



BANCA D'ITALIA  
EUROSISTEMA

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(Occasional Papers)

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of a fiscal union for the euro area

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*The series is available online at [www.bancaditalia.it](http://www.bancaditalia.it).*

ISSN 1972-6627 (print)

ISSN 1972-6643 (online)

*Printed by the Printing and Publishing Division of the Bank of Italy*

# JUST ROUND THE CORNER? PROS, CONS, AND IMPLEMENTATION ISSUES OF A FISCAL UNION FOR THE EURO AREA

by Fabrizio Balassone\*, Sandro Momigliano\*, Marzia Romanelli\* and Pietro Tommasino\*

## Abstract

The experience of other successful monetary unions and economic theory suggest that the euro area would benefit from the establishment of a supranational fiscal capacity. Institutional reforms prompted by the crisis (e.g., the European Stability Mechanism and the banking union) are introducing – though to a limited extent – elements of cross-country risk sharing. Nevertheless, further steps are probably needed. Proposals to create a sort of rainy-day fund present major practical difficulties – associated, *inter alia*, to the uncertainty characterizing the identification of shocks in real time. A more appropriate solution, consistent with how risk sharing operates in existing federations, may be centralizing specific public functions (for instance, by introducing a common unemployment benefit scheme). We argue that consideration could also be given to the creation of a euro-wide, notional defined-contribution pension scheme.

**JEL Classification:** E42, E62, F15, F42, H77.

**Keywords:** fiscal union, intergovernmental transfers, risk sharing.

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## 1 Introduction<sup>1</sup>

The sovereign debt crisis taught European policy-makers several lessons: first, European fiscal rules were backed by weak enforcement mechanisms; second, those rules were in any case insufficient, since they did not consider other macroeconomic imbalances; third, the European framework lacked crisis-resolution instruments to deal with sovereign crises in an orderly way; fourth, the potential implications of the link between sovereigns and banks in a monetary union had been underestimated; and, fifth, the costs of debt deleveraging and macroeconomic adjustment are exacerbated in a monetary union, if there is no fiscal federal authority and national ones are constrained by insufficient fiscal space.

Some of these lessons were predictable on the basis of well-established economic principles (as argued forcefully by Krugman, 2013) but they involved thorny issues, such as the necessity to complement a monetary union with a fiscal union, which were knowingly side-stepped by European policy makers. Indeed, a report on the fiscal union (the MacDougall Report) was published already in 1977 on behalf of the European Commission, and a mention concerning the economic desirability of a Community budget is present even in the 1970 Werner Report.<sup>2</sup>

In the end, the crisis prompted serious efforts to address the above-mentioned shortcomings. Fiscal rules have been strengthened – through the Six-pack, the Two-pack and the Fiscal Compact – and mechanisms for crisis management have been introduced: the European Financial Stabilization Facility (EFSF) first, and the European Stability Mechanism (ESM) later. The Six-pack has also provided a new surveillance tool to monitor and correct imbalances other than the fiscal ones, *i.e.* the macroeconomic imbalances procedure (MIP). In addition, the creation of a banking union was devised as a means to sever the link between banks and sovereigns.

Much work is still needed to refine the new tools introduced by these tightly sequenced reforms: the management of sovereign insolvency crises remains somewhat unstructured compared to the detailed procedures defined for dealing with liquidity crises through the ESM; the banking union project needs completing; the effectiveness of the MIP remains to be tested.

Most importantly, little progress has been made in the way of defining stabilization mechanisms which can supplement national budgets. The need to remedy the asymmetry of a single monetary policy and multiple national budgets was recognized in reports released in 2012 by the European Commission and by the President of the European Council. Both reports envisaged the creation of a fiscal capacity for the economic and monetary union (EMU) to support member states in the absorption of shocks and in the implementation of structural reforms. However, discussion of a subsequent proposal by the European Commission in March 2013 to implement such contractual agreements lead to no constructive result.<sup>3</sup> Since then, the official debate on a fiscal union for EMU has been at a stand-still.

Against this background, the paper reviews the economic rationale for a fiscal union in EMU (Section 2) and the lessons learned from other successful federal countries (Section 3). It then

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<sup>1</sup> The opinions expressed in this paper are the authors' and do not necessarily reflect those of the Bank of Italy. We thank Georg Fischer, Eugenio Gaiotti, Paolo Sestito, seminar participants at the Bank of Italy, the XXVI Villa Mondragone International Economic Seminar and the 107th Annual Conference on Taxation of the National Tax Association for helpful comments and suggestions. Corresponding author: Piero Tommasino: [piero.tommasino@bancaditalia.it](mailto:piero.tommasino@bancaditalia.it).

<sup>2</sup> Later on, the technical papers accompanying the 1989 Delors Report and especially European Commission (1993a, b) discussed the topic in depth. On May 3, 1998, when Europe was completing the last steps before the adoption of the single currency, Tommaso Padoa Schioppa wrote in a column for *Corriere della Sera*: "The Union has full competence for microeconomic policy (...), but its capability for macroeconomic policy is, with the exception of the monetary field, embryonic and unbalanced: it can avoid harm (excessive deficits) but it cannot do good (a proper fiscal policy). (...) It is thus right not only to applaud yesterday's step but also to underline its unfinished nature, the risks and the rashness".

<sup>3</sup> Communication from the Commission to the European Parliament and the Council COM(2013) 165 final.

summarizes the “official” proposals put forward in the debate (Section 4), examines existing risk-sharing mechanisms in the euro area (Section 5) and discusses the possible ways to implement a fiscal union in Europe (Section 6). Section 7 concludes.

## 2 The economics (and politics) of fiscal unions

Economists have discussed the costs and benefits of membership of a monetary union since Mundell (1961). The main intuition behind the so-called theory of optimum currency areas (OCA) is that, once the exchange rate is irrevocably fixed, nation-specific shocks to aggregate demand induce current account imbalances that – to the extent that domestic prices are sticky – translate into lengthy and painful internal deflation which cannot be addressed by the area-wide monetary policy. Therefore the expected net benefits of a monetary union are higher if each member economy produces a quite similar and well-diversified mix of products (so that sizable asymmetric demand shocks are rare), if domestic wages are flexible and cross-country labour mobility is high, and if labour market institutions are similar.<sup>4</sup>

Kenen (1969) was the first to point out that a shared fiscal policy could reduce the costs of being a member of a monetary union.<sup>5</sup> He argued that the operation of area-wide automatic fiscal stabilizers would allow to re-establish equilibrium while limiting the necessary reduction (increase) in domestic prices and wages in a countries affected by an adverse (positive) asymmetric demand shock. This mechanism would be particularly desirable in the euro area as its member states display less cross-country labour mobility compared to the US and other established federations (Obstfeld and Peri, 1999) and appear relatively more likely to be hit by asymmetric shocks (Bayoumi and Eichengreen, 1992<sup>6</sup>).

Kenen’s (1969) argument is subject to three main objections:

- 1 *Member states’ fiscal policies could be in principle sufficient to absorb the effects of cyclical fluctuations.* Indeed, member states of the euro area run sizable budgets and the EU budgetary framework grants enough fiscal room for manoeuvre to countries which enter a “normal” downturn with deficits near to their medium-term objectives and debts close to 60 per cent of GDP. However, economies in a monetary union are more integrated than stand-alone countries. This magnifies spillovers and reduces the effectiveness of national fiscal reactions. As remarked by Oates (1972), “[in highly open economies] the leakages from a marginal dollar of private spending are likely to be quite large. As a result, in a simple Keynesian system, the expenditure multiplier is likely to be quite small”.<sup>7</sup> Coordination of national fiscal policies could be an alternative way to internalize cross-country spillovers, but it is subject to the delays and the difficulties inherent in international negotiations.
- 2 *Financial markets could provide insurance against national income fluctuations analogous to that provided by a fiscal union.* Indeed, well-developed financial markets could be used by citizens of a country hit by an adverse economic to smooth consumption

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<sup>4</sup> For a survey of the OCA literature, see Mongelli (2005), Dellas and Tavlas (2009) or De Grauwe (2012).

