Chapter 3

Social protection systems confronting the crisis[1]

1. Introduction

Social protection is at the heart of the so called European Social Model. Social protection expenditure plays a redistributive role over the lifecycle (spending on pensions) and across income groups, and also has a preventive role by insuring individuals and their families against different risks (spending related to the labour market, such as unemployment benefits and childcare, or related to health, such as provision of health care, sickness and disability benefits). This way, it helps to cushion against poverty and the financial implications of social risks. Social transfers and other automatic stabilisers help to maintain household purchasing power and demand in the event of macroeconomic shocks.

In recent years, sluggish economic growth in the EU together with increasing public indebtedness have led a number of Member States to implement fiscal cuts, including in the area of social protection. Following an increase in the overall level of social protection expenditure in the aftermath of the crisis, also linked to the adoption of exceptional fiscal stimulus measures across the EU, between 2009 and 2011 social protection expenditure decreased slightly in real terms on average. This, however, masks significant differences between Member States: while expenditure decreased by up to 14% in real terms in Greece and Lithuania, increases in social protection spending were much more moderate (by up to 6% only in Malta and Cyprus).

Cuts in social protection spending were made in a situation when the economic and labour market conditions, with declines in employment and increasing unemployment, were not favourable for maintaining people's purchasing power. This reopened the debate about the effectiveness and efficiency of social protection spending and its role in smoothing the business cycle.

The purpose of this Chapter is to contribute to the understanding of how EU Member States' welfare systems reacted to the crisis, how social protection spending contributes to smoothing the business cycle thanks to automatic stabilization and discretionary measures and whether social protection benefits are provided in an effective and efficient way.

The analysis shows that there are great differences between the Member States' social protection systems, both in terms of size and composition of spending and in terms of the reaction of spending to the business cycle in general and to the recent crisis in particular. However, on average in the first years of the crisis (2008 and 2009), social protection spending helped to sustain households' disposable incomes.

Regarding the effectiveness and efficiency of spending on social protection, large differences between Member States are also prevalent, both in terms of poverty reduction and labour-market friendliness. Active labour market policies are shown to have a positive influence on employment rates, especially for certain population groups, and the same holds for childcare services and the employment rate of women in particular.

Section 2 provides an overview of the EU Member States' protection systems, tackling the size and composition of social protection spending and also its evolution and sources of financing. Section 3 looks at social protection expenditure from the perspective of its role as a stabilisation tool in the economy, both in general in relation to the business cycle and in the recent crisis. Section 4 investigates whether funds are spent on social protection in an effective and efficient way, both in terms of poverty reduction and in terms of labour-market friendliness.

2. Social protection systems in EU Member States

Social protection systems in EU Member States are very diverse, given their different history, demographic and other socio-economic conditions, level and design/composition of welfare spending and other institutional conditions, also reflecting the different emphasis the respective national social models put on the various elements of social spending. This Section provides a comprehensive overview of the size of welfare states in the EU and the composition of social protection spending (not only by function, but also by type and conditionality of provision). It also groups Member States based on spending evolution and finally provides an insight into the financing of social protection systems.

Information on the data sources used in this Chapter is provided in Box 1.

(1) By Tereza Vyprachticka, Andrea Garnero.

Box 1: Data sources

The two main data sources used in this analysis are the European System of Integrated Social Protection Statistics (ESSPROS) and the Annual Macro-Economic database (AMECO).

The data on social protection expenditure and receipts have been compiled by Eurostat in accordance with the methodology of the European System of Integrated Social Protection Statistics 'ESSPROS Manual 2011'. Social protection is defined as encompassing *'all interventions from public and private bodies intended to relieve households and individuals of the burden of a defined set of risks or needs, provided that there is neither a simultaneous reciprocal nor an individual arrangement involved'*. As such, the field of observation of the ESSPROS goes beyond that of social security (i.e. social protection offered or imposed by government) to include benefits provided by private social protection schemes, in so far as they have similar effects to social security for the beneficiary. Social protection expenditure includes social benefits, classified by function, and administrative and other costs incurred by social protection schemes. These data are currently available for up until 2009 and in gross terms. An exercise to provide net data as well has been the subject of pilot programmes and is now in the regulation process.

