Welfare compensation for unemployment in the Great Recession

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Abstract: This paper examines the implications for the living standards of those who became unemployed at the onset of the Great Recession, assessing the extent to which the tax-benefit systems provide an automatic stabilisation of income for this group of people potentially most vulnerable to its adverse effects.
In order to assess the impact of the unemployment on household income, counterfactual scenarios are simulated by using EUROMOD, the EU-wide microsimulation model, integrated with information from the most recent EU-LFS data.
This paper provides evidence on the different degrees of relative and absolute resilience of the household incomes of the new unemployed due to the variations in the protection offered by the tax-benefit systems, according to whether Unemployment Benefits are payable or not, the family circumstances of the unemployed persons and across countries.

Keywords**:** unemployment, European Union, household income, microsimulation.

JEL: C81, H55, I3

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1. Introduction

The financial crisis of 2008 has lead to the most serious economic downturn since the Second World War. The European economies shrank by 5.2 per cent between the second quarter of 2008 and the second quarter of 2009. Because of the size of such an economic slowdown, originated in the United States and then propagated to the rest of the world, many refer to this period as the Great Recession (Arpaia and Curci, 2010).

Although the EU unemployment rate increased only to a limited extent (from 6.9% in the second quarter of 2008 to 8.9% in the second quarter of 2009) when compared to the contraction in the GDP, the impact of the Great Recession on labour markets has, since then, been intense and its effects seem likely to last longer than GDP recovery. Despite recent signs of economic recovery, projections suggest that the unemployment rate in the European Union will stay above 8% until the end of 2011, a level considerably higher than the pre-crisis rate (OECD 2010). Moreover, those becoming unemployed during the crisis face a high risk of staying long unemployment. Overall, the number of long term unemployed, defined as those in unemployment longer than one year, increased by nearly 10 per cent between the second quarter of 2008 and the same quarter of 2009, reaching 6.7 million people. Over the following year long term unemployment increased by an extra third, reaching 9 million on the second quarter of 2010 (European Commission, 2010).

The picture described above, as well as the lessons of previous recessions, suggest that the Great Recession will overshadow European economies for years to come, through legacies such as unemployment and public debt (Keeley and Love, 2010), and with long-lasting impacts on household incomes (Jenkins et al. 2011).

The effects of the Great Recession have varied across EU countries with a decrease in GDP ranging from around 2% in Continental Europe, to 5% in Southern Europe and the UK and more than 15% in Estonia and the other Baltic states (European Commission, 2010). Moreover, there has been a high degree of heterogeneity in the response of labour markets to the negative shocks in the GDP (OECD, 2010). Some countries (i.e. Baltic States, Ireland, and above all Spain) experienced a large increase in unemployment relative to the fall in GDP. For others (i.e. Belgium, Italy, the UK, and above all Germany) the opposite has been the case. It is clear that the elasticity of employment to GDP decline is hugely differentiated across countries due to *i)* specific employment policies which mitigated the effects of the crisis on the overall employment (e.g. internal flexibility through short-time working arrangements, temporary partial unemployment and temporary closures) as opposed to the relatively high share of workers in temporary contracts who have been relatively easily dismissed, *ii)* a different timing effect which depends on the productive structure of the country (with national economies depending to a larger extent on the construction sector affected more immediately) and *iii)* hiding behind other symptoms of the recession such as a decline in overall labour productivity, a reduction in earnings or early retirement (European Commission 2010).

Nevertheless, unemployment is one of the most important consequences of the Great Recession (Keeley and Love, 2010), at least in terms of direct impact on the well-being of individuals who lose their job and their families.

The aim of this paper is to understand, in a cross-country perspective, the extent to which tax-benefit systems provide an automatic income stabilisation for those who became unemployed at the onset of the Great Recession. In doing so we restrict our attention to one of the primary channels of propagation of adverse effects of recession onto the living standards of most vulnerable: the loss of a job. We refrain from considering other aspects such as a reduction in

hours worked for those with a job or a contraction in the hourly wage for those with flexible contracts. The consequences of the crisis on the most vulnerable individuals depend on the interaction between their labour market participation, their living arrangements and the capacity of the tax and benefit systems to absorb macro-economic shocks. As a consequence, the social effects are expected to be different across countries.

Lack of longitudinal up-to-date information on household income and labour market circumstances, usually available only few years after the beginning of the unemployment spell and in a restricted number of countries, constrains the possibilities for empirical analysis. To address this limitation, we assess the impact of the unemployment on household income by means of simulating counterfactual scenarios by using a fiscal microsimulation approach (Bourguignon and Spadaro 2006) which allows us to estimate the household incomes of individuals who lose their job, considering the cushioning effect of the tax-benefit systems and the way they depend on the remaining household market income and personal/family characteristics. The use of tax-benefit models to consider how the welfare systems protect people from an extreme shock has become known as "stress test" of the tax-benefit system (Atkinson 2009; Figari et al. 2011). We highlight the main motivations to exploit such an approach in section 2. In section 3 we introduce EUROMOD, the EU-wide tax-benefit model, used in the analysis to derive disposable income in the counterfactual scenarios. Moreover, we present the statistical matching used to identify those who becomes unemployed using information from the most recent EU Labour Force Survey, which covers the transitions to unemployment between 2008 and 2009. Finally, we describe the indicators we apply to capture the resilience of the welfare system in both relative and absolute terms.

The paper focuses on an set of six countries of the European Union: Belgium, Estonia, Spain, Italy, the Netherlands, and the UK, which allow us to consider a large variety of circumstances. These countries experienced different macroeconomic changes during the first phase of Great Recession, with large unemployment increases in Estonia, Spain and the UK (the latter two countries accounting for most of the increase in unemployment at EU level between 2008 and 2009) and relatively moderate increases in Belgium, Italy and the Netherlands. Moreover, these countries have different unemployment protection schemes (and, generally, welfare systems), ranging from a flat scheme in the UK to generous earnings related schemes in Belgium, the Netherlands and Spain. The most relevant features of the welfare systems of the countries included in the analysis are described in section 4.

Cross country evidence of the different aspects of the income stabilisation offered by the tax-benefit system is presented in section 5, showing the differing degrees to which unemployment has the potential to reduce household incomes, and the extent of resilience of those incomes due to the protection offered by the tax-benefit systems, the household situation of the unemployed person, and across countries. Section 6 concludes, summarising the main findings and suggesting some research developments for the future.

2. "Stress test" the tax-benefit system: motivations and approach

Why do we need to stress test the tax-benefit systems? And what do we mean exactly by stress test?

In a period of economic downturn, with direct consequences for the labour market participation of individuals, coupled with necessary fiscal consolidation in most of the European countries, it is necessary to understand how the contemporary tax-benefit systems react to changes in individual circumstances. And, more important, to assess the extent to which family incomes are protected by the tax-benefit systems.

The stress test approach is common in financial institutions to test the sensitivity of a portfolio to a set of extreme but plausible shocks and to assess the significance of the system's vulnerabilities (Jones et al. 2004). Atkinson (2009) has suggested to extend the same approach to the tax-benefit schemes in order to predict the cushioning effects of the social protection schemes in the event of a loss of market incomes and to assess the overall income stabilisation after a macroeconomic shock.

By using a fiscal microsimulation approach which combines detailed survey data on market incomes and household characteristics and tax-benefit rules (Bourguignon and Spadaro 2006), we can determine household disposable income under different counterfactual scenarios in which, as a consequence of a macro-economic shock, a given number of individuals lose their job. Microsimulation models are valuable tools to determine the distributional effects of changing household characteristics and labour market participation and a more systematic use in disentangling the consequences of the Great Recession is particularly appropriate (Jenkins et al. 2011).

In our work, the counterfactual scenarios are characterised by different – realistic – assumptions on the individual eligibility to receive unemployment benefits, the duration in unemployment, and the temporal frame of the analysis, in order to assess the robustness of the resilience of the welfare systems. The simulated disposable income of the individuals depends on the cushioning effect of contributory and means-tested benefits for the unemployed, the effects of other means-tested benefits and tax credits designed to protect families on low income, and, on other household incomes, in the form of earnings of those still in work as well as pensions and benefits, received by other household members.

The stress test approach is characterised by a number of positive features.

First, a stress test exercise can provide evidence of the effects of either a hypothetical macro-economic shock or a contemporary shock for which survey data covering the period of interest are not available yet. The latter option is the one we follow to assess the variation in social impact of an increase in unemployment during the Great Recession across countries and social protection systems.