<sup>5</sup> The importance of area-wide automatic stabilizers is greater in the case of adverse shocks, given that prices and wages are more likely to be rigid downward than upward.

<sup>6</sup> Frankel and Rose (1998) argued that the introduction of the single currency itself would have increased the synchronization of business cycles across member states and the degree of flexibility and competitiveness of the internal market, thanks to the elimination of the exchange rate risk and the reduction of transaction costs. However, this process seems far from complete (Afonso and Furceri, 2008).

<sup>7</sup> The size of fiscal policy spillovers in the euro area has been assessed in several papers (e.g. Cwik and Wieland, 2011, Beetsma *et al.*, 2006). Recently it has been shown that cross-country spillovers tend to be larger in recessions (Auerbach and Gorodnichenko, 2013).



*ex post*, borrowing from citizens of countries which have not been hit by the shock. More importantly, financial markets provide *ex ante* income insurance: holding foreign assets, citizens of each member country can build a portfolio whose returns are not correlated with economic conditions in their own country. The extent to which it is possible to insure against country-specific shocks using financial markets is an empirical matter: this risk-sharing channel is much more developed in the US than in Europe (Atkeson and Bayoumi, 1993, Sorensen and Yosha, 1998), where there is still a pronounced national segmentation, even if there are some signs of convergence (Afonso and Furceri, 2008, Kalemli-Ozcan et al., 2005). Moreover, this channel for risk-sharing might not be easily accessible to low-income households, and it is likely to become less accessible during a major recession. Finally, Fahri and Wening (2013) have recently argued that, even with perfect financial markets, economic agents tend to under-insure, because they neglect the aggregate-demand externalities inherent in their choices.<sup>8</sup>

- 3 *The insurance-incentives trade-off.* A strong political-economy objection to the establishment of a fiscal union is the increased risk of moral hazard (Persson and Tabellini, 1996). For example, if countries could count on supranational instruments to reduce the cost of unemployment, they would have less incentives to pursue policies which might reduce unemployment risk to start with, especially if such policies entailed significant political costs. However, it must be acknowledged that the reform of European governance has strengthened the safeguards against moral hazard.

### 3 The size of federal automatic stabilizers in successful fiscal unions

While economic theory identifies the main trade-offs involved in the decision to complement a monetary union with a supranational fiscal capacity, and therefore it is helpful to frame the discussion about a possible fiscal union for the euro area, theory alone cannot say whether such a fiscal union is desirable, let alone determine its optimal scope and size. In this section we try to cast more light on these questions, considering the amount of fiscal risk-sharing prevailing in established federations.

Starting from Asdrubali *et al.* (1996), the literature on risk-sharing in federal countries has focused on three main channels. First, (as we mentioned above) each region can smooth country-specific income shocks by holding a geographically well-diversified portfolio of assets; second, it may benefit from transfers from other states or from higher levels of government; third, it may reduce its savings.

What is mainly relevant for our discussion is the fraction of risk-sharing obtained through the federal budget – currently close to zero for the euro area. Concerning the US, there is a consensus that 10-15 per cent of individual states income variability is offset by the federal fiscal system (Asdrubali *et al.*, 1996; Melitz and Zumer, 2002). Similar results are found for Canada (Melitz and Zumer, 2002; Obstfeld and Peri, 1998) and other federal countries.

These findings suggest that the absence of a “federal” budget puts euro area countries at a disadvantage compared to US states when faced with asymmetric adverse shocks.

Interestingly, in the US, the most significant shift in the fiscal balance of power between the Federal government and the individual states was spurred by the Great Depression. At the beginning of the ‘30s about 70% of government expenditures in the US pertained to the sub federal

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<sup>8</sup> By making their income less volatile, each economic agent contributes to make aggregate-demand less volatile, which entails benefits for other agents as well.

level, while in 1940 this share dropped to slightly above 50%, with overall government spending remaining almost unchanged (Wallis, 1984).

#### **4 A fiscal union for the euro area: the official debate**

The official debate on a fiscal union for EMU started in mid-2012, when the European Council invited its President “to develop, in close collaboration with the President of the Commission, the President of the Eurogroup and the President of the ECB, a specific and time-bound road map for the achievement of a genuine Economic and Monetary Union”.

Official proposals put forward since then, share the following conclusions – though with differences in emphasis:

- 1 a fiscal capacity is necessary for the EMU to increase its ability to absorb asymmetric shocks;
- 2 a microeconomic approach, supported, for instance, by unemployment benefits, is preferable over a macroeconomic one, grounded on rule-based transfers from a common pool of resources accrued to a “rainy-day fund” (Section 6 provides a thorough discussion of both approaches);
- 3 the related increase in risk-sharing should be accompanied by adequate safeguards against moral hazard (some further strengthening of surveillance and coordination mechanisms may be therefore needed);
- 4 a fiscal union for the euro area is a medium- to long-run project, not something to be implemented to help countries out of the current crisis.

Manifest controversy concerns instead the possibility to accompany such risk-sharing arrangement by some form of redistribution through permanent transfers, and to extend the common fiscal capacity to cover common shocks and to finance euro-wide investment projects.

In its November 2012 *Blueprint for a Deep and Genuine Economic and Monetary Union*, the European Commission proposes a phased approach to strengthening the EMU and developing its fiscal capacity. In the short term (within the next 6-18 months) there would be “the establishment of a financial instrument within the EU budget to support re-balancing, adjustment and thereby growth of the economies of the EMU” (p. 12). In the medium term (18 months to 5 years), a proper fiscal capacity for the EMU should be established to support the implementation of the policy choices resulting from deeper policy coordination. Finally, in the long term (beyond 5 years), “the establishment of an autonomous euro area budget providing for a fiscal capacity for the EMU to support Member States in the absorption of shocks should become possible” (p. 12).

A similar approach is taken in Report by the President of the European Council.<sup>9</sup> Setting up “a mechanism for stronger coordination, convergence and enforcement of structural policies based on arrangements of a contractual nature between member states and EU institutions [backed by] temporary, targeted and flexible financial support” (p. 4) is recommended in the short term, before end-2014. “[E]stablishing a well-defined and limited fiscal capacity to improve the absorption of country specific economic shocks, through an insurance system set up at the central level” (p. 5) is seen as a goal for the longer term.

Concerns over moral hazard are voiced more explicitly compared to the Commission’s *Blueprint*: fiscal risk-sharing “needs to be complemented with a mechanism to induce stronger economic convergence, based on structural policies aiming at improving the adjustment capacity of national economies and avoiding the risk of moral hazard inherent to any insurance system. Hence,

<sup>9</sup> The report *Towards a Genuine Economic and Monetary Union* was presented in June 2012 and updated the following December.

in addition to fulfilling their intrinsic purpose, successfully implementing reforms specified in a contractual arrangement could also serve as a criterion for participating in the asymmetric shock absorption function” (p.10).

The *Report* stresses that: “elements of fiscal risk-sharing related to the absorption of country-specific shocks should be structured in such a way that they do not lead to unidirectional and permanent transfers between countries, nor should they be conceived as income equalisation tools.” (p. 12).

A recent IMF Staff Discussion Note (Allard *et al.*, 2013) argues along similar lines. Four elements are identified as essential for a successful fiscal union: first, better oversight and stronger incentives for sound national fiscal policies; second, and subject to the above, some system of temporary transfers or joint provision of common public goods or services to increase fiscal risk-sharing; third, credible pan-euro area backstops for the banking sector to help break the sovereign-banking link; fourth, some form of common borrowing (backed by common revenue) to provide a safe asset and reduce the potential for large portfolio shifts between sovereigns.