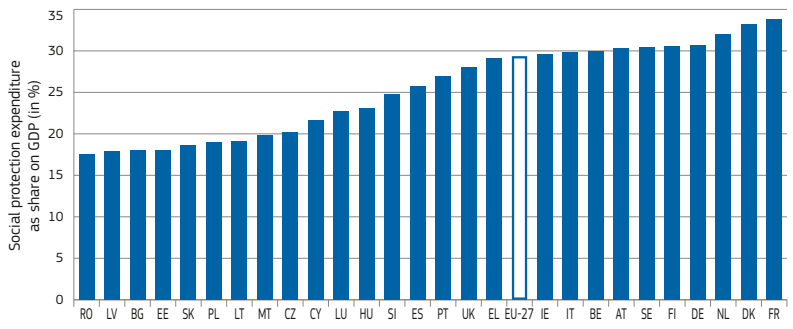
The AMECO database is based on National Accounts. Data on social protection expenditure extracted from this database (available as 'Social transfers in kind' and 'Social benefits other than social transfers in kind') are in accordance with the European System of Accounts 1995 (ESA95). Generally speaking the results for total expenditure on social protection is somewhat higher than in the ESSPROS. The main differences are that, first, National Accounts also include the function of Education in social protection expenditure; second, while the ESSPROS covers both current and capital transfers, National accounts only cover current transfers; third, the treatment of certain reductions on taxes and other obligatory levies payable by households is accounted in a different way by the ESSPROS and National Accounts. For more details on the main differences compared with the European System of Integrated Social Protection Statistics (ESSPROS) in the way social benefits in cash and in kind are distinguished please refer to the Manual on sources and methods for the compilation of COFOG Statistics, page 65-66, Eurostat, http://epp.eurostat.ec.europa.eu/cache/ITY_OFFPUB/KS-RA-07-022/EN/KS-RA-07-022-EN.PDF

2.1. Size of social protection spending

The size of social protection spending varies greatly between EU Member States (see Chart 1). Expenditure is the lowest relative to GDP in EU-12[2] countries such as Romania, Latvia and Bulgaria (around 18% in 2010) and the highest in EU-15[3] countries such as France and Denmark (above 33% in 2010). At EU level, social protection expenditure accounts for a little under 30% of GDP. While all EU-15 countries (except Luxembourg) spent at least 25% of their GDP on social protection in 2010 (Spain spent nearly 26%, followed by Portugal, the UK and Greece), all EU-12 countries spent less than this (the highest spending being recorded in Slovenia, Hungary and Cyprus).

The figures in Chart 1, however, do not take into account taxes levied on social protection benefits or tax breaks with a social purpose. Data provided by Eurostat take account of taxes levied on social protection benefits (not, however, the tax breaks with a social purpose) and, when these are accounted for, the picture changes especially for high-spending countries, with the highest level of social protection expenditure being observed in Belgium, Germany and Sweden (see Chart 2). Net expenditure reached around 26% of GDP in these countries in 2008. Differences between gross and net social protection expenditure in certain Member States need to be taken into account when interpreting the results of the analysis performed in this Chapter given that it is based on data concerning gross expenditure.

Chart 1: Social protection expenditure as share of GDP in EU Member States (2010, percentage of GDP)



Source: ESSPROS.

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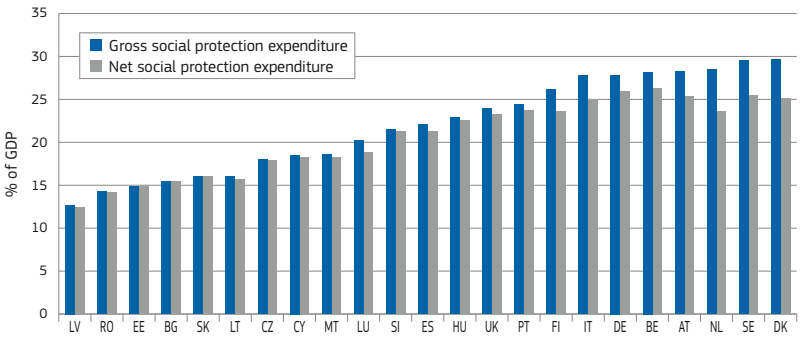
Chart 2: Gross/net social protection expenditure as share of GDP (2008)



Source: ESSPROS.

