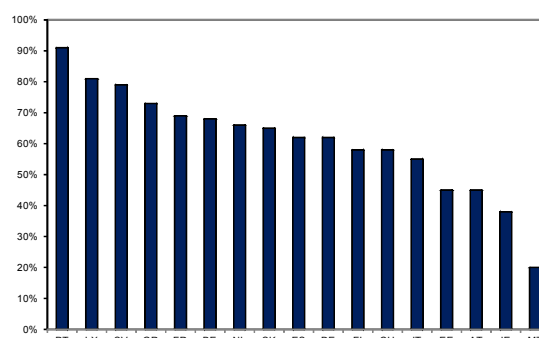
Chart 1: Maximum benefit duration in months (2010)



Source: European Commission - OECD Tax Benefit model via Stovicek and Turrini (2012) "Benchmarking Unemployment Benefit Scheme".

NB: in Belgium no limit on benefit duration.

Chart 2: Replacement rate for net wages during the first 6 months of unemployment for a person earning the average wage (2010)

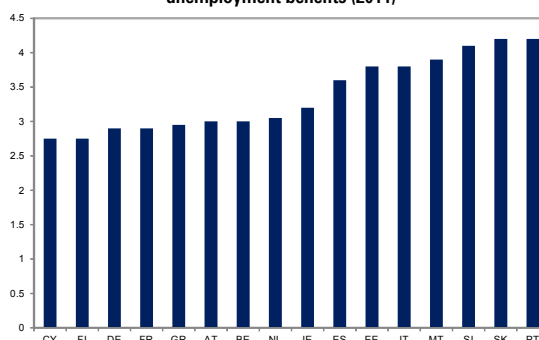


Source: Social Policy Indicator Database (SPIN).

### 3. Eligibility criteria for unemployment benefits

Eligibility criteria are an important parameter of unemployment insurance schemes because they affect the number of unemployed who actually receive benefits, which is called the coverage rate (see Appendix 2). These criteria cover several conditions. First of all, the unemployed must have worked long enough during their previous period of employment to be eligible. As Table 2 shows, the number of months of employment needed to be eligible and the reference period during which the months of employment must take place varies substantially, depending on the Member State. Other elements that affect unemployed workers' eligibility for benefits are whether benefits are paid to those who leave their jobs voluntarily, whether sanctions are applied to beneficiaries who reject job offers and training programmes and the quality of job-search monitoring by employment agencies. The OECD has compiled this information into a composite indicator shown in Chart 3.

Chart 3: Composite indicator of the strictness of eligibility criteria for unemployment benefits (2011)



Source: Venn, D., (2012), "Eligibility Criteria for Unemployment Benefits: Quantitative Indicators for OECD and EU Countries", OCDE working papers.

NB: Portugal is the country where the eligibility criteria for unemployment benefits are the strictest.

Table 1: Monthly floors and caps

|             | Monthly floor | Monthly cap |
|-------------|---------------|-------------|
| France      | -             | €7,085      |
| Germany     | -             | €2,177      |
| Belgium     | €953          | €1,603      |
| Spain       | €426          | €932        |
| Italy       | -             | €1,120      |
| Netherlands | -             | €3,178      |

Source: MISSOC, Cleiss, OECD, national sources.

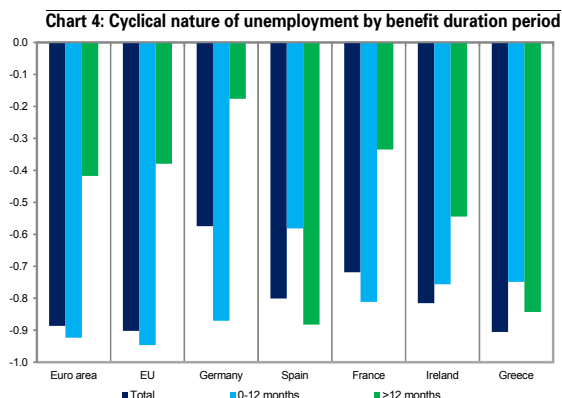
Table 2: Minimum contribution period in 2012

|             | Number of months of employment to be eligible (I) | Reference period (months) (II) | Ratio: (I)/(II) |
|-------------|---------------------------------------------------|--------------------------------|-----------------|
| France      | 4                                                 | 28                             | 14%             |
| Ireland     | 6                                                 | 24                             | 25%             |
| Finland     | 8                                                 | 28                             | 29%             |
| Greece      | 12                                                | 36                             | 33%             |
| Austria     | 12                                                | 24                             | 50%             |
| Germany     | 12                                                | 24                             | 50%             |
| Italy       | 12                                                | 24                             | 50%             |
| Portugal    | 12                                                | 24                             | 50%             |
| Belgium     | 12                                                | 18                             | 67%             |
| Netherlands | 6                                                 | 8                              | 75%             |

Source: MISSOC 2012.

NB: In France, a person must pay into the scheme for 4 of the last 28 months to be eligible for unemployment insurance benefits.

a. In most Member States, the amount of the benefit is determined according to the beneficiary's earnings when employed, but it may also be a flat rate benefit, regardless of the reference wage, as is the case in the United Kingdom.



Source: Eurostat.

NB: Correlation coefficient between the change in the number of unemployed and the real annual growth rate from 2000 to 2013.

The common eligibility criteria also need to be established, in addition to setting the amount and the duration of the unemployment benefit. Eligibility criteria are key parameters for defining an unemployment insurance scheme. The main eligibility criteria pertain to the type of jobs and the reasons for losing a job covered by the scheme<sup>13</sup> and the minimum contribution period for entitlement to unemployment benefits, which ranges from 4 months in France to more than 12 months in Belgium<sup>14</sup>. For example, the European basic scheme could insure payroll employees who have worked at least 9 or 12 months over the last 24 months, and each Member State would still be free to expand the criteria under a national supplementary scheme. The conditions

attached to receiving the benefit, such as penalties for jobseekers who reject job offers or training programmes, also need to be specified.