The IMF Staff Note excludes a redistributive role for the common fiscal capacity. Diverging from the Report of the President of the Council and more aligned with the Commission’s *Blueprint*, the *Note* puts significant weight on the issue of common borrowing.<sup>10</sup>

A recent paper by French Treasury Staff (Caudal *et al.*, 2013) also argues in favour of “a permanent stabilisation mechanism capable, in particular, of dealing with asymmetric shocks”<sup>11</sup> However, the French paper does not limit the function of the common budget to the absorption of asymmetric macroeconomic shocks. First, “the function of a public backstop at European level within the framework of the banking union could also depend ultimately on the euro area budget.” (p. 6). Second, “giving the budget a capacity to provide fiscal stimulus in the event of a simultaneous contraction of activity in all euro area member states would complete the action of monetary policy [...]. Moreover, over and beyond its fiscal stimulus function, one could envisage authorising a limited structural deficit, for example in order to finance investments” (p. 8).

The paper argues that the euro-area central budget could also involve an element of permanent redistribution: “given the highly heterogeneous structure of the individual member states’ economies, and the existence of potential agglomeration effects within currency areas leading to the concentration of activity at the area’s core at the expense of peripheral states, some regions could experience greater and more recurring difficulties than others. It could therefore be justifiable, in economic terms, for these peripheral regions to benefit from the common budget more frequently.” (p. 11).

The issue of moral hazard is not overlooked in the analysis: “the creation of a euro area budget, reflecting greater solidarity between member states, could ultimately justify a further strengthening of European economic governance, subject to the democratic legitimacy of the arrangement” (p. 11).

The position of the French paper echoes the resolution adopted by the European Parliament on November 20, 2012 on the *Interim Report* by the President of the European Council. Indeed, the Parliament “is of the opinion that a ‘genuine EMU’ cannot be limited to a system of rules but requires an increased budgetary capacity based on specific own-resources (including a financial transaction tax) which should, in the framework of the Union budget, support growth and social

<sup>10</sup> As a way to deal with the existing debt overhang problem the *Note* refers to the Debt Redemption Fund proposal put forward by the German Council of Economic Experts (Doluca *et al.*, 2012). A similar reference can be found in the Commission’s *Blueprint*, not in the *Report* of the President of the Council.

<sup>11</sup> The paper is critical of the solutions based on a rainy-day fund. In a recent follow-up (Direction Générale du Trésor, 2014), the French Treasury Staff discusses in more detail implementation issues (see Section 6).

cohesion addressing imbalances, structural divergences and financial emergencies which are directly connected to the monetary union”.<sup>12</sup>

## 5 Prodrômes of a fiscal union for the euro area

Before discussing proposals for a fully-fledged fiscal union, it must be acknowledged that the ESM and the banking union, once fully established, will provide for a non-negligible degree of shock absorption at the supranational level.

### 5.1 *The ESM*

The ESM is a permanent mechanism providing financial support to countries in (potential) distress. It was created in 2011, following in the steps of the European Financial Stability Facility (EFSF), a temporary mechanism with the same function which was set up a year before.

Three elements make the ESM a starting block of a common fiscal capacity. It may provide stability support also on a precautionary basis; raise funds by issuing financial instruments (or by entering into other financial obligations) mutually guaranteed by member states, even if only up to the capital committed by each of them.

However, there are limits to the analogy between the ESM and a fiscal union. First, ESM financial assistance is not automatic: it is provided to requesting countries subject to strict conditions and to a preliminary debt sustainability analysis; for countries whose debt is deemed unsustainable, a debt-restructuring plan would have to be negotiated with private creditors; these features can strongly reduce moral hazard but also limit the extent of possible stabilization. Second, the lending capacity of the ESM is strictly constrained by the amount of its capital (paid-in and callable) that was agreed upon when it was set-up. Finally, if ESM assistance is not provided on a precautionary basis, it risks being systematically late, providing support when the social and economic costs of a crisis have already turned substantial.

### 5.2 *The banking union*

The crisis made patent to what extent a country’s public finances and stability of the financial sector are interrelated. The ongoing implementation of a banking union aims at: (a) breaking the link between sovereigns and banks and curbing the probability of future systemic banking crises, and (b) avoiding the fragmentation of financial markets along national borders, thus limiting the risk of abrupt reversal of capital market flows (see Beck, 2012; Goyal *et al.*, 2013; Draghi, 2014).

As argued by Rey (2013), a well-designed banking union will help in smoothing out some of the most relevant asymmetric shocks that can affect the euro area, given also the relevance of its banking sector relative to other areas (e.g. the USA).

The banking union has three key components: a single supervisory mechanism (SSM), a single bank resolution mechanism (SRM) and harmonized deposit insurance schemes. Priority has been given to the construction of the first component, the SSM, comprising the ECB and the national supervisory authorities. Its launch is scheduled in November 2014. An agreement on the SRM was reached by the European Council in December 2013 and amended and finalized with the

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<sup>12</sup> Resolution P7\_TA(2012)0430, 20.11.2012, Par. 11.

European Parliament and the Commission in March 2014. Moreover, the recent *Bank Recovery and Resolution Directive* harmonizes heterogeneous national practices, rules and tools for bank crisis management. Concerning the third component of the banking union, a directive has been approved that standardizes all relevant features of national deposit guarantee schemes.

A well-functioning SRM requires a common, stable and sizable pool of resources: “if markets cannot ascertain *ex ante* how resolution will be financed, and in what quantities, they may find themselves having to price-in a residual risk of national government involvement, thus perpetuating the bank-sovereign nexus” (Draghi, 2014).<sup>13</sup>

According to the recent agreement, a Single Resolution Fund will be established to which all banks in the participating member states would contribute. The Fund has a target level of €55 billion and will be able to borrow from the markets. Its resources will have to reach at least 1 per cent of covered deposits over an 8-year period. During the transition, the Fund will comprise national compartments corresponding to each participating member state. The resources accumulated in those compartments would progressively be mutualised within 8 years, starting with 40 per cent of these resources in the first year.

The agreement reached includes a commitment to allow the Fund to borrow from the market.<sup>14</sup> The loans should be repaid by future contributions from the banking sector itself. In principle, there is no limit to the ability of the SRF to borrow. However, during a financial crisis such ability could prove insufficient, as markets may not be willing to lend.

## 6 Implementing a fiscal union for the euro area

Regardless of the elements of a fiscal union that are already present, even if not explicit, in the ESM and in the banking union, the inherent limitations of these institutions as risk-sharing tools, in particular in addressing real shocks at an early stage, call for an additional shock absorber at the euro area level.

In designing this additional element, two options are available. In the first, insurance against country-specific income shocks would be provided, on the basis of an *ex ante* formula, by transfers from the euro area budget to the government suffering from the shocks. In the alternative case, insurance would be provided implicitly by the cyclical characteristics of the euro area budget. For example, as revenues are counter-cyclical, while expenditures are a-cyclical or counter-cyclical (as in the case of unemployment benefits) this implies that the country hit by the shock would be a net beneficiary, drawing from the common pool of resources an amount larger than its contribution to it. This second mechanism is the standard stabilization tool in existing federations, generally complemented by discretionary transfers.

### 6.1 Rainy-day funds and temporary cross-country transfers

Rainy-day funds would reallocate resources inter-temporally but also across participants in different positions along the economic cycle. The idea is quite simple: member states at the top of the cycle would contribute to the fund whereas transfers would be granted to those at the bottom.<sup>15</sup>

<sup>13</sup> Indeed, all the existing federations, at least during the current crisis, have kept the responsibility of resolution and deposit insurance at federal level with substantial support from the public finances.