In due course, survey data collected over the period of the Great Recession will provide evidence of the evolution of the income distribution and analysis of longitudinal data will show us how incomes changed for those directly affected due to unemployment (Jenkins et al. 2011). However it is important to assess the social impact of specific aspects of the crisis and to inform the policy debate in a timely fashion (OECD 2011). Although the EU economy has started to recover there are risks of recession returning, the labour market has not yet recovered (European Commission 2010) and it is necessary to monitor the social impact of the current situation.
Second, it allows us to focus on a specific aspect of a macroeconomic shock, highlighting the direct compensation provided by tax-benefit systems rather than that arising from other adaptive changes in individual behaviours.

In this paper we focus exclusively on the increase in unemployment as one of the channels through which the Great Recession affects directly individuals' well-being. As stressed by Jenkins et al. (2011) the short term consequences of the Great Recession on the inequality of the income distribution might be negligible, and there could be differential and potentially offsetting effects for different groups in the population. The social indicators usually used, such as the indicator of relative poverty, might have serious difficulties in capturing these effects on social exclusion (Nolan 2009). Previous recessions suggest that the evolution in the overall income distribution can hide the changes in income of particular groups at risk who

suffered the direct consequences of the crisis (Aaberge et al. 2000). However, individuals and families directly affected by unemployment suffer to a large extent and it is important to assess the extent to which the welfare system helps to stabilise their income and whether there are specific weaknesses in the policy instruments in operation.
Even if the living standards lower only for a fraction of the population this is detrimental for the society in different ways. Not being able to maintain the living standards of the unemployed makes their consumption decreasing and this worsens the overall effects of the crisis. Moreover, when unemployment affects lower income individuals it could be argued that guaranteeing a reasonable minimum level of resources is necessary.

Third, by using a tax-benefit model which is based on micro data representative of the national population, the stress test exercise uses as a benchmark the real income distribution observed at a given time. Moreover, the pattern of income changes depends on the presence of other incomes, the family characteristics, and the interaction between the different tax-benefits instruments. In doing so our work enriches the perspective offered by model family calculations (OECD, 2007), by characterizing in an informed and detailed way who becomes unemployed, considering their household circumstances and their position in the income distribution.

Finally, the stress test approach can be used to analyse the impact of reforms to the tax-benefit systems on individual incomes and budgetary costs, as part of the evaluation of the public budgets due to the fiscal consolidation measures. A more detailed discussion of this issue is out of scope of this paper but we return to this in the Conclusions.

3. Empirical methodology

3.1.Counterfactual scenarios derived using EUROMOD

We exploit the potential of the micro-simulation techniques to define two different counterfactual scenarios, based on survey data representative of the national population before the onset of the economic downturn, in which we simulate the transition from employment to unemployment as observed between 2008 and 2009.

In the first scenario, representing the short term, we allow the new unemployed to receive contributory unemployment benefits if they are entitled to them. In the second scenario, characterising the effects in the long term, we assume that eligibility for contributory unemployment benefits is exhausted. In both scenarios, we compute household disposable income, taking account of the operation of the whole tax-benefit system, allowing individuals and their families to receive additional income-tested benefits (e.g. housing benefits, social assistance, in-work benefits and other means-tested support) and to pay reduced income tax and social contributions given the low level of earnings.[2]
To allow a cross-country perspective, we use EUROMOD, the Europe-wide tax-benefit microsimulation model. EUROMOD simulates tax liabilities (direct tax and social insurance contributions) and benefit entitlements for the household populations of EU Member States in a comparable way across countries on the basis of the tax-benefit rules in place and information available in the underlying datasets. The components of the tax-benefit systems which are not simulated (e.g. old age pensions) are taken from the data, along with information on original incomes. See Sutherland (2007) for further information.

[2] When some benefits (e.g. Family allowance in Italy) are assessed on the basis of income in previous year (i.e. before becoming unemployed) the changes in their amounts, occurring one year after the unemployment shock, are not included in the calculations.

Underlying micro data come from the 2007 Statistics on Income and Living Conditions (SILC)[3] with the exception of the UK component which is based on the national 2008/09 Family Resources Survey. The analysis in this paper is based on the tax-benefit rules in place in 2009 (as of June 30th). Monetary values of non-simulated income components referring to 2006 have been updated to 2009 according to actual changes in prices and incomes over the relevant period.[4] No adjustment is made for changes in population composition between 2007 and 2009.

In this analysis EUROMOD does not take account of any non take-up of benefits or tax evasion. The only exception is Italy for which gross self-employed income has been calibrated in order to obtain an aggregate amount corresponding to that reported in fiscal data (Fiorio and D'Amuri 2006). It is generally assumed, however, that the legal rules are universally respected and that the costs of compliance are zero. Our results can be interpreted as measuring the intended effects of the tax-benefit systems.

Household disposable income, after becoming unemployed, is calculated as an annual average assuming the person is unemployed for the number of months spent in work in the baseline, rather than taking into account the variation in durations of individual unemployment spells. In this way we can isolate the overall effectiveness of the tax-benefit systems without needing to consider what earnings would be on re-entry into work.
The simulation of the unemployment benefits is based on reported earnings, where relevant, and under assumptions about contributions made in the past derived from the limited information available in the data.

3.2. Matching the new unemployed from Labour Force Surveys

The analysis focuses on employed and self-employed individuals who lost their job at the onset of the Great Recession. We identify the individuals who are unemployed in the year 2009 but employed in the previous year (thereafter we refer to them as "new unemployed") using the retrospective information included in the most recent version of the European Union Labour Force Survey (EU-LFS). The EU-LFS is a continuous household survey conducted on a representative sample of individuals (between 0.2% and 3.3% of the population) aged 15 and over from all countries of the European Union, 3 countries of the European Free Trade Association and 3 Candidate countries. National statistical institutes collect comparable information on current employment status and characteristics, employment history, and individual and household characteristics that Eurostat releases on quarterly and annual basis[5].

Due to labour market specificities and the channels through which the Great Recession has impacted on each national economy, the risk of unemployment does not affect all workers equally. In order to assess correctly the income stabilisation offered by the welfare systems to the new unemployed it is necessary to identify them precisely, taking into account the most important characteristics associated with the transition into unemployment. Table 1 reports the coefficients of a probit model of unemployment risk across countries. The gender dimension is differentiated across countries with men less likely to become unemployed in Italy, and Spain, the opposite in the UK and no significant effect in Belgium and the

[3] In case of Belgium, Estonia, and Italy the national version of the EU-SILC has been used because it includes more variables at the necessary level of detail.
[4] This process is documented in EUROMOD Country Reports.
[5] For more information refer to the EU-LFS webpage
http://epp.eurostat.ec.europa.eu/portal/page/portal/microdata/lfs

Netherlands. The probability of becoming unemployed is everywhere significantly higher for young workers and decreases with age, although to a lesser extent in Estonia and the Netherlands. It is significantly lower for workers with higher levels of education (to a lesser extent in Italy and the UK), self-employed, and natives (with the exception of the UK). In all countries, workers in the construction sector have a higher probability of becoming unemployed, confirming that this was the sector that suffered the most. However, the macroeconomic shock affected the national economies in different ways, with an unemployment pattern across sectors of activities not completely clear in Belgium and the Netherlands. Most regions of residence are significant in determining the probability of becoming unemployed.