The scheme could be financed by a European social contribution levied on wages, which would take the place of some national contributions, without increasing the aggregate euro-area tax burden. Social contributions, which are the main funding source for national unemployment insurance schemes seem to be the natural choice for financing the euro area scheme, even though other sources could be considered, such as corporate income tax or VAT. Issues relating to the level of contributions for each country, depending on the degree of risk pooling sought, are analysed in detail in the next section.

Generally speaking, establishing such a scheme would strengthen the EU and the euro area competencies for employment and social matters. The implementation of such a common basic benefit scheme would indeed be part of a general package of deepening the social dimension of EMU, which requires a significant step towards integration of the euro area. Such a movement would logically need to be backed up by institutional strengthening of the euro area, particularly with regard to its democratic legitimacy. Therefore one should strike a balance between greater powers for the euro area in social matters and respect for national preferences with regard to unemployment insurance schemes.

### 3. At the start, the common basic benefit scheme could be financed on the basis of different contribution rates in each country so as to avoid long-term transfers between Member States

#### 3.1 The social contributions of each country would be modulated according to their unemployment level to ensure medium-term fiscal neutrality of the scheme

At first, the scheme would be financed with different contribution rates for each Member State to prevent the wide disparity of structural unemployment rates in the euro area from giving rise to permanent transfers between countries. In practice, the European scheme could have a central fund with responsibility for managing the financing of the basic benefit, with an account for each Member State recording its revenues and expenditures. The fund would be financed on the basis of a specific contribution rate for each Member State with a common tax base, such as the total wage bill. To be illustrative, contribution rates could be updated for instance every 5 years, according to the contribution rate that would have balanced each Member State's account over the previous 5 years<sup>15</sup>. This would ensure *ex ante* neutrality of the scheme in the medium term with regard to transfers between Member States (see

Appendix 3 for details about calculating the contribution rates). Nonetheless, such a scheme would involve temporary transfers *ex post* in the event of an asymmetrical shock affecting an individual Member State. The financing of the temporary deficit on a Member State's account stemming from an increase in unemployment between two updates of the contribution rate would be covered by all of the countries in the scheme, thus implying more macroeconomic stabilisation for Member States subject to major shocks.

The European scheme would consolidate all the Member States' accounts in a common fund that could borrow temporarily, *via* jointly issued debt securities, when the euro area as a whole experiences a cyclical downturn<sup>16</sup>. Besides, the management of the common basic benefit scheme would be primarily delegated to the national unemployment insurance funds, which would be responsible for collecting contributions and distributing benefits, as they are today. The European central fund would be responsible only for managing the scheme's aggregated finances. All in all,

(13) For example, whether employees on temporary contracts and self-employed workers are covered by the system, or whether workers who quit their jobs voluntarily are covered

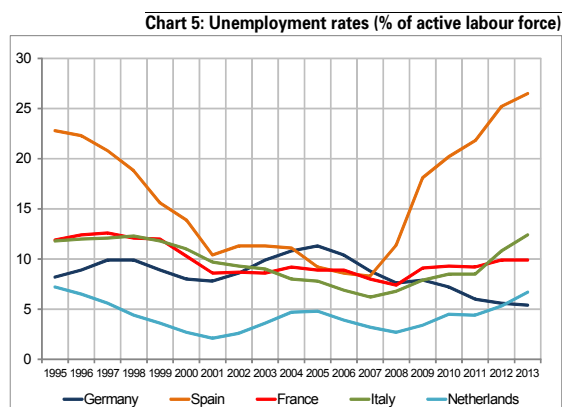
(14) Many Member States (Spain, Italy, Germany, United Kingdom, Denmark) have set a minimum period of 12 months.

(15) Exceptionnal circumstances clauses could nevertheless exist in order to avoid for instance upward revisions of contribution rates during a recession (see *infra*).

(16) If any surplus built up in previous years is not enough to finance the aggregate expenditure of the current year. More precisely, if the European insurance fund shows an aggregate surplus, it would invest the surplus on the financial markets and, conversely, if it shows an aggregate deficit, it would borrow from the markets through joint issuance of debt securities.

except for implementation and adaptation expenses, the cost of administering the scheme will be low.

**The scheme would require efficient governance, with the close involvement of European social partners and the Commission.** The institutional structure chosen will determine the effectiveness of the system, particularly for redefining the parameters, such as each Member State's contribution rate, along with the parameters for benefits. To avoid long and complicated negotiations in the Council, argued on the basis of net return, the method for setting each Member State's contribution rate could be virtually automatic (see Appendix 3 for an example of a formula for recalculating contribution rates), with a central role for the Commission. Exceptional circumstances clauses could nevertheless be implemented during major recessions to prevent the update of contribution rates leading to excessively procyclical fiscal policies. Besides, national and European social partners should be closely involved in the system, particularly for defining the parameters of the common basic benefit scheme. In this way, setting up European unemployment insurance would be an opportunity to enhance the role of European social partners.