<sup>14</sup> If the exclusion of a common fiscal backstop to the SRF is eventually confirmed in the final legislation, then the agreement would represent a step back compared to the explicit reference in the December 2013 agreement to a common fiscal backstop.

<sup>15</sup> An early proposal is the one by Hammond and von Hagen (1998). More recently, Gros (2014) highlights the advantages of providing for a deductible in the design of the scheme.

Permanent transfers from one region to the other would be avoided: in the long-term there should be neither net recipients nor net contributors.

One of the main problems of such a mechanism consists in the identification of a country's position in the economic cycle and consequently in the measure of the net contributions each member state will have to pay in a given period. Reference is often made to estimates of the output gap, which however have proved to be quite fragile in real time. Caudal *et al.* (2013) clearly show this point by highlighting the differences between real-time estimates and *ex post* evaluations of the output gap, which do not only concern the magnitude of the estimated gaps but also their sign. In these conditions, one could find out *ex post* that those who were net recipients based on real-time estimates should have been net contributors instead.

The allocation of net contributions could also be based on differences between the actual unemployment rate and a measure of structural unemployment (Artus *et al.*, 2013). In this case, net contributions would be computed as a percentage<sup>16</sup> of the aggregate payroll multiplied by the gap between actual and structural unemployment rates. It must be noted that the problem of the cyclical position of an economy is in this case simply shifted from estimating the output gap to determining the structural unemployment.<sup>17</sup> Moreover, the support would reach the country with a substantial delay, summing the lags with which employment reacts to the shock to those with which this reaction is recorded by official statistics and the rainy-day funds allocated.

In order for the stabilisation fund to properly function in case of negative symmetric shocks as well, its size and possibly its ability to borrow would be crucial. Concerning the size, Allard *et al.* (2013) indicate in 1.5 to 2.5 per cent of GNP the annual contributions required by each euro area member state so as to achieve a level of overall income stabilization comparable to the one commonly observed in existing federations. Sufficiently large contributions would allow the accumulation of resources in good times, providing for proper inter-temporal smoothing also in case of large common shocks. As for the ability to borrow, a stable and guaranteed flow of revenues (for instance, a dedicated tax stream) would provide a means to ensure a high rating and a low cost of funding.

The difficulties in identifying idiosyncratic shocks and the consequent possible delivering of permanent transfers exacerbates the moral hazard problem. Imposing an *ex post* conditionality would, however, contrast the very nature of a stabilization fund, thus the free-riding problem should be addressed, as much as possible, *ex ante*. Strengthening fiscal rules and improving coordination in the policy making process are then important tools. Conditioning the access to the implementation of agreed structural reforms (along the lines suggested in the Report of the President of the Council and discussed in Section 4) could also be considered.

## 6.2 *Unemployment benefits*

Unemployment insurance has been another widely debated solution for organizing temporary transfers among countries hit by idiosyncratic shocks. Both the funding of unemployment benefits and their use in the short term are indeed highly correlated with the economic cycle. The development of a common unemployment scheme would thus, at least in part, overcome the problem of identifying the position along the economic cycle, which is one of the drawbacks of rainy-day funds. Moreover, risk sharing would directly concern individuals (with

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<sup>16</sup> Such percentage should be set as a fraction of the current average replacement rate provided by unemployment insurance schemes in member states.

<sup>17</sup> For a survey of the debate on the structural rate of unemployment, see Richardson *et al.* (2000). National may also hamper the use of the actual unemployment rate as a cyclical indicator.

transfers provided to those hit by exogenous shocks and contributions paid in proportion to salaries), rather than being managed at the aggregate (country) level (Dullien, 2013).

In this case too, however, the risk of a time lag between the economic crisis and the fiscal response is present. Indeed, as already mentioned unemployment tends to react with some delay to economic downturns, depending also on labour market characteristics (e.g., employment labour protection legislation, wage bargaining arrangements, the relative weights of temporary and permanent contracts, etc.; see IMF, 2010a). In addition, this mechanism would smooth out the impact of a negative shock only for those who have access to unemployment benefits, leaving the remaining part of the population out in the cold.

A centralized unemployment scheme, in terms of funding and benefit provisions as well as a harmonized legal framework, is a feature common to some, but not all federations. Interestingly, in the US unemployment schemes are basically decentralized at the state level, even though the federal government usually supplements the system with discretionary transfers during severe downturns.

The realization of a European unemployment scheme would require the harmonization of labour market legislation at least partially across the euro area, leading to a stronger integration of the single market. This would be a good thing in itself, but is not an easy task, given the highly heterogeneous level of employment protection (Table 1).<sup>18</sup>

The common scheme could be set up at the level of the least generous system for short-term unemployment currently present in the euro area (Table 2),<sup>19</sup> leaving it to member states whether to provide any integrations. Taking the least generous system as a minimum reference point could facilitate a political agreement on the characteristics of the common mechanism.

Alternatively, federal resources could kick in only in particular circumstances and add to state programmes: for instance, additional benefits could be provided (or the time-span over which benefits are granted extended) only where unemployment exceeds a given threshold. Once the parameters are set, the insurance would operate automatically, with less room for political bargaining among participating countries.

In both the alternatives just discussed, it seems likely that the amount of resources channelled to a country by the common unemployment benefit system would not be large, even in the case of a sizeable asymmetric shock.

Another important issue to be settled is whether contribution rates should be fixed (in this case, an area-wide recession would induce a deficit) or adjusted in order to ensure that the scheme is balanced at each point of the business cycle.<sup>20</sup>

Treatment of long-term unemployment, which is likely to be more dependent on structural weaknesses and thus endogenous to national policy choices, should be left at national level. Otherwise, the common system would provide permanent net transfers to those regions characterized by higher structural unemployment, with the risk of discouraging reforms. This could be partially overcome by conditioning participation in the common (short-term) unemployment benefit scheme to the implementation of a European employment contract containing those elements deemed necessary for a more functional labour market (Artus *et al.*, 2013). Another

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<sup>18</sup> For a comparison between labour market institutions across euro area countries, see Esser *et al.* (2013).

<sup>19</sup> According to OECD data, net replacement rates in euro area countries for the initial phase of unemployment varied between 20 and more than 90 per cent in 2011.

<sup>20</sup> A paper by the the French treasury staff (Lellouch and Sode, 2014) argues for the second option and proposes that in the case of an aggregate recession the temporary deficit of the scheme should be funded by jointly-issued debt securities (in their plan, in the medium run, fiscal neutrality should be achieved by periodical adjustments of the initial contribution rates).

possibility (Lellouch and Sode, 2014) would be to impose higher contribution rates to countries with higher structural unemployment.

### 6.3 *A contribution to the debate: a centralized NDC pension scheme*

Even though federations tend to have a single unified, centrally-funded public pension system, to our knowledge the centralization of (part of) the pension system has not been proposed, either in the official or in the academic debate on the fiscal union for the euro area during the crisis. This is all the more surprising in view of the fact that an authoritative proposal for a coordinated pension system in Europe had been put forth before the crisis (Holzmann, 2006).<sup>21</sup> This neglect may be related to the lengthy transition associated with any changes to such systems. However, since there is a wide consensus that the fiscal union is a long-term project, this should not warrant the outright exclusion of pensions from the toolkit.

Stabilization achieved through a unified pension system would not be negligible. If the size of the system were limited to that of the countries where the first-pillar public scheme provides only a basic support (being heavily complemented by occupational schemes or mandatory private pensions), the revenue and expenditure involved would be of the order of 5 per cent of GDP. Allowing an exception for these (few) countries, the size of the centralized scheme would amount to 7 per cent of GDP (Table 3).<sup>22</sup>

Most of the stabilizing power of public budgets comes from their size, as revenue are cyclical while expenditure are largely insensitive to the cycle. Centralizing the pension system would imply shifting to the euro-area level between 1/8 (if the first alternative mentioned above is adopted) and 1/6 of national budgets and a corresponding quota of the associated automatic stabilizers. This is still small compared to other federations (the share ranges between 34 and 61 per cent in the sample surveyed in Allard et al., 2013).