The individuals currently employed in the EUROMOD underlying microdata are those potentially at risk of becoming unemployed. In order to identify the individuals with the same observed characteristics as those making the transition from employment to unemployment in the EU-LFS data we apply a statistical matching between the observations in the EU-LFS data (i.e. "treated") and EUROMOD data (i.e. "control").
In particular, we perform a Coarsened Exact Matching procedure (Iacus, et al. 2011) based on individual characteristics (gender, age, education level), previous job characteristics (self employment, sector of activity) and household characteristics (number of adults, presence of children, number of earners, presence of other new unemployed in the same family).[6]

The basic idea of the Coarsened Exact Matching is to *i)* coarsen each observed characteristic into meaningful groups, *ii)* apply exact matching to the coarsened data which involves sorting the observations into strata and then *iii)* retain the original value of the observed characteristic.[7] Such a matching method resembles the exact matching without restricting the match only to units with exactly the same observed values. The Coarsened Exact Matching procedure weights the matched observations of the control group in EUROMOD data according to the size of their strata and the survey weights from the EU-LFS data. The matching is also performed when the number of treated and control observations are different within strata, exploiting to the maximum extent the observations available in EUROMOD data. The use of the Coarsened Exact Matching procedure allows us to reduce the multidimensional imbalance in the observed characteristics between treated and control units. It guarantees the same multivariate empirical distribution of the individual coarsened characteristics which is essential for the subsequent analysis of the resilience of the welfare state given that eligibility for unemployment benefits depends on most of these characteristics (e.g. age, self employment status, and household characteristics) jointly considered.[8]

We apply the Coarsened Exact Matching procedure in a sequential way. In the first step, we only consider one new unemployed individual per family and we match the observations in the treated and control data. In the second step, we match the second unemployed individual per family (if there is one) on the sub-sample of families in the control data which contains

[6] In Figari et al. (2011) aggregate LFS statistics were used without the possibility to characterise the new unemployed in a detailed way.
[7] In order to narrow the matching to the treated observations for which control units have been properly identified, we discard strata with only treated units. Given the choice of the characteristics on which the matching is based their number is small, ranging across countries between 1% and 7% of the original observations, at the cost of higher overall imbalance.
[8] Iacus et al (2011) proposed a comprehensive measure of global imbalance (L_1) which must be used as a point of comparison between the matching solution and the baseline unmatched data, showing that a good matching reduces the overall L_1. In our case, the statistic L_1 reduces by around 7% in BE, IT, NL, and the UK to 10% in ES and 19% in EE which is satisfactory given the quite restrictive choice of characteristics on which the matching is based and the relatively small numbers of treated observation discarded.

one unit already matched in the first step. Such a procedure allows us to guarantee the same proportion of families with more than one new unemployed member in the final EUROMOD dataset as in the EU-LFS data.

The marginal distributions of the characteristics of the new unemployed identified in EUROMOD data as a result of the statistical matching are reported in Table 2. A t-test for equality of means in the control group (EUROMOD data) and in the treated group (EU-LFS data) is carried out and it fails to reject the null hypothesis for most of the observed characteristics included in the matching.

The new unemployed are predominantly male (in particular in the UK where 68% of the new unemployed are men). On the one hand, in Belgium, Spain, the Netherland, and the UK they are younger than in other countries; on the other hand in Belgium, Spain and Italy those closer to the retirement age are less affected by unemployment. Among the new unemployed, the majority has a low level of education in Spain and the UK, while more than one quarter has received tertiary education in Belgium, Estonia and the Netherlands. Across countries, the large majority of new unemployed are employees (with a notable share of self-employed in Italy) and working in the service sector (with the exception of Estonia).

The remainder of Table 2 reports some household characteristics of the new unemployed: most of them come from non-single households (in particular in Estonia, Spain and Italy) and about 40% of them have at least one child in their household. The new unemployed come from families where there are two or more earners in 70% of the cases in Estonia and Spain, 60% in Italy, the Netherlands and the UK and only 50% in Belgium. Moreover approximately 15% of the new unemployed in Estonia and Spain come from families with more than one such person, with lower shares in the other countries.

Table 3 reports additional income information on the new unemployed derived from EUROMOD data given that income information on retrospective data is not available in the EU-LFS database. The distribution of the new unemployed by household income quintile groups (assessed before the unemployment) shows an inverted U-shape in Belgium, Estonia, Spain and Italy while in the Netherlands and the UK the new unemployed are less represented in the bottom of the distribution.

More than 90% of the new unemployed in Belgium, Estonia and Spain are judged to qualify for unemployment benefits, under either insurance or assistance schemes. Generally, those that are older than the age limit, self employed or have not worked long enough to receive the contributory unemployment benefits make up the remainder. The share is lower and around to 86% in the Netherland, 84% in the UK (where a relatively large share of new unemployed has not worked long enough to qualify) and only 81% in Italy (due to higher prevalence of self employment and restrictions to unemployment benefit entitlement for those on temporary contracts). However, it must be borne in mind that these estimates represent an upper bound of entitlement given that it is not possible to simulate some of the eligibility restrictions due to lack of information in the data.

3.3. Income stabilisation indicators

Our analysis of the income automatic stabilisation effect offered by the welfare systems across European countries focuses on both relative and absolute resilience provided by the welfare state, taking into account the interactions of the tax-benefit policies with other existing household income and family composition.

First, in order to assess the level of stabilisation of incomes relative to the pre-shock baseline, we employ the Net Replacement Rate (Immervoll and O'Donoghue, 2004) which is the ratio between household disposable income after and before the unemployment the shock, giving an indication of the extent of the remaining disposable income for those affected by the unemployment shock:

$$\text{Net Replacement Rate} = \frac{Y_{post}}{Y_{pre}}$$

where Y is Household Disposable income made up of Original Income (which includes any form of market and private income, and even in the unemployment scenarios may be positive due to capital incomes, private pensions, inter-household transfers or the earnings of other household members) plus Benefits, minus Taxes. Income from savings could be seen as another channel of self-insurance but given the poor quality of the underlying data we treat them as one of the components of Original Income without highlighting their specific role.

In order to analyse the channels through which relative resilience is offered, we decompose the Net Replacement Rate by income source:

$$\text{Net Replacement Rate} = \frac{O_{post} + B_{post} - T_{post}}{Y_{pre}}$$

where O is the Original Income, B is the sum of Benefits and T includes Income Taxes and Social Insurance Contributions paid by employees and the self employed.

Benefits are made of *i)* Unemployment benefits (both Insurance and Assistance schemes), *ii)* Social Assistance (including minimum income schemes, housing benefits, means-tested in-work benefits such as the Working Tax Credit in the UK and other residual social assistance benefits) and *iii)* other benefits, including contributory old-age and survivors pensions, early retirement benefits, disability and invalidity benefits and family benefits due to the presence of children in the family

Moreover, in order to measure the extent of protection offered by the public support, we derive the Compensation Rate which measures the proportion of net earning lost due to unemployment, compensated by public transfers net of taxes:

$$\text{Compensation Rate} = \frac{\left(B_{post}\text{-}B_{pre}\right)\text{-}\left(T_{(\overline{E}_{post})}\text{-}T_{(\overline{E}_{pre})}\right)}{\left(E_{pre}\text{-}T_{(E_{pre})}\right)\text{-}\left(E_{post}\text{-}T_{(E_{post})}\right)}$$

where the difference in the net earnings before and after the shock represents the income lost due to the unemployment, which is compensated by more generous net benefits. To derive net measures, taxes are allocated proportionally to each income source. [9]

This indicator allows us to isolate the net public support from the effect of other earnings present in the family of a new unemployed individuals which usually play a really important role in determining the income after the unemployment shock. The compensation rate, taking into account the interaction of the tax-benefit schemes and the private incomes in the family, gives us an indication of the net public contribution to the disposable income as proportion of the market income lost due to the unemployment shock. Furthermore, we decompose the

[9] $T_{\overline{E}}$ stands for taxes on income other that earnings. Original incomes other than earnings do not change before and after the unemployment shock and the difference is, hence, zero. This is the reason why they are not included in the formula.

compensation rate in the same way as the Net Replacement Rate to highlight the contribution of each group of benefits.

In order to test whether the income stabilisation offered by the tax-benefit systems prevents the new unemployed from falling below an absolute income threshold, we compare the equivalised disposable income before and after the unemployment shock to the poverty threshold at 60% of the median in the pre-shock baseline. In this way we distinguish the new unemployed who are poor already before the unemployment shock ("Poor in work"), those falling below the threshold as a result of the shock ("At risk") and those remaining above it in spite of the shock ("Protected").

Our approach is equivalent to calculating absolute poverty rates with a fixed poverty line and resembles the suggested practice in the measurement of poverty during a recession of using a threshold fixed in real terms (Jenkins et al. 2011).
Such an indicator can be considered as an appropriate proxy of the experience of impoverishment that a newly unemployed person faces, comparing his current condition with his own status before the unemployment shock (Matsaganis and Leventi 2011).