### 3.2 Simulations of such a scheme run on the period 2000-2012 show that it would have resulted in temporary countercyclical transfers

For the purposes of illustration, we simulated an unemployment insurance scheme over the period 2000-2012 with benefits to replace 50% of past earnings of the unemployed for up to one year. The scheme is financed by contributions based on the total wage bill. Appendix 2 describes the coverage rate assumptions and Appendix 3 describes the method used to estimate the contribution rates used for these simulations. In particular, if the assumptions on the coverage rates assumptions are quite rough, its impact on results of the simulations is small in terms of net transfers between Member States (see Table 4) in the case of differentiated contribution rates by country, because contributions adjust themselves mechanically to benefit needs on the reference period considered. By contrast, the level of contribution rates by country (see table 3) is very sensi-

tive to coverage rates assumption and must therefore remain illustrative.

**The contribution rates are updated every 5 years (in 2000, 2005 and 2010).** They vary considerably from one Member State to the next, ranging from an average of 0.5% in Italy<sup>17</sup> to 2.2% in Spain (see Table 3). These findings primarily reflect differences in unemployment rates and coverage rates between these countries. Furthermore, the contribution rates for a given Member State vary greatly from one period to the next as a result of changes in the labour market over the 13 years covered by the simulations. For example, Spain's contribution rate would go from 2.2% between 2000 and 2004 to 1.5% between 2005 and 2009, and then back up to 2.0% between 2010 and 2012. However, the parameters of the scheme could be adjusted to limit the volatility of each Member State's contribution rate.

**Table 3: Contribution rates for each Member State and for each sub-period**

|             | 2000-2004 | 2005-2009 | 2010-2012 |
|-------------|-----------|-----------|-----------|
| Belgium     | 1.1%      | 1.0%      | 1.1%      |
| Germany     | 1.5%      | 1.5%      | 1.4%      |
| Ireland     | 1.2%      | 0.8%      | 1.1%      |
| Greece      | 0.8%      | 0.9%      | 0.9%      |
| Spain       | 2.2%      | 1.5%      | 2.0%      |
| France      | 1.8%      | 1.3%      | 1.2%      |
| Italy       | 0.8%      | 0.6%      | 0.5%      |
| Luxembourg  | 0.5%      | 0.6%      | 0.8%      |
| Netherlands | 0.6%      | 0.5%      | 0.5%      |
| Austria     | 1.1%      | 1.1%      | 0.9%      |
| Portugal    | 0.6%      | 0.7%      | 1.0%      |
| Finland     | 3.0%      | 2.1%      | 1.5%      |

Sources: Estimates by the Directorate General of the Treasury, Eurostat LFS, AMECO.

**The scheme would have had a countercyclical effect. More specifically, it would have benefited the countries in the North of the euro area (Belgium, Germany, Netherlands, Austria, Luxembourg) in the early years of the century and it would have benefited the countries in the South (Greece, Spain, Portugal) after 2009.** However, it is noteworthy that the net annual transfers are relatively small in Member States with less variable unemployment rates. More specifically, the net transfers in France or in Italy would have ranged from -0.2% to GDP to +0.3% of GDP<sup>18</sup>. On the other hand, the variations in net transfers would have been substantial for Member States experiencing big changes in their unemployment rates over the simulation period, ranging from +0.5% of GDP to -1.4% of GDP in the case of Spain. The added stabilisation achieved through the centralised system as opposed to the existing system, which relies solely on the current domestic automatic stabilisers, would come into play during major shocks, when domestic automatic stabilisers could not function properly.

(17) The low contribution rate in Italy can be attributed to the low coverage rate. Very few Italian jobseekers receive benefits, according to the LFS-Eurostat data.

(18) The minus sign shows an implied transfer through the system to the country in question and a plus sign shows the opposite.

**Table 4: Implied net transfers under a system with differentiated contribution rates (in points of GDP)**

|                                | 2000  | 2001  | 2002  | 2003  | 2004  | 2005  | 2006  | 2007  | 2008  | 2009  | 2010  | 2011  | 2012  | Net balance at end 2012 (€bn) | Net balance at end 2012 (% of GDP 2012) |
|--------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------------------------------|-----------------------------------------|
| Belgium                        | 0.2%  | 0.1%  | 0.1%  | -0.1% | 0.0%  | -0.1% | -0.1% | 0.0%  | 0.0%  | -0.2% | -0.1% | 0.1%  | 0.0%  | -0.2                          | -0.1%                                   |
| Germany                        | 0.2%  | 0.1%  | 0.0%  | -0.1% | -0.1% | -0.2% | 0.0%  | 0.1%  | 0.2%  | 0.0%  | 0.1%  | 0.2%  | 0.2%  | 20.4                          | 0.8%                                    |
| Ireland                        | 0.2%  | 0.3%  | 0.2%  | 0.2%  | 0.2%  | 0.0%  | 0.1%  | 0.0%  | -0.1% | -0.9% | -0.6% | -0.3% | -0.3% | -2.0                          | -1.2%                                   |
| Greece                         | -0.1% | -0.1% | -0.1% | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | -0.2% | -0.4% | -0.6% | -0.8% | -4.2                          | -2.2%                                   |
| Spain                          | 0.3%  | 0.5%  | 0.4%  | 0.3%  | 0.4%  | 0.1%  | 0.1%  | 0.1%  | -0.3% | -1.4% | -1.0% | -0.9% | -1.2% | -34.5                         | -3.3%                                   |
| France                         | 0.3%  | 0.3%  | 0.2%  | 0.2%  | 0.2%  | 0.0%  | 0.1%  | 0.2%  | 0.2%  | -0.1% | -0.1% | -0.1% | -0.2% | 17.7                          | 0.9%                                    |
| Italy                          | 0.1%  | 0.1%  | 0.1%  | 0.1%  | 0.1%  | 0.0%  | 0.1%  | 0.1%  | 0.1%  | 0.0%  | -0.1% | -0.1% | -0.2% | 5.1                           | 0.3%                                    |
| Luxembourg                     | 0.0%  | 0.1%  | 0.0%  | -0.1% | -0.1% | -0.1% | 0.0%  | 0.0%  | -0.1% | -0.1% | 0.0%  | 0.0%  | 0.0%  | -0.1                          | -0.3%                                   |
| Netherlands                    | 0.1%  | 0.1%  | 0.1%  | -0.1% | -0.1% | -0.1% | 0.0%  | 0.1%  | 0.1%  | -0.1% | -0.2% | -0.1% | -0.2% | -2.6                          | -0.4%                                   |
| Austria                        | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.0%  | 0.1%  | 0.2%  | 0.2%  | 0.1%  | 0.0%  | 0.1%  | 0.1%  | 2.4                           | 0.8%                                    |
| Portugal                       | 0.0%  | 0.1%  | 0.0%  | -0.2% | -0.1% | -0.1% | -0.1% | -0.2% | -0.1% | -0.4% | -0.2% | -0.3% | -0.6% | -3.9                          | -2.3%                                   |
| Finland                        | 0.5%  | 0.6%  | 0.5%  | 0.4%  | 0.5%  | 0.3%  | 0.4%  | 0.4%  | 0.5%  | 0.1%  | -0.2% | -0.1% | -0.1% | 6.0                           | 3.1%                                    |
| Annual cash position (€bn)     | 12.3  | 15.0  | 9.8   | 4.7   | 6.9   | -2.7  | 4.7   | 10.5  | 7.6   | -19.5 | -16.4 | -10.0 | -18.8 |                               |                                         |
| Cumulative cash position (€bn) | 12.3  | 27.3  | 37.1  | 41.8  | 48.7  | 46.0  | 50.7  | 61.2  | 68.8  | 49.4  | 32.9  | 22.9  | 4.1   |                               |                                         |