A standard analysis to gauge the stabilizing capacity of the public sector follows two steps and refers to a balanced shock to all private components of GDP. In the first step, the automatic reactions of revenue and cyclical expenditure (in general, unemployment benefits) to such shock is computed (in the reference scenario all budgetary components remain constant). In the second step, short-term fiscal multipliers are applied to these cyclical reactions. In our case, assuming an elasticity of 1 with respect to GDP for social contributions and a fiscal multiplier of 1/3<sup>23</sup>, the stabilizing effect of the reformed euro-area budget would be of the order of 2 per cent of the shock, against an estimate of around 17 per cent, on average,<sup>24</sup> for national budgets in the euro area.

Besides enhancing fiscal risk sharing, a unified, centrally-funded public pension system for the euro area would have a number of advantages.

First, it would eliminate an obstacle to labour mobility across countries in the area. The comparatively low labour mobility is probably the most important factor hampering adjustment to shocks within the euro area. According to Holzman (2006), “one important mechanism to support a common currency and adjustments after shocks is a pension system that does not lock persons into

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<sup>21</sup> The Holzmann’s proposal envisages a European coordinated system of NDCs, while here we discuss a centralized euro-area scheme.

<sup>22</sup> These values can be seen as upper bounds, as they include also elements of social assistance, which are extraneous to a NDC scheme.

<sup>23</sup> This estimate, in line with that used by Caudal et al. (2013), is also consistent with estimates for revenue items in Jerome et al (2004) for the euro area countries and with an overall fiscal multiplier close to 0,5 – as found by IMF (2010b) using a sample of advanced economies from 1980 till 2009 - taking into account that most empirical evidence indicates that short term expenditure multipliers are higher than revenue ones.

<sup>24</sup> Caudal et al. (2013) obtain this estimate by assuming revenue multipliers equal to 1/3 and expenditure multipliers equal to 1.



sectors and countries, but instead supports full labour mobility across professions and States – a requirement that is far from reality in the European Union. (...) The European Union does not have a coordinated – and even less a harmonized – pension system, which characterizes other economically integrated areas under a common currency (such as Australia, Brazil, Canada, Switzerland, and the United States). These federations or confederations exhibit many differences at state or provincial levels (including income taxes or short-term social benefits), but they have one thing in common – a public retirement income scheme across states.” (p. 240).

Second, centralizing the pension system would imply large economies of scale in terms of management of financial flows and of data storage and processing, while the size of the staff in the new pension institution would be limited compared to other functions: European citizens would still largely interact with their national institutions. Notwithstanding this, the reform may lead to significant improvements, in some countries, in terms of transparency and communication to the public by setting minimum/uniform standards.

Third, the establishment of a common pension system may also reduce uncertainty concerning fiscal sustainability in specific countries and the capacity of the respective national institution to fulfil pension commitments.

Fourth, this reform could also reduce mistrust across European citizens concerning fiscal behaviour in other countries, thereby lessening opposition to solidarity mechanisms among member states (on this point, see also the remarks by Jacques Delors reported at the end of Section 2). Indeed, at the height of the crisis, a number of newspaper articles pointed out that a main concern in Germany was the too generous pension system in Greece.<sup>25</sup>

Fifth, contrary to unemployment insurance, it would be relatively easy to design the system so that no redistribution between States is involved, using an actuarially fair Notional Defined Contribution (NDC) System.<sup>26</sup> Actually, a properly design NDC system guarantees that no redistribution takes place not only across countries, but also across and within generations. Indeed, for each cohort in each country the internal rate of return of the system would depend on the growth of the wage bill recorded during its own working years in the country, and on its own life expectancy. This rate of return would be the same for every individual in the cohort (in the appendix we provide a slightly more formal introduction to the logic of NDC pensions and to our proposal of a European NDC scheme).

Finally, a NDC system presents a number of additional advantages with respect to alternative arrangements. It guarantees financial stability *vis-à-vis* economic and demographic shocks. As it is actuarially fair, it minimizes distortions in the labour market (*i.e.*, it reduces the incentive to early retirement). As an NDC pension scheme can be implemented by crediting workers’ contributions in personal accounts resembling standard banking accounts, it is also easy to understand and contributes to broadening pension literacy.

While entailing the many potential benefits described above, the establishment of a common pension system is a challenging endeavour, in view of the variety of pension arrangements now existing in euro area countries. It will also require a number of crucial decisions concerning the

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<sup>25</sup> The article “Greece’s Generous Pensions. What Makes Germans So Very Cross About Greece?”, *Economist* web site, Feb 23, 2010, made exactly this point: “IT IS the pensions, stupid. That, I am coming to conclude, is the cause of the real venom being expressed towards Greece in places like Germany. [...] It is striking how often their annoyance is expressed in angry comparisons of the Greek and German retirement pension rules.” See also *Der Spiegel*, May 18, 2011: <http://www.spiegel.de/international/europe/german-chancellor-on-the-offensive-merkel-blasts-greece-over-retirement-age-vacation-a-763294.html>

<sup>26</sup> Differences in growth between countries could be taken into account by allowing for rates of return to be linked to the national origin of contributions. An analysis of notional defined contribution (NDC) pension schemes can be found in Palmer (2006).

design of the system and its implementation, in particular with respect to its phasing in.<sup>27</sup> As already mentioned, it may indeed be reasonable to design such reform so that it would produce its effects very gradually, considering also that workers close to retirement are unable to adjust to sudden changes to the pension rules. The new system should be applied only to contributions paid after a certain date, posterior to the approval of the reform. As happened in Italy following the 1995 reform introducing a NDC system, two systems to compute benefits would coexist for several decades: the old one, with reference to contributions paid until the selected date, and the new one, with reference to the contributions paid afterwards. It may also be reasonable that the new euro area pension institution be given responsibility only over the new system. For a long period, social contributions paid would largely exceed benefits; during this period, it may be reasonable that national budgets would continue to record contributions paid in, transferring to the new institution only the amount sufficient to match the payments due.<sup>28</sup>

## 7 Final remarks

The EU has been called by some commentators a “half-built house” (Spolaore, 2013) and the problems of being in mid-stream are constantly stressed both by those who advocate more integration and by sceptics who think that integration has gone too far.

The architects of the monetary union were fully aware of its unfinished nature. The need to complement the single currency with a federal budget was stressed already in the ‘70s, during the early discussion of the project. The fiscal union never came because the political conditions were not there. Too much sovereignty was to be forgiven, for too deep were the changes needed to fundamental laws and institutions in individual countries.

Nowadays, official reports once again explicitly talk of a fiscal and political union as the cornerstone of a “deep and genuine economic and monetary union”. Yet it is a long-term endeavour. It is not just the depth and technical complexity of the reform, it is once again a matter of political conditions. In particular, a crucial precondition is a deeper sense of trust among (citizens of) Member States (Algan *et al.* (2014) argue that this is true for any social insurance scheme), whereas currently trust seems to be lacking in the European context.<sup>29</sup>

To get out of this deadlock, one possibility, suggested among others by Habermas (2013), is to increase perceived democratic legitimacy by strengthening the role of the European Parliament, moving toward a closer political union *before* the establishment of a fiscal union.