A discussion of the issues related to effects of unemployment benefits and their generosity on employment and a normative judgment of the proper level of protection provided by the welfare systems is beyond the scope of this paper. In the labor economics literature, there is a lot of evidence about the disincentive effects of unemployment benefits with high replacement rates (Atkinson and Micklewright 1991) but also about the positive effects of unemployment benefits on subsequent employment stability (Tatsiramos 2009). Furthermore, the trade off between adequacy of unemployment benefits levels and their disincentive effect involves also the minimum levels of living standards guaranteed by the welfare system for those who are unemployed with advantageous efficiency gains for the society as a whole (Boadway and Keen, 2000). Nevertheless, in an economically efficient system low firing costs, flexible contracts, and training opportunities are coupled with generous unemployment subsidies (Alesina and Giavazzi 2006). Given the policy goal of reducing the numbers of individuals at risk of poverty, it is implicit that household income of the new unemployed should not fall below the poverty threshold. Although we do not provide a normative judgement on the level of protection, our indicators allow us to disentangle the consequences of the Great Recession faced by those who are suffering from unemployment and are potentially among the individuals most vulnerable to the effects of the recession.

4. Unemployment protections schemes around Europe

The existence in all European countries of a developed welfare state (Schubert et al. 2009), that is intended, among other things, to protect people and their families against economic shocks, is one of the main differences between the crisis faced today and that which occurred in the 1930s. However, the European countries included in our study have considerably different welfare systems and as a consequence the degree of protection offered to the unemployed differs (Bertola et al. 2001).

Anglo-Saxon systems, as in the UK, are targeted at low-income individuals and have social assistance schemes with relatively generous benefits, but offer low unemployment benefits. Conversely, Scandinavian and Continental systems (Belgium and the Netherlands) have a Bismarkian tradition of contribution-financed unemployment benefits, with social assistance schemes that operate as a final safety net. In addition, the more recently developed Southern systems (Italy and Spain) offer generally lower levels of expenditure in social protection and higher reliance on family support. Spain, however, provides high unemployment and regional

social assistance benefits resembling Continental countries (Bonoli 1997). Finally, Eastern European Welfare Systems differ considerably from one another: Soviet-Union heritage, the posterior implementation of a liberal ideology together with Scandinavian influences shape the Estonian welfare system, where Unemployment Insurance was introduced only in 2003 (Trumm and Ainsaar 2009).

Individuals that become unemployed might be eligible for Unemployment Insurance and Unemployment Assistance schemes. In addition, general Social Assistance schemes target low-income individuals or households, guaranteeing a minimum level of income.

Unemployment Insurance is generally an earnings related benefit (except in the UK where it is a flat rate benefit) based on contribution history. Unemployment Assistance complements the unemployment insurance once it is exhausted or gives economic support to the unemployed that do not meet the requirements of the insurance benefit. Whilst every country provides Unemployment Insurance, Unemployment Assistance is not always available.

A description of the singularities of the unemployment protection schemes and Social Assistance of the countries included in our paper is presented in Table 4.

Belgium, Spain and the Netherlands offer the most generous unemployment insurance and for the longest period of time (with an initial replacement rate of 60% with no time limit in Belgium and a replacement rate of 70% in the Netherlands and Spain for a maximum of 24 and 38 months, respectively). Estonia and Italy[10] provide lower replacement rates (between 60% and 40%) with a time limit of 9 and 8 months, respectively. The UK provides the least generous Unemployment Insurance scheme (with a flat payment between € 60 and € 76 per week for a maximum of 6 months). Unemployment Insurance schemes are subject to income tax and in Spain they are also subject to social contributions paid mostly by the social security agency and only a residual part by the unemployed.

Unemployment Assistance is an income-based benefit, means tested in the UK and the Netherlands and provided at a flat rate in Estonia and Spain. Italy and Belgium do not provide Unemployment Assistance. In the Netherlands, it merely acts as a top up to the Unemployment Insurance, providing that the later is lower than the Social Assistance. Eligibility in Estonia and Spain is dependent on contributions while in the UK no contributions are required. It is unlimited in the UK (providing the unemployed person is job seeking) while it has a maximum duration of 18 months in Spain and 9 (or 14 if close to retirement) in Estonia.

While Unemployment Insurance and Unemployment Assistance are targeted at the unemployed, Social Assistance benefits in principle provide a guaranteed minimum level of income which is independent of employment status (although able bodied working age people are usually expected to be available for work). Every country except Italy offers means-tested time-unlimited payments and the amount of the benefit varies considerably between countries. Social Assistance schemes can act as efficient social shock absorbers so long as the minimum income guarantee is sufficiently generous. However, a significant number of individuals are ineligible for Social Assistance and, anyway, a large fraction of

[10] In Italy, wage supplementation schemes (i.e. *Cassa Integrazione Guadagni*) provide an additional compensation for reduced hours of work. However, people brought onto wage supplementation schemes do not count as unemployed in the official statistics and it is not possible to identify them in our data. In the simulations, we consider only those losing their jobs and not those retaining any wages and reducing hours of work.

those entitled to it remain at very low levels of income even including Social Assistance (Figari et al. 2011).

5. Empirical evidence

5.1. Relative resilience

The average Net Replacement Rates, shown in Table 5, are illustrative of the cross country variation in the relative resilience due to differences in tax-benefit systems, characteristics of the new unemployed and household composition.

On average, with Unemployment Benefits, in Belgium, Spain, and the Netherlands household income does not fall below 72% of its pre-unemployment level. The average Net Replacement Rate is around 65% in Estonia and Italy, while in the UK it is just around 58%.

As expected, without Unemployment Benefits, the household income falls much more consistently in a range between 45% (Italy) and 57% (UK) of its pre-unemployment level. Interestingly, in this scenario the country with the higher Net Replacement Rate is the UK with an average value very close to the one guaranteed in the scenario with Unemployment Benefits. On the one hand, this shows that the British contributory Unemployment Benefit does not offer protection that is as generous as in other countries. On the other hand, the protection offered by the Social Assistance results to be more generous than in other countries. Such an evidence highlights the open issue whether the tax-benefit system should guarantee a reasonable minimum level of protection for all potentially unemployed people or alternatively should ensure the relative income maintenance for a smaller (and generally higher income) group.

If we look at the Net Replacement Rate by its components (as shown if Figure 1, with Taxes and Contributions reducing the Replacement Rate and hence appearing with the negative sign), there is clearly a protective role played by the Original income left in the household (i.e. mainly earnings of other household members) and Other (non work related) Benefits (i.e. mainly pensions) received. The sum of these two components, before the deduction of taxes and contributions, makes up to more than 80% of post-shock household income in Italy and the UK, around 70% in Estonia, and the Netherlands and around 55% in Belgium, and Spain. These figures are even more larger in the scenario without Unemployment Benefits. From Figure 1, it is clear that a relevant part of the cushioning effect on household income is attributable to market incomes of other household members (white bar) and to public transfers (i.e. mainly pensions, grey bar) which are not primarily designed as automatic stabilisers or as protective safety nets in case of an unemployment shock.[11] Moreover, given that earnings of other household members are progressively more important as household income increases, the average Net Replacement Rate is likely to be upward-influenced by the presence of these incomes at the top of the income distribution and this is only partly compensated by progressive income tax.

Unemployment Benefits play a large role in Belgium (47% of pre-unemployment household income), the Netherlands (42%), Spain (41%). In Italy they make up 29% of pre-unemployment household income and 25% in Estonia. In the UK the contributory Unemployment Benefit contributes to only 5% of the pre-unemployment income while Social Assistance makes up 15% of it.

[11] The only exception is the means-tested family benefits in the UK.

The general lesson is that we need to look at the social protection system as a whole and how it interacts with family composition and incomes received by other household members, without focusing exclusively on Unemployment Benefits.

The figures related to the UK help understanding that the overall effectiveness of the Unemployment Benefits is a combination, for the individuals entitled to them, of their generosity and duration: the UK shows the least generous and shorter Unemployment Benefit which is overall top up by Social Assistance and results in the lowest Net Replacement Rate.

Across countries, with the only exception of Italy where there is no general income support scheme, Social Assistance is a relevant top up of incomes of the new unemployed in the scenario without Unemployment Benefits. It contributes to around 18% of pre-unemployment household income in Belgium and the UK, 13% in the Netherlands and around 10% in Estonia and Spain.