Sources: Estimates by the Directorate General of the Treasury, Eurostat LFS, AMECO.

\* In billions of euros.

**In this example, exact financial equilibrium would not have been achieved for each Member State at the end of the simulation period, but the method for calculating the contribution rates would have ensured that the Member States did not steadily build up deficits or surpluses within the central scheme over the medium term.** Some Member States posted large positive or negative positions at the end of 2012, but these positions depended largely on cyclical developments in recent years and on the start date for the simulation. For example, France would have been a net contributor to the scheme over the whole period from 2000 to 2012, paying in nearly 1 point of GDP. This result depends primarily on the start date chosen for the simulation. In the early 2000s, France would have made substantial transfers to the scheme since its unemployment rate was significantly

lower than the average seen in the period from 1995 to 1999, which would have been the reference period used to calculate France's contribution rate. However, the method for calculating contribution rates would have contained the order of magnitude of these net balances and ensured that they tend to offset each other in the long run.

**The aggregate cash position of the European fund would have systematically been in surplus during the simulation period, despite four very negative annual outturns at the end of the period between 2009 and 2012.** This result depends heavily on the choice of the start date for the simulation. If the simulation had started just before the 2008-2009 crisis, it would have shown a borrowing requirement for the first years of the basic benefit scheme.

#### **4. In the longer term, a genuine risk-sharing and redistribution mechanism could be considered, in the form of a fully pooled financing arrangement with a single contribution rate**

**4.1 Given the currently wide diversity of labour market conditions in the Member States, a scheme with a single contribution rate would produce major transfers between countries**

**A simulation of an unemployment insurance scheme with the same contribution rate for all Member States over the period between 2000 and 2012 shows major transfers from Member States with low structural unemployment to those with high structural unemployment.** Implied annual net transfers to and from the euro area scheme range from +0.7% of GDP per year for the Netherlands between 2000 and 2003 to -1.7% of GDP for Spain in 2012 (see Table 5)<sup>19</sup>. Some Member States (Austria, Netherlands, Italy, Luxembourg) would have been net contributors to the scheme for the whole

period. The largest contributor would have been Italy, with a cumulative contribution of €67.1 billion over the period, which is equal to 4.3% of its GDP in 2012. This can be attributed notably to Italy's very low coverage rate. On the other hand, Spain would have benefited substantially from the scheme between 2009 and 2012, receiving net annual transfers equal to about 1.5% of its GDP. This would have made it the largest net beneficiary over the simulation period, receiving more than €74 billion in 13 years, equal to 7.1% of its GDP in 2012. Germany's position as a net beneficiary over the simulation period is mainly attributable to its high coverage rate. Results therefore need to be taken with caution because they rely heavily on coverage rates assumptions, which remain quite rough.

(19) The contribution rates, which are recalculated every 5 years, as described in Appendix 3, would have been 1.4% between 2000 and 2005, 1.2% between 2005 and 2010 and 1.2% again between 2010 and 2012.

**Such a scheme would be difficult to accept under current circumstances, because it would lead to long-term transfers, thereby creating a high degree of moral hazard.** Labour market performances vary greatly from one Member State to the next.

This means that countries with high unemployment benefiting from lasting transfers, with no incentive to implement measures to reduce their structural unemployment, since employment and labour market policies are still exclusively a domestic matter.