Alternatively, one could hope that a well-designed and gradual introduction of elements of a fiscal union could in itself contribute to rebuild cross-country solidarity.<sup>30</sup> Sharing part of their welfare system, European citizens would gradually learn its benefits and the whole process of the European integration would re-gain legitimacy and momentum. Delors himself stated in one of the papers accompanying his 1989 *Report*: “...federal budgetary mechanisms (...) are both the product

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<sup>27</sup> In discussing how a pan-European pension system would come about, Holzman (2006) conjectures that such scheme “at some moment in the future [will be] espoused by a charismatic European politician as reform champion. Perhaps this will happen after the first main asymmetric shock hits Euroland”.

<sup>28</sup> Moreover, national budgets may permanently include the flows pertaining to the country specific component of the pension scheme.

<sup>29</sup> Guiso *et al.* (2013) reports survey evidence that the majority of Germans were consistently against financial aid to Greece, and at the same time most Greeks had an unfavourable view of Germany.

<sup>30</sup> This approach is in line with the considerations put forward by Draghi (2012): “A new architecture for the euro area is desirable (...). Yet this new architecture does not require a political union first (...). Economic integration and political integration can develop in parallel. (...) How far should this go? We do not need a centralisation of all economic policies. Instead, we can answer this question pragmatically: by calmly asking ourselves which are the minimum requirements to complete economic and monetary union. (...) Those who claim that only a full federation would be sustainable set the bar too high”.

and the source of the sense of national solidarity which all the relevant economic and monetary unions have”.

For this second strategy to be successful, the choice and the design of the starting block of the fiscal union is crucial. In this paper we propose for consideration, as a possible first step (possibly complementary to other initiatives), a euro-wide pension system based on the notional defined contribution logic.

## REFERENCES

- Afonso, A. and D. Furceri (2008), “EMU Enlargement, Stabilization Costs And Insurance Mechanisms”, *Journal of International Money and Finance*, Vol. 27, No. 2, pp. 169-87.
- Algan, Y., P. Cahuc and M. Sangnier (2014), “Efficient and Inefficient Welfare States”, *Economic Journal*, forthcoming.
- Allard, C., P.K. Brooks, J.C. Bluedorn, F. Bornhorst, F. Ohnsorge, K.M. Christopherson Puh (2013), “Towards a Fiscal Union for the Euro Area”, IMF, SDN/13/09.
- Artus, P., A. Bénassy-Quéré, L. Boone, J. Cailloux, J. Delpla, E. Farhi, P. Gourinchas, J. Tirole and G. Wolff (2013), “Completing the Euro”, *Les notes du Conseil d'Analyse Économique*, No. 3, April.
- Asdrubali, P., B.E. Sorensen and O. Yosha (1996), “Channels of Interstate Risk Sharing: United States 1963-90”, *Quarterly Journal of Economics*, Vol. 111, No. 4, pp. 1081-110.
- Atkeson, A. and T. Bayoumi (1993), “Do Private Capital Markets Insure Regional Risk? Evidence from the United States and Europe”, *Open Economies Review*, Vol. 4, No. XXX, pp. 303-24.
- Auerbach, A. and Y. Gorodnichenko (2013), “Output Spillovers from Fiscal Policy”, *American Economic Review P&P*, Vol. 103, pp. 141-46.
- Bayoumi, T. and B. Eichengreen (1992), “Shocking Aspects of European Monetary Unification”, NBER working paper, no. 3949.
- Beck, T. (ed.) (2012), *Banking Union for Europe: Risks and Challenges*, Centre for Economic Policy Research, London, UK.
- Beetsma, R., M. Giuliodori and F. Klaassen (2006), “Trade Spillovers of Fiscal Policy in the European Union: A Panel Analysis”, *Economic Policy*, Vol. 21, No. 48, pp. 640-87.
- Caudal, N., N. Georges, V. Grossmann-Wirth, J. Guillaume, T. Lellouch and A. Sode (2013), “A Budget for the Euro Area”, *Trésor-Economics*, no. 120.
- Cwik, T. and V. Wieland (2011), “Keynesian Government Spending Multipliers and Spillovers in the Euro Area”, *Economic Policy*, Vol. 26, No. 67, pp. 493-549.
- De Grauwe, P. (2012), *Economics of the Monetary Union*, Oxford University Press, Oxford.
- Dellas, H. and G.S. Tavlás (2009), “An Optimum-Currency-Area Odyssey”, *Journal of International Money and Finance*, Vol. 28, No. 7, pp. 1117-37.
- Doluca, H., M. Hübner, D. Rumpf and B. Weigert (2012), “The European Redemption Pact: An Illustrative Guide”, German Council of Economic Experts, Working Paper, No. 02/2012.
- Draghi, M. (2012), “The future of the euro: stability through change”, published in "Die Zeit", August 29, 2012.
- Draghi, M. (2014), “Financial Integration and Banking Union”, speech at the conference for the 20<sup>th</sup> anniversary of the European Monetary Institute, February 12, 2014.
- Dullien, S. (2013), “A euro-area wide unemployment insurance as an automatic stabilizer: who benefits and who pays?”, paper prepared for the European Commission - DG Employment, Social affairs and Inclusion.

- Esser, I., Ferrarini, T., Nelson, K. Palme, J. And Sjoberg, O. (2013), “Unemployment benefits in the EU member states”, paper prepared for the European Commission - DG Employment, Social affairs and Inclusion.
- European Commission (1993a), *Stable Money, Sound Finances. Community Public Finances in the perspective of the EMU*, European Economy, no. 53.
- European Commission (1993b), *The economics of community public finance*, European Economy – Report and Studies, no. 5.
- Farhi, E. and Werning, I. (2012), "Fiscal Unions", NBER Working Papers, no. 18280.
- Frankel, J.A. and Rose, A.K. (1998), "The Endogeneity of the Optimum Currency Area Criteria", *Economic Journal*, vol. 108(449), pp. 1009-25,
- Goyal, R., B.P. Koeva, M. Pradhan, T. Tressel, G. Dell’Ariccia, C. Pazarbasioglu (2013), “A Banking Union for the Euro Area”, IMF, Staff Discussion Note, No. 13/1.
- Gros, D. (2014), “A fiscal shock absorber for the euro zone? Lessons from the economics of insurance”, [www.VoxEU.org](http://www.VoxEU.org).
- Guiso, L., H. Herrera and M. Morelli (2013), “A Cultural Clash View of the EU Crisis”, EIEF, Working Paper, No. 1321.
- Habermas, J. (2013), “Democracy, Solidarity and the European Crisis”, Lecture delivered on 26 April 2013 in Leuven.
- Hammond, G. and J. von Hagen (1998), “Insurance Against Asymmetric Shocks: An Empirical Study for the European Community”, *The Manchester School*, Vol. 66, No. 3, pp. 331-53.
- Holzmann, R. (2006), “Toward a Coordinated Pension System in Europe: Rationale and Potential Structure”, in R. Holzmann and E. Palmer (eds.), *Pension Reform. Issues and Prospects for NDC schemes*, The World Bank, Washington (DC).
- IMF (2010a), “Unemployment Dynamics During Recessions and Recoveries: Okun’s Law and Beyond”, in IMF, *World Economic Outlook*, April.
- IMF (2010b), “Will It Hurt? Macroeconomic Effects of Fiscal Consolidation”, *World Economic Outlook*, October.
- Jerome, H., Hernandez de Cos, P. and Momigliano, S. (2004), “The short term impact of government budgets on prices. Evidence from macroeconomic models”, ECB Working Paper, No. 396.
- Kalemli-Ozcan, S., B. Sørensen and O. Yosha (2005), “Asymmetric Shocks and Risk-sharing in a Monetary Union: Updated Evidence and Implications for Europe”, in H. Huizinga and L. Jonung (eds.), *The Internationalization of Asset Ownership in Europe*, Cambridge University Press, Cambridge (UK).
- Kenen, P. (1969), “The Theory of Optimum Currency Areas: An Eclectic View”, in R.A. Mundell and A.K. Swoboda (eds.), *Monetary Problems in the International Economy*, University of Chicago Press, Chicago (IL).
- Krugman, P. (2013), “The Revenge of the Optimum Currency Area”, in D. Acemoglu, J. Parker and M. Woodford (eds.), *NBER Macroeconomics Annual 2012*, University of Chicago Press, Chicago (IL).
- Lellouch, T. and Sode, A. (2014), “An unemployment insurance scheme for the Euro area”, *Trésor-Economics*, no. 132.