As expected, the Compensation Rate clearly drops in the scenario without the Unemployment Benefits with two extremes of interest. On the one hand, in Italy the Compensation Rate is close to zero given the absence of general income support schemes and just some limited family based tax concessions which depend on income. On the other hand, in the UK the Compensation Rate is very similar to that achieved in the scenario with Unemployment Benefits and this does not come as a surprise given the low generosity and short duration of UK Unemployment Benefit. The comparison of the Compensation Rate between the new unemployed as a whole group and those living in sole earner households reveals that the net public support is always higher for sole earner households (with the exception of Italy) highlighting the extent to which public support is targeted at those without other resources and effective means-tested schemes are in place. This is particularly true in the scenario without Unemployment Benefit, where the bulk of public support comes from means-tested Social Assistance. This is the case of the UK where the net public transfer is 11 percentage points higher for sole earner households than for the new unemployed as a whole (and 13 percentage points in the scenario without Unemployment Benefit).

Figure 2 reports the Compensation Rate by its components showing that most of public support is channelled through Unemployment benefits (blue bar), although it is important to note that in the Netherlands and Italy the income tax (red bar) payable on these benefits reduces their generosity in a non-negligible way. In the UK, Social Assistance (yellow bar) makes up the largest share of public support in both the scenarios, with and without Unemployment Benefit.

The role of Social Assistance and the extent to which public support is targeted at the bottom of the distribution is made explicit by looking at the Average Compensation Rate by household income quintile groups (Figure 3). The most striking pattern is observed in the UK: due to Social Assistance (yellow bar, including Housing Benefit, Council Tax Benefit and Working Tax Credit), other means-tested benefits (grey bar, mainly the Child Tax Credit), and the decreasing effect of the contributory Unemployment Benefit (blue bar) the Compensation Rate shows a decreasing pattern from a 54% for the new unemployed in the first quintile group to 14% for those at the top of the income distribution. In the other countries, the pattern is characterised by an inverted U-shape in Belgium, Spain and Italy, while it is almost flat in the Netherlands and slightly decreasing in Estonia. Social Assistance emerges as an important component of public support for those at the bottom of the income distribution in Belgium, Estonia and, above all, the Netherlands. Moreover, the role of income tax paid on Unemployment Benefits in reducing the overall Compensation Rate is not negligible in Italy, the Netherlands and Spain.

5.2. Absolute resilience

The extent to which the tax-benefit instruments allow new the unemployed to avoid falling below a given level of income is an empirical matter which depends on the generosity of the system, the entitlement to receive Unemployment Benefits, the income position of the new unemployed in the baseline and their family circumstances.

Table 7 shows the proportion of new unemployed individuals with household equivalised incomes below the threshold before unemployment ("Poor in work"), those falling below as a result of becoming unemployed ("At risk") and those remaining above in spite of unemployment ("Protected"). It shows the situation for all the new unemployed and for the sub-group of sole earner households before unemployment, in the scenario when the new unemployed receive Unemployment Benefits if they are entitled.

The share of new unemployed already poor when they were still in work ("Poor in work") resembles the overall pattern of in-work poverty (Ponthieux 2010) with the exceptions of Estonia where the new unemployed face a higher risk of poverty before unemployment and the UK where the opposite is true. Overall, it seems that in Europe the poor do not bear a disproportionate share of the losses – at least in terms of unemployment shock at the onset of the Great Recession – as it was the case in the 1990-1 recession in the USA (Cutler and Katz, 1991).

The new unemployed at risk of poverty before unemployment range from around 4% in Belgium, the Netherlands and the UK to much higher levels in Spain, Italy (around 11%) and Estonia (13%). Those at risk of falling below the poverty threshold on becoming unemployed make up 43% in the UK, 30% in Italy, 27% in Estonia, 19% in the Netherlands, 16% in Spain and 12% in Belgium of the whole new unemployed.

If we look at which quintile group the new unemployed at risk of poverty belong before the unemployment shock, there is a clear differentiation across countries. In Belgium, the majority of new unemployed at risk of poverty comes from the bottom quintile group, with income already close to the poverty line when they are in work. In Estonia, Spain, Italy and the UK only a minority of between 5% and 11% belongs to the bottom quintile group, with the bulk of the new unemployed at risk of poverty belonging to the second and third quintile group and in the Netherland they are even more spread over the first three quintile groups. In these countries the new unemployed experience a larger fall in their income with the tax-benefit instruments unable to cushion a sizeable loss of income for a significant share of them.[12]

When the new unemployed, before the unemployment shock, are the only workers in the household they face a poverty risk, when still at work, at least double than the one observed for the new unemployed as a whole. When they become unemployed, 65% of them are at risk of poverty in the UK, 51% in Italy, 45% in Estonia, around 30% in Spain and the Netherlands and 21% in Belgium. The share of those who remain protected (less than 30% in Estonia, Italy and the UK; more than 60% in the Netherlands and Belgium) is informative about the extent of protection offered by benefits alone (including benefits and pensions received by other household members).

As expected, the situation is even worse in the scenario without Unemployment Benefits (Table 8). Less than half new unemployed are protected from poverty, with larger shares of people at risk of poverty in Estonia and Spain. However, it is when looking at the sole earners

[12] Detailed results available from the authors upon request

that the dramatic share of those inadequately protected by the welfare system becomes clear: in Estonia only 4% of the new unemployed receive enough public support to stay above the poverty threshold, and around 12%-14% in Belgium, Spain and Italy. In the Netherlands and the UK, the Social Assistance schemes allow up to 21% and 26%, respectively, of the new unemployed to stay above the poverty threshold. In particular, in the UK the poverty risk for the new unemployed does not change whether there are Unemployment Benefits or not revealing that contributory unemployment benefits are too low in value and short in duration to play a role in maintaining incomes above the poverty threshold.

The share of the new unemployed not protected from poverty by the welfare systems, in particular when Unemployment Benefits are not payable, confirms Cantillon's view (2011) that social protection for working age individuals in Europe has become less adequate and social redistribution less pro-poor. Social Assistance schemes are not adequate to stop those losing their job from descending into poverty (Figari et al., 2011).

5.3. Are the young unemployed left unprotected?

As shown in Table 2 the new unemployed younger than 35 years old (thereafter "young" new unemployed) represent almost half of the new unemployed in Belgium, Spain, the Netherlands, and the UK and slightly less in Estonia and Italy.

Depending on their family circumstances, educational attainments and career prospects the young unemployed can be the most vulnerable. The extent to which their incomes are cushioned can influence their living decisions in terms of leaving parental home (Iacovou 2010) or sharing housing (Mykyta and Macartney 2010) and have an impact on future household formation (Painter 2010).

According to our analysis, the cushioning effect depends mainly on their living arrangements: almost 75% of the young new unemployed live alone in Belgium, the Netherlands and the UK while just half of them already left the parental home in Estonia, Spain and Italy.

On the one hand, as reported in Table 9, if they live at the parental home their earnings, lost due to unemployment, represent a secondary income source (because of other earnings or pensions received by their parents) and then the family acts as an effective income stabilizer. In this case the young new unemployed generally face a higher Replacement rate and a lower poverty risk than the new unemployed as a whole.

On the other hand, the Net Replacement Rate shows that when they live alone they face a larger fall in their income than the new unemployed as a whole in most of the countries, with the exception of those in Belgium (in the scenario with Unemployment Benefits) and in the UK.

The net public support received, as measured by the Compensation Rate, is generally larger (with the exception of Italy and the Netherlands in the scenario with Unemployment Benefits) revealing that the lower absolute level of their incomes is compensated by means-tested benefits. This is confirmed by the lower shares of young new unemployed living alone who are protected from the risk of poverty in both scenarios with and without Unemployment Benefits, with the exception of Spain.

6. Conclusions

We have provided evidence of the implications for the living standards of those who became unemployed at the onset of the Great Recession, assessing the extent to which the tax-benefit

systems provide an automatic stabilisation of income for this group of people potentially most vulnerable to its adverse effects. In order to assess the impact of unemployment on household income, counterfactual scenarios are simulated by using EUROMOD, the EU-wide microsimulation model, integrated with information from the most recent EU-LFS data.

The consequences of the economic downturn on the unemployed individuals depend on the interaction between their contribution history, their living arrangements and the capacity of the tax-benefit systems to absorb macro-economic shocks. The European countries included in our paper have considerably different systems of social protection for the unemployed, ranging from generous earnings related benefits to flat rate low level amounts, and as a consequence the degree of protection offered to the unemployed differs.