**Table 5: Implied net transfers under a scheme with a single contribution rate (in points of GDP)**

|                                | 2000  | 2001  | 2002  | 2003  | 2004  | 2005  | 2006  | 2007  | 2008  | 2009  | 2010  | 2011  | 2012  | Net balance at end 2012 (€bn) | Net balance at end 2012 (% of GDP 2012) |
|--------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------------------------------|-----------------------------------------|
| Belgium                        | 0.4%  | 0.3%  | 0.2%  | 0.1%  | 0.2%  | 0.0%  | 0.0%  | 0.1%  | 0.1%  | -0.1% | 0.0%  | 0.1%  | 0.0%  | 3.6                           | 0.9%                                    |
| Germany                        | 0.1%  | 0.1%  | 0.0%  | -0.2% | -0.2% | -0.3% | -0.2% | 0.0%  | 0.0%  | -0.1% | 0.0%  | 0.1%  | 0.1%  | -16.6                         | -0.6%                                   |
| Ireland                        | 0.3%  | 0.3%  | 0.3%  | 0.3%  | 0.3%  | 0.2%  | 0.3%  | 0.2%  | 0.1%  | -0.7% | -0.5% | -0.3% | -0.3% | 0.6                           | 0.4%                                    |
| Greece                         | 0.3%  | 0.2%  | 0.3%  | 0.3%  | 0.3%  | 0.1%  | 0.2%  | 0.2%  | 0.2%  | 0.0%  | -0.2% | -0.5% | -0.7% | 0.5                           | 0.2%                                    |
| Spain                          | -0.1% | 0.1%  | 0.0%  | -0.1% | 0.0%  | -0.1% | -0.1% | -0.1% | -0.5% | -1.6% | -1.5% | -1.4% | -1.7% | -74.5                         | -7.1%                                   |
| France                         | 0.1%  | 0.1%  | 0.0%  | 0.0%  | 0.0%  | -0.1% | 0.0%  | 0.1%  | 0.1%  | -0.2% | -0.2% | -0.1% | -0.2% | -8.5                          | -0.4%                                   |
| Italy                          | 0.4%  | 0.4%  | 0.4%  | 0.4%  | 0.4%  | 0.3%  | 0.4%  | 0.4%  | 0.4%  | 0.3%  | 0.3%  | 0.3%  | 0.2%  | 67.1                          | 4.3%                                    |
| Luxembourg                     | 0.3%  | 0.4%  | 0.3%  | 0.2%  | 0.2%  | 0.1%  | 0.1%  | 0.2%  | 0.1%  | 0.1%  | 0.1%  | 0.1%  | 0.1%  | 0.7                           | 1.6%                                    |
| Netherlands                    | 0.7%  | 0.7%  | 0.7%  | 0.5%  | 0.5%  | 0.3%  | 0.5%  | 0.5%  | 0.5%  | 0.4%  | 0.3%  | 0.3%  | 0.2%  | 31.9                          | 5.3%                                    |
| Austria                        | 0.2%  | 0.2%  | 0.2%  | 0.2%  | 0.2%  | 0.1%  | 0.2%  | 0.2%  | 0.3%  | 0.1%  | 0.2%  | 0.2%  | 0.2%  | 6.3                           | 2.0%                                    |
| Portugal                       | 0.5%  | 0.5%  | 0.4%  | 0.2%  | 0.3%  | 0.1%  | 0.2%  | 0.1%  | 0.2%  | -0.2% | -0.1% | -0.3% | -0.5% | 1.9                           | 1.1%                                    |
| Finland                        | -0.4% | -0.3% | -0.4% | -0.5% | -0.4% | -0.2% | -0.1% | -0.1% | -0.1% | -0.4% | -0.4% | -0.3% | -0.3% | -6.0                          | -3.1%                                   |
| Annual cash position (€bn)     | 12.3  | 15.1  | 10.0  | 4.8   | 7.1   | -2.4  | 5.1   | 10.8  | 8.0   | -19.0 | -16.3 | -9.9  | -18.4 |                               |                                         |
| Cumulative cash position (€bn) | 12.3  | 27.4  | 37.3  | 42.1  | 49.2  | 46.8  | 51.9  | 62.7  | 70.6  | 51.6  | 35.3  | 25.4  | 7.0   |                               |                                         |

Sources: DG Trésor estimates, Eurostat LFS, AMECO.

#### **4.2 However, such a scheme could be considered in the longer term, after a convergence of Member States' labour market performances**

**In the longer term, euro area Member States could decide to establish a basic unemployment insurance scheme with the same contribution rate for all Member States.** If the previous option, with different contribution rates, is implemented, and if the Member States' unemployment rates converge, then their contribution rates will naturally converge too. Under such circumstances, a scheme could then be considered with the same contribution rate for all Member States and where the Member States' accounts in the central fund would gradually be pooled.

**In practice, access to the latter scheme could be conditional on convergence of unemployment rates, creating the need for closer coordination of employment policies.** Closer coordination would be needed to ensure that any future deviation in unemployment rates does not stem from non-cooperative structural policies<sup>20</sup>. The access criteria could be negotiated by European social partners. The scheme with a single contribution rate could include a smaller number of countries at the start, and then be gradually extended to other countries as they meet the criteria. The higher degree of solidarity would ultimately require a reinforced European governance with regard to the functioning of the labour market.

**Introducing such an unemployment insurance scheme could also promote harmonisation of Member States labour markets, which would make the euro area work better.** Harmonisation would ensure more uniform labour market responses to shocks across the Member States, which would make the Central Bank's task easier. Furthermore, labour market harmonisation and the introduction of a European basic unemployment benefit (with entitlements that follow beneficiaries moving between Member States) could lead to a substantial increase in labour mobility.