- Méltitz, J. and F. Zumer (2002), "Regional redistribution and stabilization by the center in Canada, France, the UK and the US: a reassessment and new tests", *Journal of Public Economics*, vol. 86(2), pp. 263-286.
- Mongelli, F.P. (2005), "What Is European and Monetary Union Telling Us About the Properties of Optimal Currency Areas?", *Journal of Common Markets Studies*, Vol. 43, No. 3, pp. 607-35.
- Mundell, R. (1961), "A Theory of Optimum Currency Areas", *American Economic Review*, Vol. 51, pp. 657-65.
- Oates, W. (1972), *Fiscal Federalism*, Harcourt Brace.
- Obstfeld, M. and G. Peri (1999), "Regional Non-adjustment and Fiscal Policy: Lessons for EMU", NBER, Working Paper, No. 6431, National Bureau of Economic Research, Inc.
- Palmer, E. (2006), "What is NDC?", in R. Holzmann and E. Palmer (eds.), *Pension Reform. Issues and Prospects for NDC schemes*, The World Bank, Washington (DC).
- Persson, T. and G. Tabellini (1996), "Federal Fiscal Constitutions: Risk Sharing and Moral Hazard", *Econometrica*, Vol. 64, No. 3, pp. 623-46.
- Rey, H. (2013), "Fiscal Union in the Eurozone?", in F. Allen, E. Carletti and J. Gray (eds.), *Political, Fiscal and Banking Union in the Eurozone?*, FIC Press, Wharton Financial Institution Center.
- Richardson, P., L. Boone, C. Giorno, M. Meacci, D. Rae and D. Turner (2000), "The Concept, Policy Use and Measurement of Structural Unemployment: Estimating a Time Varying NAIRU Across 21 OECD Countries", OECD, Economics Department, Working Paper, No. 250.
- Sorensen, B. and O. Yosha (1998), "International Risk Sharing and European Monetary Unification", *Journal of International Economics*, Vol. 45, No. 2, pp. 211-38.
- Spolaore, E. (2013), "What Is European Integration Really About? A Political Guide for Economists", *Journal of Economic Perspectives*, Vol. 27, No. 3, pp. 125-44.
- Tommaso Padoa-Schioppa Group (2012), "Completing the Euro. A road map towards fiscal union in Europe", Notre Europe Studies and Reports, n. 22.
- Wallis, J.J. (1984), "The Birth of the Old Federalism: Financing the New Deal, 1932-1940", *Journal of Economic History*, Vol. 44, No. 1, pp. 139-59.

### Appendix 1: the simple arithmetic of a (supranational) NDC pension scheme.

Consider a very simple economy in which each individual lives at most two periods. He works with probability  $(1-u_t)$  during the first period, and he survives with probability  $\alpha_t$  into the second period, during which he is retired. Assume a simple linear production technology, in which labour is the only factor of production:

$$y_t = (1-u_t)A_tL_t.$$

The size of each generation ( $L_t$ ) grows at rate  $n_t$  and productivity grows at rate  $a_t$ . Labour is paid its marginal product: wages are equal to  $A_t$ .

A PAYG pension scheme is such that each period social contributions are equal to:  $\tau(1-u_t)w_tL_t$  (where  $\tau$  as the payroll contribution rate) and outlays are  $\alpha_t b_t(1-u_{t-1})L_{t-1}$  (where  $b_t$  is the amount of each pension). The pension deficit is therefore given by:

$$\text{Deficit}_t = \alpha_t(1-u_{t-1})b_tL_{t-1} - \tau(1-u_t)w_tL_t.$$

To grant a balanced pension budget, one needs:

$$b_t = (\tau/\alpha_t)[(1-u_t)/(1-u_{t-1})](1+n_t) w_t$$

or, put differently, one needs a replacement ratio equal to:

$$(1) \quad b_t/w_{t-1} = (\tau/\alpha_t)[(1-u_t)/(1-u_{t-1})](1+n_t)(1+a_t) = (\tau/\alpha_t)(1+g_t),$$

where  $g_t = Y_t/Y_{t-1}$  is the growth rate of the economy. In general, condition (1) will not be satisfied in a standard Defined Benefit (DB) system. Indeed, by definition, in DB schemes the replacement ratio is fixed, therefore it cannot be a function of economic developments, such as the rate of growth, nor of demographic developments: longevity ( $\alpha_t$ ) does not play any role in the determination of the individual pension benefit.

An NDC system addresses specifically these issues. NDC pensions are computed as a function of three elements:

- what the retiree has “saved” in a (notional) account when young:  $\tau w_{t-1}$ ;
- the “notional” rate of return awarded to those savings, which depends in turn on the rate of growth of GDP;
- a “transformation coefficient” which captures expected longevity at retirement (in our stylized setting, it is equal to  $\alpha_t$ ) in an actuarially fair way, analogously to what private insurance companies do when pricing annuity contracts.

Therefore, in an NDC scheme, the benefit is equal to:

$$b_t = \tau w_{t-1}(1+g_t)(1/\alpha_t)$$

which is exactly the condition for a balanced pension budget according to equation (1).

Suppose now that the growth rate is not constant but equal to  $g_{\text{high}}$  with probability  $1/2$  and  $g_{\text{low}} < g_{\text{high}}$  with probability  $1/2$ . Then if the notional rate of return of the NDC scheme is set equal to  $1/2 g_{\text{low}} + 1/2 g_{\text{high}}$ , the system will be balanced in expectation: it will be in surplus in good years and in

deficit in bad years.<sup>31</sup> As risk is pooled across different generations, the system is able to provide insurance to workers.

Assume now that there are two countries, subject to country-specific growth shocks. For simplicity we will assume here that they share the same average growth rate ( $\gamma_t$ ), and that there is no aggregate uncertainty (as in the single country case). For example, assume that:

with probability  $1/2$ :  $g_t = \gamma_t + \varepsilon_t$  and  $g_t^* = \gamma_t - \varepsilon_t^*$

with probability  $1/2$ :  $g_t = \gamma_t - \varepsilon_t$  and  $g_t^* = \gamma_t + \varepsilon_t^*$ ,

where  $\varepsilon_t, \varepsilon_t^*$  are both positive, and  $\varepsilon_t = (Y_t^*/Y_t) \varepsilon_t^*$

(the last equality captures the no-aggregate-uncertainty hypothesis).

Then, it is easy to see that in this setting full risk-sharing and budget balance can be achieved at once, if a common pension authority collects contributions by workers in both countries at the same contribution rate  $\tau$ , and awards to retirees in different countries the following pensions:

$$b_t = \tau w_{t-1} (1 + \gamma_t) (1 / \alpha_t)$$

$$b_t^* = \tau w_{t-1}^* (1 + \gamma_t) (1 / \alpha_t^*)$$

Under this rule, benefits are different in the two countries, reflecting different fundamentals at the beginning of the period, however each worker is able to know ex ante with certainty the rate of return awarded to his/her contributions.

On average there will be no redistribution across countries, but in each year the “unlucky” country will be subsidized by the “lucky” one. This is an improvement with respect to the single-country case discussed above, which can be clearly appreciated in the aftermath of a bad shock: in this case, workers of the “unlucky” country are not burdened with debt to be carried-on, such as in the case of a single-country scheme. On the contrary, the budget of the pension scheme (which is now an area-wide budget) will be always balanced. Put differently, via the budget of the common supranational pension institution, pensions in the adversely-hit countries are subsidized by workers of the “lucky” country.