In the scenario with Unemployment Benefits paid to the entitled individuals, the highest average level of protection is provided in countries characterised by generous and long lasting contribution-financed unemployment benefits like Belgium, Spain, and the Netherlands. At the other extreme, in the UK the flat rate Unemployment Benefit payable for at most 6 months guarantees the lowest level of replacement rate.

It could be argued that guaranteeing a reasonable minimum level of protection for all potentially unemployed people is of higher importance than relative income maintenance for a smaller (and generally higher income) group. On that basis we have shown that there is wide variation in the extent to which welfare systems protect the new unemployed from poverty-level incomes. In none of the countries are all new unemployed protected but generally the risk of falling below the threshold is much lower in Belgium and the Netherlands and higher in Italy and the UK.

Our analysis reveals that one needs to look at the social protection system as a whole highlighting the role for adequate minimum income schemes alongside unemployment benefits. The evidence presented here suggests that the current crisis will put minimum income schemes in several EU countries to a severe test. To meet the challenge, social safety nets must become stronger and tighter (Figari et al. 2011). Minimum income schemes can act as efficient social shock absorbers and play a counter-cyclical role by boosting internal demand and consumption, so long as extending coverage and/or improving adequacy are part of the policy agenda.

Our assumptions as well as the methods employed have some implications for these findings in a number of respects. In particular, assuming that the person is unemployed for the number of months spent in work in the baseline, rather than taking into account the variation in durations of individual unemployment spells, can have a large effect on the measured importance of Unemployment Benefits. Our assumptions have been common across countries but the result is to maximise the resilience measures in countries where Unemployment Benefits have relatively long durations, such as Belgium, Spain, and the Netherlands.

Furthermore, our calculations involve assumptions that conceal some further possible weaknesses in the welfare systems. First, we have assumed that all sources of income are shared equally within the household. This is an important assumption when young unemployed are still living in the parental home. Secondly, we have assumed that entitlements to benefits are always taken up. In the case of a newly unemployed person with access to no other resources this may well be a realistic assumption. But in other cases, perhaps particularly if the household retains a substantial amount of income from other sources, this may be less realistic. In general, it means that the scenarios without unemployment benefit may appear artificially optimistic in terms of what happens to household income, relative to the scenarios with unemployment benefits. However, one can

interpret these results as being the best possible outcomes. In practice, to the extent that there is incomplete benefit take-up among the unemployed, the situation may be worse than that represented here.

Nevertheless, we believe that the stress test approach applied to the tax-benefit schemes highlights some interesting features to be pursued in future research.

First, the need of fiscal consolidation in European countries calls for urgent analysis of the impact of different potential reforms to the tax benefit systems. Second, an overall assessment of the economic crisis on income inequality should try to distinguish between the effects of the austerity measures taken to reduce fiscal deficits and the direct consequences of the wider recession (Callan et al. 2011; Matsaganis and Leventi 2011).

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Table 1. Unemployment risk – 2008-2009

	Belgium	Estonia	Spain	Italy	Netherlands	UK
Male	-0.000	0.082*	-0.084***	-0.077***	0.005	0.281***
Age						
35-44	-0.300***	-0.094*	-0.242***	-0.229***	-0.214***	-0.268***
45-54	-0.434***	0.039	-0.377***	-0.359***	-0.204***	-0.328***
55+	-0.608***	-0.374***	-0.621***	-0.532***	-0.254***	-0.433***
Education						
Upper secondary	-0.190***	-0.189***	-0.222***	-0.114***	-0.175***	-0.092***
Tertiary	-0.403***	-0.372***	-0.448***	-0.106***	-0.203***	-0.285***
Native	-0.242***	-0.342***	-0.340***	-0.295***	-0.289***	0.006
Self-employed	-0.478***	-0.329***	-0.715***	-0.348***	-0.638***	-0.181***
Sector of activity						
Agriculture and Fishing	-0.272*	-0.273***	-0.580***	-0.474***	0.07	-0.22
Mining, Manifact. and Utilities	-0.068	-0.229***	-0.531***	-0.221***	0.137*	
Wholesale and retail	-0.049	-0.422***	-0.656***	-0.277***	0.334***	
Hotels and restaurants	0.1	-0.355***	-0.544***	-0.060**	0.215**	
Transport and communication	-0.164***	-0.510***	-0.613***	-0.296***	0.079	
Financial intermediation	-0.307***	-0.566***	-0.755***	-0.568***	0.003	
Real estate and business	-0.114	-0.568***	-0.450***	-0.345***	0.111	
Public administ. and defence	-0.303***	-0.506***	-0.723***	-0.512***	-0.107	
Education	-0.288***	-0.972***	-0.866***	-0.634***	-0.519***	
Health and social work	-0.374***	-1.143***	-0.904***	-0.673***	-0.371***	
Other public services	-0.166**	-0.631***	-0.776***	-0.269***	0.108	
Industry						0.151***
Constant	-1.036***	-0.432***	0.119**	-1.002***	-1.553***	-1.763***
No. Observations	44,701	9,554	42,050	229,875	45,601	42,392
Pseudo R^2	0.076	0.075	0.121	0.066	0.067	0.047

Notes: * p<0.10, ** p<0.05, *** p<0.01. Probit models with dependent variable equal to one if individual became unemployed between 2008 and 2009. Region of residence included among the regressors (in Belgium, Spain, Italy, and the UK) but not shown. Reference category: up to 35 years, with at most lower secondary education, foreigner, employee, occupied in the Construction sector (Service sector in the UK). Source: Authors' elaborations on EU-LFS data.

Table 2. Characteristics of the new unemployed

	Belgium	Estonia	Spain	Italy	Netherlands	UK
Sample size (unweighted)	2,647	2,410	7,415	8,182	6,172	11,934
Sample size (weighted)	110,194	49,389	1,704,428	469,277	143,851	1,050,124
Individual characteristics						
Male %	0.60	0.64	0.65	0.62	0.62	0.68
Age groups %						
< 35	0.49	0.38	0.46	0.41	0.47	0.47
35-44	0.29	0.27 **	0.32	0.35	0.25	0.25
45-54	0.17	0.25	0.17	0.19	0.16	0.16
55+	0.05	0.10	0.06	0.05	0.12	0.12
Education level %						
Lower secondary	0.33	0.13 **	0.57	0.45	0.37	0.60
Upper secondary	0.41	0.60	0.23	0.44	0.36	0.19
Tertiary	0.25	0.27	0.20 *	0.11	0.27	0.21
Previous job						
Self-employed %	0.04 **	0.02 ***	0.05	0.13	0.03	0.09
Sector of activity %						
Agriculture	0.00 ***	0.02 ***	0.04 *	0.02 **	0.01 **	0.01
Industry	0.22	0.36	0.16	0.27	0.13	0.47
Construction	0.12	0.22	0.30 **	0.17	0.05 **	
Services	0.66	0.40	0.51 **	0.55	0.81 **	0.52
Household characteristics						
Number of adults %						
1	0.33	0.17 ***	0.07 **	0.15	0.30	0.24
2+	0.67	0.83 ***	0.93 **	0.85	0.70	0.76
Presence of children %	0.42	0.47	0.49	0.41	0.40	0.43
Number of earners %						
1	0.50	0.33 *	0.30	0.40	0.42	0.40
2+	0.50	0.67 *	0.70	0.60	0.58	0.60
With other new unemployed in the household %	0.05	0.14	0.16	0.05	0.02	0.07

Notes: Summary statistics for the new unemployed identified in EUROMOD data, by means of Coarsened Exact Matching. New unemployed are individuals who became unemployed between 2008 and 2009. * indicates mean value of the observed characteristics in EUROMOD data statistically different from the mean value in EU-LFS data at 10% level; ** 5%, *** 1%. Source: EUROMOD version F4.23.

Table 3. New unemployed by household income quintile group

	Belgium	**Estonia**	**Spain**	**Italy**	**Netherlands**	**UK**
Household income quintile %						
Bottom	15.02	15.30	12.63	12.98	8.62	9.34
2nd	19.02	15.87	19.98	17.37	16.46	17.40
3rd	23.49	22.70	23.99	22.07	23.35	22.58
4th	21.78	26.03	23.49	25.26	26.27	24.64
Top	20.69	20.10	19.90	22.32	25.30	26.04
Entitled to Unemployment Benefits %	90.84	95.08	95.33	80.99	86.44	83.68

Notes: Summary statistics for the new unemployed identified in EUROMOD data. Quintile groups based on household equivalised disposable income in the baseline. Source: EUROMOD version F4.23.