#### **4.3 In addition to improving countercyclical stabilisation, this option would create a risk-sharing and redistribution mechanism, which the euro area does not have today**

**In most existing federations, centralised automatic stabilisers improve stabilisation capacity and also result in redistribution between the different States.** In practical terms, we need to distinguish between two effects of centralising automatic stabilisers, in particular for unemployment insurance:

- Enhanced macroeconomic stabilisation when events lead to a momentary downturn in economic activity (temporary shocks), through joint financing of the temporary deficits generated by the automatic stabilisers.
- Redistribution when lasting divergences emerge (permanent shocks). In the case of unemployment insu-

(20) Closer coordination of employment policies could include matters relating to rules for terminating employees, methods for setting minimum wages or segmentation of the labour market. Another option, put forward by the French Council of Economic Analysis (CAE) in its Note No. 3 "Completing the euro" of April 2013, would be to make access to the common system conditional on acceptance of a European contract of employment.

rance, a benefit scheme with a single contribution rate would automatically redistribute wealth from low-unemployment countries to high-unemployment countries. For example, unemployment insurance in France redistributes wealth between different regions of the country. Furthermore, centralising automatic stabilisers may create a risk-sharing mechanism for permanent shocks, leading to long-term transfers between countries.

**Centralisation of automatic stabilisers may or may not lead to long-term transfers and redistribution, depending on how it is calibrated.** For example, the scheme proposed in Part 3, with different contribution rates for each Member State, leads to stabilisation without redistribution or long-term transfers, whereas the scheme proposed in Part 4, with the same contribution rate for all

countries, would establish a more ambitious form of risk-sharing.

\*\*\*

**Establishing a common basic unemployment insurance scheme would have structural implications on euro area integration, while improving the macroeconomic and financial stabilisation.**

**More specifically, it would be an effective and concrete achievement in terms of European social integration. Given the scale of such a project and its implications, the scheme would need to be implemented in stages. It would be a step towards greater solidarity between countries sharing the same currency and towards enhanced coordination of labour market policies.**

Thomas LELLOUCH, Arthur SODE

## *The view of...*

*Xavier TIMBEAU*

*Unemployment insurance is an important automatic stabilizer. Significant transfers would have taken place during the recent crisis if Member States had chosen to mutualize unemployment insurance, as explained in the Trésor-Economics n°132. Spain alone would have had received more than €35bn by the end of 2012, coming mainly from France and Germany. A mechanism of this sort could have a major role in preventing sovereign debt crises, which take a heavy toll on States' public finances. However, there are three major problems. First, national unemployment insurance systems are the result of well-accepted national social compromise and are consistent with the rest of labour-market policies (active or not). An interwoven system comprising a European unemployment insurance mechanism and national systems could generate confusion, disturb social dialogue and lead to attempts by European authorities to intrude in often highly-sensitive domestic debates. This could be solved if mutualization were limited to macroeconomic transfers only, independently of national arrangements. However - and this is the second problem -, avoiding structural transfers would require balancing transfers between Member States over the cycle, which would in turn require either a procedure to reliably identify countries' cyclical positions or, alternatively, to have the fund topped-up before it is used and to then limit transfers to the amounts that have been accumulated within the fund. True, this would limit its systemic impact - but the problem is that if transfers are not balanced, the mechanism could lead to durable, structural, and non-desirable transfers which would ultimately threaten the mechanism's existence. Unemployment in Spain, for example, is extremely high and well above its structural level. Entering into a system of transfers based on the gap between the effective rate of unemployment and the structural rate of unemployment can therefore only take place at equilibrium, if the risk of the initial transfer becoming durable is to be avoided. This brings us to the issue of governance. It is difficult to imagine such a mechanism without potentially significant transfers between States taking place. But this raises the question of how such transfers could be justified and made acceptable without some form of legitimate common representation. It also raises the question of how to prevent these transfers from being used to control the macroeconomic policy more generally. The recent discussions on Banking Union have shown that these difficulties are central. Spain's reluctance to enter into the EU/IMF conditionality required to activate the ECB's OMT instrument in 2012 is also a clear illustration of the fact that without genuine solidarity, beneficiaries of transfers and creditors alike have reason to regard such arrangements with suspicion.*

*Xavier TIMBEAU*

*Director, Forecast and macroeconomic department, OFCE*

## Appendix 1 : Unemployment insurance is an important economic stabiliser

**Unemployment benefit expenditure is an important automatic stabiliser that attenuates the economic impact of cyclical shocks.** By maintaining a certain level of income for the unemployed, benefits support demand and give the unemployed enough time to find a job that matches their qualifications or to retrain if necessary. Furthermore, the multiplier effect of unemployment insurance benefit expenditure is very large since it primarily targets low-income households facing cash shortfalls. This targeting also provides a safety net for individuals who are most vulnerable to precarity and poverty. Finally, unemployment benefits are a particularly effective stabilisation tool because they are a virtually instantaneous response to a downturn in the business cycle.

**In empirical terms, unemployment benefits expenditure would reduce the variability of GDP in a major recession, and reduces the variability of income even more when the benefit scheme is generous and shocks have a direct impact on employment<sup>a</sup>.** Different methods have been used to estimate the stabiliser effect of unemployment insurance. On the one hand, some studies, like Von Hagen (1992) or Asdrubali, Sorensen and Yosha (1996), which use econometric methods to estimate the average impact on GDP over the whole business, find a relatively weak stabiliser effect of some 2%. On the other hand, studies relying on macroeconomic models estimate the marginal impact of unemployment insurance during major recessions and find a much more significant stabiliser effect on GDP, ranging from 15% to 20%, and even more in countries with generous unemployment benefits (up to 60% of household income stabilisation in Denmark in Dolls et al. (2010)).