<sup>31</sup> A similar arrangement is in place in the Italian version of the NDC mechanism: the notional rate of return is indeed equal to the 5-year average of GDP growth.



Appendix 2: Tables

Table 1

OECD indicators on Employment Protection Legislation 2013<sup>1</sup>

Country	Protection of Permanent Workers Against Individual and Collective Dismissals	Protection of Permanent Workers Against (Individual) Dismissal	Specific Requirements for Collective Dismissal	Regulation on Temporary Forms of Employment
Austria	2.44	2.12	3.25	2.17
Belgium	2.95	2.08	5.13	2.42
Estonia	2.07	1.74	2.88	3.04
Finland	2.17	2.38	1.63	1.88
France	2.82	2.60	3.38	3.75
Germany	2.98	2.72	3.63	1.75
Greece	2.41	2.07	3.25	2.92
Ireland	2.07	1.50	3.50	1.21
Italy	2.79	2.41	3.75	2.71
Luxembourg	2.74	2.28	3.88	3.83
Netherlands	2.94	2.84	3.19	1.17
Portugal	2.69	3.01	1.88	2.33
Slovakia	2.26	1.81	3.38	2.42
Slovenia	2.67	2.39	3.38	2.50
Spain	2.28	1.95	3.13	3.17
Latvia	2.91	2.57	3.75	1.79

(1) Data refer to 1 January 2013. Scale from 0 (least restrictions) to 6 (most restrictions).  
Source: *OECD Employment Protection Database*, 2013 Update.

Table 2

**Net Replacement Rates for Single Earner, 2011: Initial Phase of Unemployment<sup>1</sup>**  
(available euro-area countries)

Country	Not Qualify for Cash Housing or Social Assistance “Top Ups” <sup>2</sup>						Qualify for Cash Housing or Social Assistance “Top Ups” <sup>3</sup>					
	67% of AW		100% of AW		150% of AW		67% of AW		100% of AW		150% of AW	
	No child.	2 child.	No child.	2 child.	No child.	2 child.	No child.	2 child.	No child.	2 child.	No child.	2 child.
Austria	55	71	55	68	45	54	55	83	55	68	45	54
Belgium	85	85	63	67	47	52	85	85	63	67	47	52
Estonia	55	63	54	60	53	58	55	63	54	60	53	58
Finland	57	73	53	66	46	57	64	85	54	74	46	60
France	69	67	66	67	69	68	69	67	66	67	69	68
Germany	59	72	59	70	57	65	59	79	59	70	57	65
Greece	49	55	35	39	24	28	49	55	35	39	24	28
Ireland	50	64	36	63	28	52	73	65	53	64	41	53
Italy	68	76	55	68	40	53	70	75	57	69	42	54
Luxembourg	83	89	85	92	77	80	83	90	85	92	77	80
Netherlands	76	71	75	71	58	57	76	76	75	77	58	57
Portugal	75	77	75	77	75	77	75	77	75	77	75	77
Slovakia	62	72	65	93	67	87	62	72	65	93	67	87
Slovenia	85	85	76	86	54	65	85	91	76	88	54	68
Spain	79	77	58	73	40	51	79	77	58	73	40	51
Latvia	86	76	87	80	78	74	86	76	87	80	78	74
Malta	39	63	28	48	20	34	51	66	39	53	28	38

(1) Initial phase of unemployment but following any waiting period. Any income taxes payable on unemployment benefits are determined in relation to annualised benefit values (*i.e.*, monthly values multiplied by 12) even if the maximum benefit duration is shorter than 12 months. Where receipt of social assistance or other minimum-income benefits is subject to activity tests (such as active job-search or being “available” for work), these requirements are assumed to be met. Children are aged four and six and neither childcare benefits nor childcare costs are considered.

(2) After tax and including unemployment benefits and family benefits. No social assistance “top-ups” or cash housing benefits are assumed to be available in either the in-work or out-of-work situation.

(3) After tax and including unemployment and family benefits. Social assistance and other means-tested benefits are assumed to be available, subject to relevant income conditions. Housing costs are assumed equal to 20 per cent of AW.

Source: OECD, *Tax-Benefit Models* (last revised 06/12/2013); [www.oecd.org/els/social/workincentives](http://www.oecd.org/els/social/workincentives)

Table 3

## Public Expenditures on Old-age and Survivors' Benefits

Country	Public Expenditure on Cash Benefits for Old-age and Survivors									Total inc. Non-cash (percent of GDP)
	Level (percent of GDP)					Change	Level (percent of total government spending)		Level in Net Terms (percent of GDP)	
	1990	1995	2000	2005	2009 <sup>1</sup>		1990	2009 <sup>1</sup>		
Austria	11.4	12.3	12.2	12.4	13.5	18.3%	22.1	25.5	11.8	14.0
Belgium	9.1	9.3	8.9	9.0	10.0	10.2%	17.4	18.7	8.9	10.2
Czech Republic	5.8	6.1	7.2	7.0	8.3	42.9%		18.5	8.3	8.6
Denmark	5.1	6.2	5.3	5.4	6.1	19.3%	9.2	10.5	4.5	8.2
Estonia			6.0	5.3	7.9			17.6	7.8	8.1
Finland	7.3	8.8	7.6	8.4	9.9	36.3%	15.1	17.7	8.3	11.1
France	10.6	12.0	11.8	12.4	13.7	29.2%	21.4	24.2	12.8	14.1
Germany	9.7	10.5	11.1	11.4	11.3	15.7%		23.4	10.9	11.3
Greece	9.9	9.7	10.8	11.8	13.0	31.2%		24.2	13.0	13.2
Hungary			7.6	8.5	9.9			19.4	9.9	10.5
Ireland	4.9	4.3	3.1	3.4	5.1	5.2%	11.5	10.5	4.8	5.6
Italy	10.1	11.3	13.5	13.9	15.4	53.3%	19.1	29.8	13.5	15.6
Luxembourg	8.2	8.8	7.5	7.2	7.7	-6.1%	21.6	17.8	6.9	7.7
Netherlands	6.7	5.8	5.0	5.0	5.1	-23.9%	12.2	9.9	4.7	6.1
Norway	5.6	5.5	4.8	4.8	5.4	-5.2%		11.5	4.4	7.4
Poland	5.1	9.4	10.5	11.4	11.8	129.1%		26.4	10.8	11.8
Portugal	4.9	7.2	7.9	10.3	12.3	151.9%		24.8	11.6	12.5
Slovak Republic		6.3	6.3	6.2	7.0			16.9	7.0	7.4
Slovenia			10.5	9.9	10.9			22.1	10.9	11.0
Spain	7.9	9.0	8.6	8.1	9.3	17.3%		20.1	9.0	9.9
Sweden	7.7	8.2	7.2	7.6	8.2	6.8%		15.0	6.2	10.8
United Kingdom	4.8	5.4	5.3	5.6	6.2	28.1%	11.6	12.1	5.9	6.8
<b>OECD</b>	<b>6.1</b>	<b>6.7</b>	<b>6.9</b>	<b>7.0</b>	<b>7.8</b>	<b>27.0%</b>		<b>16.6</b>	<b>7.3</b>	<b>8.3</b>

Note: See Adema, W. and M. Ladaïque (2009), "How Expensive is the Welfare State? Gross and Net Indicators in the OECD Social Expenditure Database (SOCX)", OECD Social, Employment and Migration Working Paper, No. 92, OECD Publishing, Paris, <http://dx.doi.org/10.1787/220615515052> for more details on the data, sources and methodology.