Table 4. Unemployment Benefits (UBs) and Social Assistance schemes at June 30th, 2009

	Schemes	Typology / name	Contributions conditions	Payment rate	Duration	Tax and SICs
Belgium	*UB Insurance*	Earnings-related benefit (flat rate for young persons); amount depends on family situation	Between 45 weeks in 18 months and 89 weeks in 3 years	Single persons: 60% (from 2nd year 53%). Cohabitants without dependants: 58% (from 2nd year 40%). Lower and upper ceilings	Unlimited	Subject to income tax
	UB Assistance	None				
	Social Assistance	*Minimex*		Based on means test	Unlimited	
Estonia	*UB Insurance*	Earnings-related benefit	12 months in 3 years	50% for 1st 100 days; afterwards 40%. Lower and upper ceilings	9 months	Subject to income tax and Credited contributions
	UB Assistance	Flat rate (formally income-based)	6 months in 1 year	€ 64 per month	9 months (extended a max. of 5 months until retirement)	
	Social Assistance	*Toimetulekutoetus*		Based on means test	Unlimited, if seeking work	
Spain	*UB Insurance*	Earnings-related benefit; amount depends on family situation	12 months in 6 years	70% for first 6 months; afterwards 60%. Lower and upper ceilings	From 4 months to 2 years	Subject to income tax, SICs and Credited contributions (extra € 400 since 2008)
	UB Assistance	Flat-rate benefit (*Subsidio por desempleo)*, income-based	3 months (1+ dependants) or 6 months (No dependants)	From 80% of the "Public Income Rate of Multiple Effects" (No dependants) to 133% (3+ dependants)	6 months and up to 18 months extension	Subject to income tax
	Social Assistance	*Ingreso mínimo de inserción* (at Autonomous Communities level)		Based on means test		

Table 4. Unemployment Benefits (UBs) and Social Assistance schemes at June 30th, 2009 – continued

	Schemes	Typology / name	Contributions conditions	Payment rate	Duration	Tax and SICs
Italy	*UB Insurance*	Earnings-related benefit*	52 weeks in 2 years	60% (for the first 6 months, 50% for month 7 and 8 and 40% for the rest). Upper ceiling	8 months (12 months for those aged 50+)	Subject to income tax and Credited contributions
	UB Assistance	None				
	Social Assistance	None				
Netherlands	*UB Insurance*	Earnings-related benefits (*General* and *Extended* benefits)	*General:* 26 weeks in last 36 weeks. *Extended*: 26 weeks in last 36 weeks and at least 52 days in 4 of last 5 years.	*General* : 70%. Lower and upper ceilings *Extended*: 70% of earnings (75% for the first 2 months). Upper ceiling	*General:* 3 months *Extended*: from 6 months to 38 months	Subject to income tax and SICs
	UB Assistance	*Toeslagenwet*, income-based		Based on means test	Duration of UI	Subject to income tax and SICs
	Social Assistance	*Bijstand*		Based on means test	Unlimited	Subject to income tax and SICs
UK	*UB Insurance*	Flat rate benefit for all employed and some self employed persons	Contributions paid in 1 of last 2 years, with minimum level	From € 60 to € 76 per week	6 months	Subject to income tax
	UB Assistance	*Jobseekers' Allowance (JSA)*, income-based		Based on means test	Unlimited, if seeking work	
	Social Assistance	*Income support*		Based on means test	Unlimited	

Notes: SICs: Social Insurance contributions paid by the unemployed. Credited contributions are paid by the social security agency on the Unemployment Benefit. * Special schemes in the Construction sector and after the wage supplementation scheme (*CIGs*) are not simulated in EUROMOD. Source: MISSOC (2009) and EUROMOD country reports.

Table 5. Average Net Replacement Rate, with and without Unemployment Benefits (UBs)

		Belgium	Estonia	Spain	Italy	Netherlands	UK
All new unemployed	with UBs	0.80	0.64	0.76	0.65	0.72	0.58
	without UBs	0.55	0.49	0.51	0.45	0.52	0.57

Notes: Net Replacement Rate is the ratio of household disposable income after and before the unemployment shock. Source: EUROMOD version F4.23.

Table 6. Average Compensation Rate, with and without Unemployment Benefits (UBs)

		Belgium	Estonia	Spain	Italy	Netherlands	UK
All new unemployed	with UBs	0.67	0.39	0.61	0.40	0.53	0.30
	without UBs	0.23	0.13	0.15	0.02	0.21	0.27
Sole earner households	with UBs	0.70	0.44	0.62	0.41	0.58	0.41
	without UBs	0.36	0.25	0.27	0.02	0.37	0.40

Notes: Compesation Rate is the proportion of household disposable income lost due to the unemployment compensated by public transfers. Source: EUROMOD version F4.23.

Table 7. Poverty status of the new unemployed, with Unemployment Benefits

		Belgium	Estonia	Spain	Italy	Netherlands	UK
All new unemployed	Poor in work	0.04	0.13	0.11	0.11	0.03	0.04
	At risk	0.12	0.27	0.16	0.30	0.19	0.43
	Protected	0.83	0.60	0.73	0.59	0.78	0.53
Sole earner households	Poor in work	0.08	0.28	0.22	0.22	0.05	0.09
	At risk	0.21	0.45	0.29	0.51	0.31	0.65
	Protected	0.72	0.28	0.48	0.26	0.63	0.26

Notes: The poverty threshold is fixed at 60% of baseline median household disposable equivalised income. Source: EUROMOD version F4.23.

Table 8. Poverty status of the new unemployed, without Unemployment Benefits

		Belgium	Estonia	Spain	Italy	Netherlands	UK
All new unemployed	Poor in work	0.04	0.13	0.11	0.11	0.03	0.04
	At risk	0.53	0.53	0.50	0.46	0.50	0.46
	Protected	0.43	0.34	0.39	0.43	0.46	0.50
Sole earner households	Poor in work	0.08	0.28	0.22	0.22	0.05	0.09
	At risk	0.79	0.69	0.65	0.65	0.74	0.66
	Protected	0.14	0.04	0.13	0.12	0.21	0.26

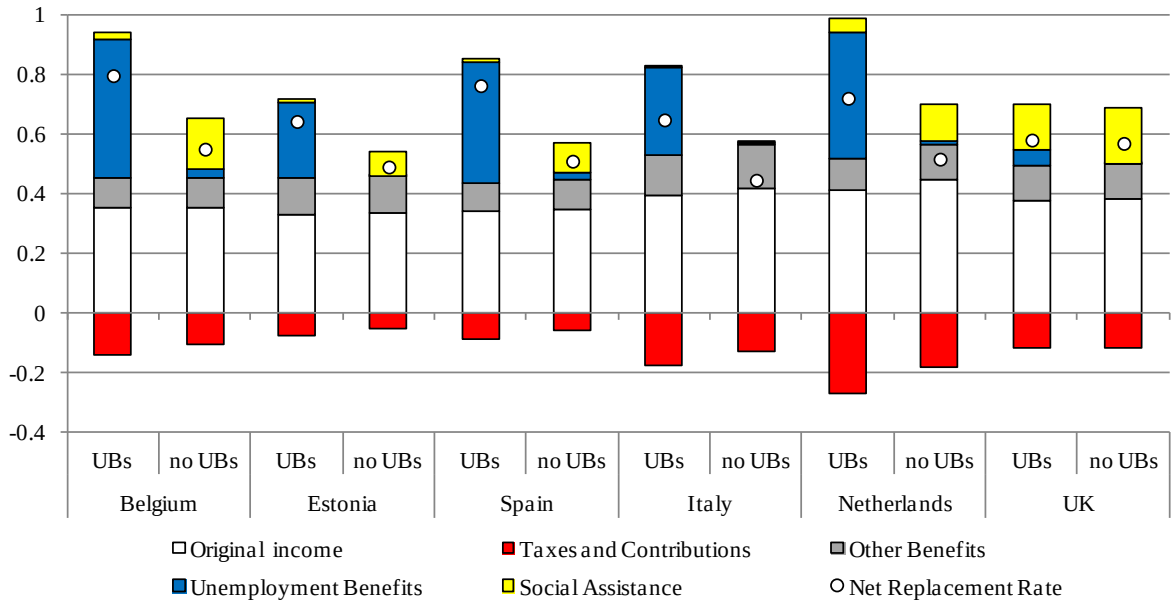
Notes: The poverty threshold is fixed at 60% of baseline median household disposable equivalised income. Source: EUROMOD version F4.23.