**Table 6: Main empirical studies of the stabiliser effect of unemployment insurance**

| Estimation method                 | Study                                | Country      | Period                             | Stabiliser effect on GDP                                                                                                                            |
|-----------------------------------|--------------------------------------|--------------|------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|
| Regression                        | Von Hagen (1992)                     | US           | 1963-1990                          | 2% (but excluding extended and emergency unemployment benefits)                                                                                     |
|                                   | Asdrubali, Sorensen and Yosha (1996) | US           | 1963-1995                          | 1.7%                                                                                                                                                |
| Ad hoc calculation on a recession | Auebach and Feenberg (JEP, 2000)     | US           | 1990-1991                          | 2% (but excluding extended and emergency unemployment benefits)                                                                                     |
| Macroeconometric model            | Chimerine, Black and Coffey (1999)   | US           | 5 recessions between 1969 and 2000 | 15%                                                                                                                                                 |
|                                   | Dolls, Fuest and Peichl (NBER, 2010) | 20 countries | -                                  | Stabiliser effect on GDP: 5% on average for income shocks<br>Stabiliser effect on income: between 10% (USA) and 60% (Denmark) for employment shocks |
|                                   | Vroman (2010)                        | USA          | Recession from 2008Q3 - 2010Q2     | 20%                                                                                                                                                 |

Sources : Von Hagen (1992), Asdrubali, Sorensen and Yosha (1996), Auebach and Feenberg (2000), Chimerine, Black et Coffey (1999), Dolls, Fuest and Peichl (2010), Vroman (2010).

NB: The findings of the different estimates are not comparable because of the methodologies used: studies based on regressions estimate the average stabilisation effect of unemployment benefit expenditure, whereas studies based on macroeconomic models estimate the marginal stabilisation. Besides, a stabilizer effect on GDP of 20% means that the unemployment insurance alone ensures that the ultimate impact of a negative GDP shock of 1 point of *ex ante* GDP would be only 0.80 points.

- a. Most of these estimates are based on micro-econometric models that have been calibrated on the existing social models (taxes and benefits). The results should be interpreted with caution, since the simulations rely on many assumptions that are sometimes sensitive to the modeling choices.

## Appendix 2 : Treatment of unemployment insurance coverage rates in the simulations

The coverage rates, which are defined as the ratio of the number of unemployed receiving benefits over the total number of unemployed, vary considerably from one Member State to the next and also, to a lesser extent, over time in a given Member State<sup>a</sup> (see Chart 6). The differences between Member States and changes over time stem from different causes:

- First of all, they stem from differences in eligibility criteria. The stricter the **eligibility criteria**, the lower the coverage rates (see Chart 7). Besides, duration of unemployment benefits has also a mechanical impact on coverage rates.
- The coverage rate also depends on the **specific labour market characteristics** in each Member State<sup>b</sup>. Under the given criteria, the eligibility of a jobseeker for unemployment insurance benefits then depends on his or her individual work history. This means that coverage rates will be relatively low in labour markets with large numbers of young jobseekers or workers employed under temporary contracts who have not paid into the scheme long enough, as well long-term unemployed whose benefits have run out. It is also possible that a high proportion of casual or seasonal jobs has a negative impact on the coverage rate.
- The coverage rate also varies according to the **position in the business cycle**. More specifically, it will rise at the beginning of a recession, as the unemployment rate rises. This is because most newly unemployed workers will have paid into the scheme for long enough before the recession occurred.

The proposal for a euro area unemployment insurance scheme is based on implementing a minimum benefit that, in addition to having the same duration and income replacement rate, would come with the same eligibility criteria. With the same eligibility criteria, the Member States' coverage rates should converge naturally. In order to run a simulation for the period from 2000 to 2012, we need to generate series of hypothetical coverage rates over the period, meaning the coverage rates that would have existed if all Member States had had the same eligibility criteria. So we used hypothetical coverage rates that lie halfway between the historical rates observed in each Member State and the mean rate for the euro area<sup>c</sup>. This *ad hoc* assumption implies that the Member States with high coverage rates would have lower rates, based on the common criteria, and *vice versa* for Member States with relatively low coverage rates. The hypothetical coverage rates still have some of their distinctive characteristics between Member States and over time<sup>d</sup>.

Chart 6: Coverage rate of people unemployed between 0 and 12 months

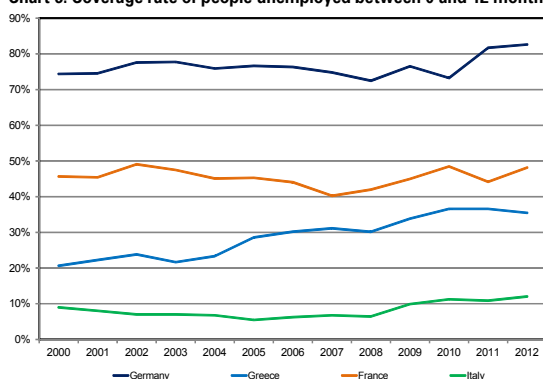
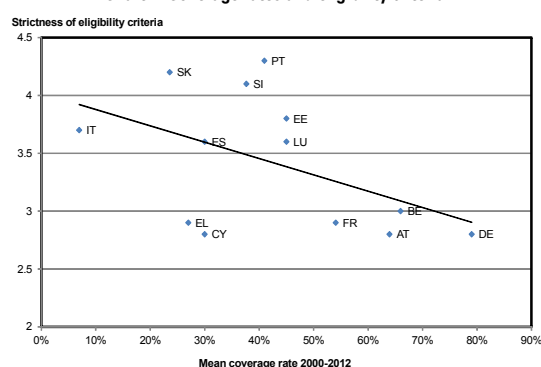