Table 9. Living arrangements and Resilience Indicators for the young unemployed

	Belgium	**Estonia**	**Spain**	**Italy**	**Netherlands**	**UK**
Living with parents (% of new unemployed)	13.02	17.10	24.07	20.11	10.84	10.54
Living alone (% of new unemployed)	36.40	21.29	21.69	21.10	31.17	36.04
Average Net Replacement Rate, living with parents						
with UBs	0.90	0.77	0.85	0.77	0.88	0.77
without UBs	0.74	0.66	0.64	0.66	0.86	0.77
Average Net Replacement Rate, living alone						
with UBs	0.80	0.58	0.74	0.60	0.64	0.60
without UBs	0.53	0.42	0.46	0.39	0.48	0.58
Average Compensation Rate, living alone						
with UBs	0.72	0.41	0.61	0.39	0.50	0.35
without UBs	0.29	0.18	0.18	0.01	0.27	0.31
Protected from poverty, living alone						
with UBs	0.83	0.53	0.78	0.53	0.66	0.52
without UBs	0.37	0.24	0.39	0.39	0.40	0.48

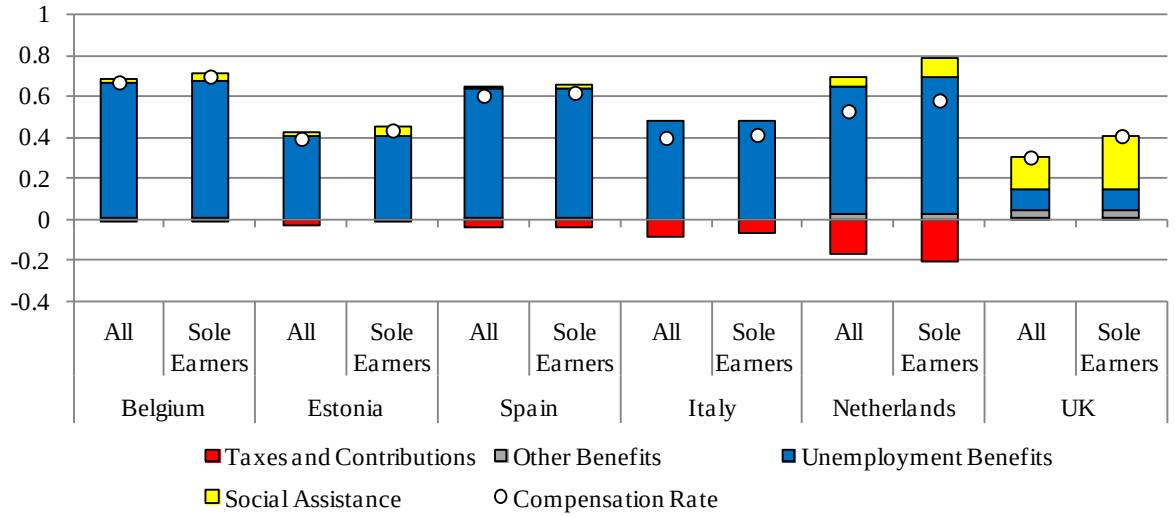
Notes: Youn unemployed are those younger than 35 years old. The poverty threshold is fixed at 60% of baseline median household disposable equivalised income. Source: EUROMOD version F4.23.

Figure 1. Average Net Replacement Rate by components, with and without Unemployment Benefits.



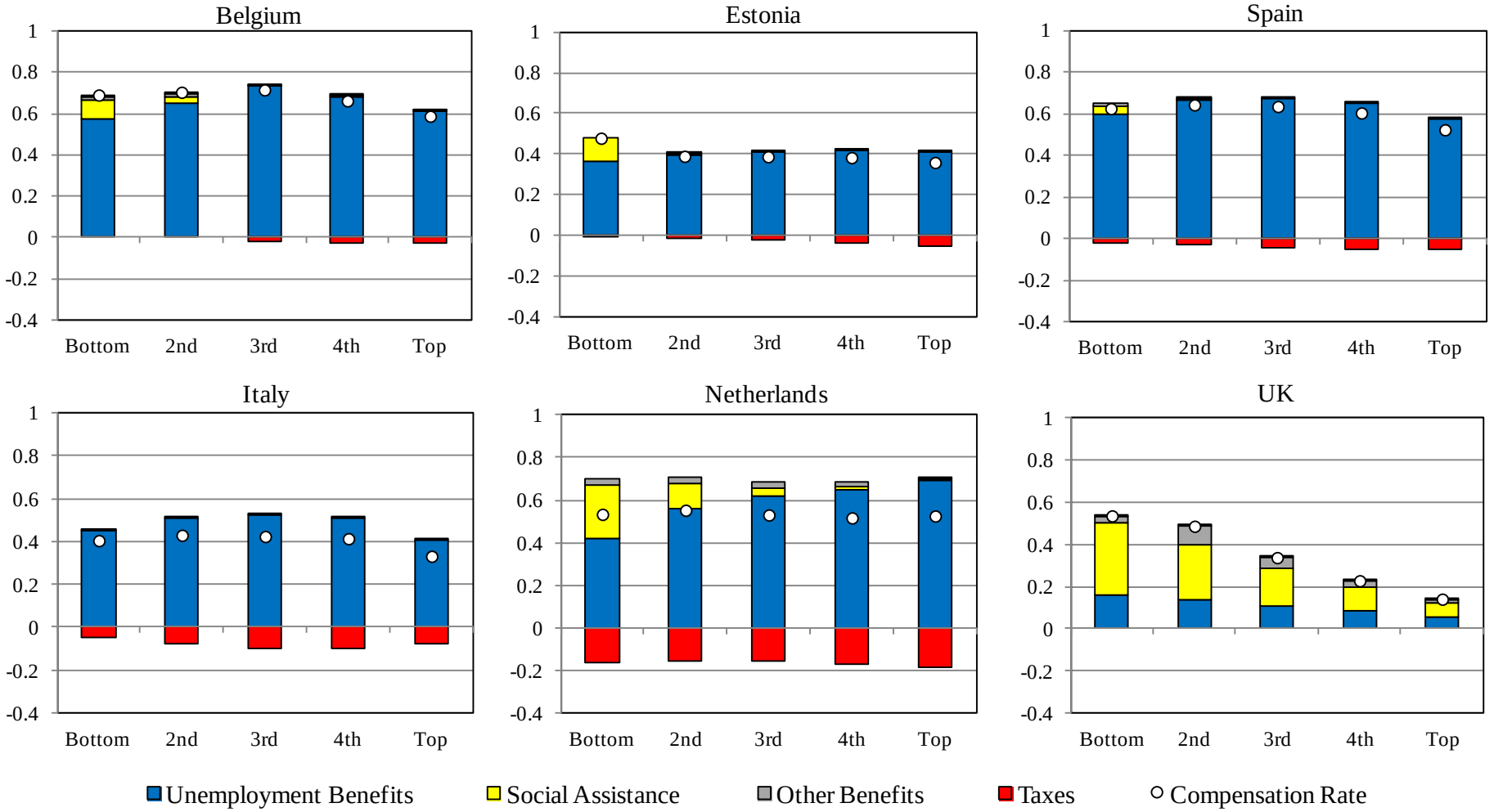
Notes: "Taxes and contributions" include personal income tax, employee social insurance contributions and other direct taxes such as the UK Council Tax and Property Tax in Italy; "Other benefits" include pensions, family benefits, disability and invalidity benefits; "Social Assistance" includes minimum income payments, housing benefits and means-tested in-work benefits. Net Replacement Rate is the ratio of household disposable income after and before the unemployment shock. Source: EUROMOD version F4.23.

Figure 2. Average Compensation Rate by components, with Unemployment Benefits



Notes: Compensation Rate is the proportion of net household market income lost due to the unemployment compensated by public transfers. Source: EUROMOD version F4.23.

Figure 3. Average Compensation Rate (and components) by household income quintile groups, with Unemployment Benefits



Notes: Compensation rate is the proportion of net household market income lost due to the unemployment compensated by public transfers. Quintile groups based on disposable income in the baseline. Source: EUROMOD version F4.23.