Chart 7: Coverage rates and eligibility criteria



- The data used in the simulations come from the Eurostat Labour Force Survey. Some coverage rate data are missing, particularly for Ireland and the Netherlands. For the purposes of our simulations on the 17 Member States, we use the mean coverage ratio for the euro area for Ireland and the German coverage rate for the Netherlands.
- In addition, some of the unemployed eligible for benefits do not collect them, either because they do not sign up voluntarily (administrative costs) or because they do not know that they are eligible.
- If  $TC_{i,t}$  denotes the historical coverage rate of the Member State  $i$  in year  $t$  and  $TC_{ZE,t}$  denotes the mean coverage rate for the euro area in year  $t$ , the hypothetical coverage rate corresponding to common eligibility criteria would be  $TC^*_{i,t} = TC_{i,t} - 0,5 \times (TC_{i,t} - TC_{ZE,t})$ .
- Another method, proposed by Dullien (2013) is to estimate the coverage rates on the basis of variations in the employment rate, the increase in short-term unemployment and the increase in total unemployment. See Dullien, (2013), "A euro-area wide unemployment insurance as an automatic stabilizer: Who benefits and who pays?", drafted for the European Commission (DG EMPL).

## Appendix 3 : Simulation and method for calculating contribution rates

### General setup

The simulations are run on the assumption that total annual benefits paid out by the central scheme to a Member State are equal to the average wage in that Member State multiplied by the number of unemployed actually receiving benefits and the replacement rate chosen. This means that we assume that the past earnings of the unemployed receiving benefits under the scheme are equal to the average wage for the period under consideration. As a result of this assumption, the amount of total benefits paid out is bound to be overestimated. We apply the formula  $I_{i,t} = w_{i,t} \times U_{i,t} \times TC_{i,t} \times TR$  where  $I_{i,t}$  denotes the total benefits paid out by each Member State  $i$  in year  $t$ ,  $w_{i,t}$  denotes the average wage,  $U_{i,t}$  denotes the number of unemployed,  $E_{i,t}$  denotes the number of employed,  $TC_{i,t}$  denotes the coverage rate, and  $TR$  denotes the replacement rate.

The total contributions that a Member State pays into the scheme are equal to the average wage, multiplied by total employment (or the total wage bill), multiplied by the contribution rate applied to that Member State for the year under consideration. The data used for the simulations come from Eurostat. We apply the formula:  $C_{i,t} = w_{i,t} \times E_{i,t} \times \tau_{i,t}$ , where  $C_{i,t}$  denotes the total contributions paid,  $E_{i,t}$  denotes total employment and  $\tau_{i,t}$  denotes the social contribution rate for each Member State  $i$  in year  $t$ .

Ultimately, the implied net transfer received or paid by Member State  $i$  in year  $t$ , denoted  $T_{i,t}$ , is:  $T_{i,t} = C_{i,t} - I_{i,t}$ . If  $T_{i,t} > 0$ , Member State  $i$  is a net contributor to the European unemployment insurance scheme in year  $t$  and it is a net beneficiary if  $T_{i,t} < 0$ .

### Method for updating contribution rates

In a scheme where each Member State has a specific contribution rate (see Part 3), the individual rates are set every 5 years for the next 5 years. Therefore, the contribution rates for each Member State are calculated in 2000, 2005 and 2010. The equation below is an example of the contribution rate calculation for Member State  $i$  in 2005, to be applied between 2005 and 2009:

$$\tau_{i,[2005;2009]}^{2005} = \frac{\sum_{t=2000}^{2004} I_{i,t}}{\sum_{t=2000}^{2004} w_{i,t} \times E_{i,t}}$$

In the case of a scheme with the same contribution rate for all Member States (see Part 4), the calculation of the contribution rate over the 5-year period under consideration is similar to the calculation above, but the rate is calculated to balance the benefits paid out against the contributions paid into the central scheme for all Member States, and not for an individual Member States. To do this, we sum the benefits  $I_{i,t}$  and the total wage bills  $w_{i,t} \times E_{i,t}$  for all Member States  $i$  that participate in the scheme. This gives us the following formula for the contribution rate calculated in 2005 to be applied between 2005 and 2009:

$$\tau_{[2005;2009]}^{2005} = \frac{\sum_{t=2000}^{2004} \sum_i I_{i,t}}{\sum_{t=2000}^{2004} \sum_i w_{i,t} \times E_{i,t}}$$

#### Publisher:

Ministère des Finances et  
des Comptes Publics  
Ministère de l'Économie  
du Redressement Productif  
et du Numérique

Direction Générale du Trésor  
139, rue de Bercy  
75575 Paris CEDEX 12

#### Publication manager:

Sandrine Duchêne

#### Editor in chief:

Jean-Philippe Vincent  
+33 (0)1 44 87 18 51  
tresor-eco@dgtresor.gouv.fr

#### English translation:

Centre de traduction des  
ministères économique  
et financier

#### Layout:

Maryse Dos Santos  
ISSN 1962-400X

### Recent Issues in English

#### May 2014

**No. 128.** What next for globalisation?  
Arthur Sode

#### April 2014

**No. 127.** Gauging the impact of the french public seed-fund programme launched in 1999  
Doryane Huber, Henry Delcamp and Guillaume Ferrero

**No. 126.** The global economy in the spring of 2014: stronger growth, but new risks  
Flore Bouvard, Samuel Delepierre and Marie Magnien

#### March 2014

**No. 125.** Are business surveys equally successful to forecast economic activity in France?  
Stéphane Capet and Stéphanie Combes

#### February 2014

**No. 124.** Challenges facing French industry  
Guillaume Ferrero, Alexandre Gazaniol, Guy Lalanne

<http://www.tresor.economie.gouv.fr/tresor-economics>

*This study was prepared under the authority of the Directorate General of the Treasury (DG Trésor) and does not necessarily reflect the position of the Ministry for Finance and Public Accounts and Ministry for the Economy, Industrial Renewal and Digital Affairs.*