Note: Data is not available for: IE, EL, FR, IT, PL. Data is provisional for: EE, LU, SI.

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(2) EU-12 are all Member States that joined the European Union in 2004 or later.

(3) EU-15 are all Member States that joined the European Union before 2004.

Details of the composition differences between gross and net expenditure (whether due to the taxation of social protection benefits, or tax breaks with social purposes[4]) are provided for certain EU Member States by the OECD (see Chart 3). Taxation of social protection benefits dominates in Nordic countries (Denmark, Sweden, Finland), in Italy and in Austria. On the other hand, in certain Central European countries (such as Slovenia and the Czech Republic) and in Portugal and Spain it is tax breaks with social purposes that dominate.

Another aspect to be considered is the relative importance of private social protection spending across the EU Member States. While it has almost no role in countries such as Estonia, the Czech Republic, Poland or Spain, it can represent more than 5 % of GDP in others, such as the Netherlands and the United Kingdom. In the United States it is even higher, adding an extra 10 pps of GDP to public social protection expenditure. Differences between EU Member States can be clearly seen in Chart 4.

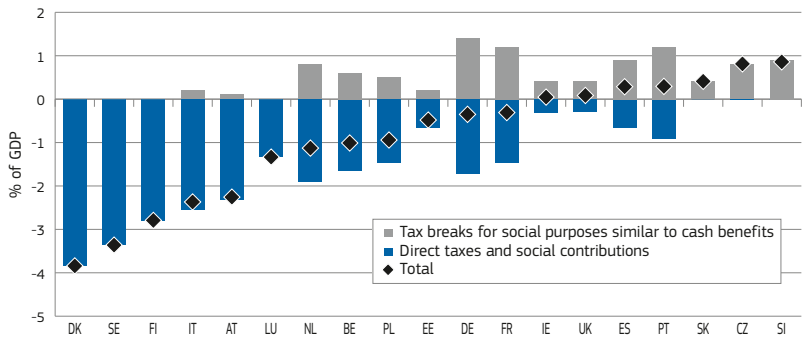
The pattern of social protection expenditure relative to GDP can look quite different however when it is expressed in purchasing power standard[5] (PPS) per inhabitant (see Chart 5), and this needs to be taken into account when drawing conclusions from the analysis of social protection spending as share of GDP.

In effect, countries that have very different levels of social protection expenditure relative to GDP may actually spend similar amounts per capita in PPS terms. For example, while Cyprus, Slovenia and Portugal have varying levels of social protection expenditure relative to GDP, ranging from 21 to 27 %, they all spend slightly more than 5 000 euro in PPS per head. A similar pattern is seen in the case of Germany, France and Belgium, where expenditure ranges from 29 to 34 % of GDP, but they all spend a similar amount, around 8 800 euro, in PPS per head.

(4) Such as child tax allowances or tax breaks stimulating the provision of private benefits (e.g. tax relief towards the provision of private health plans). Pensions-related tax breaks are not taken into account.

(5) Also known as Purchasing Power Parity (PPP). This method takes into account that different amounts of money might be needed in two different countries to purchase the same goods.

Chart 3: Details of the impact of the tax system on social protection expenditure relative to GDP (2009)



Source: OECD (2012).

Note: Account is taken of direct taxes and social contributions levied on gross public social expenditure and of tax breaks with social purposes.

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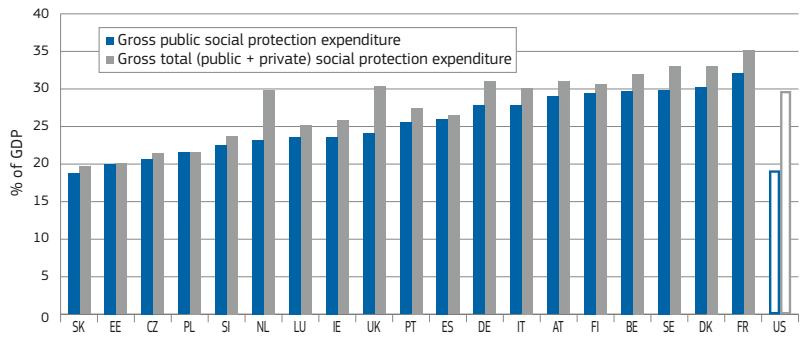
Chart 4: Gross public and gross total (public and private) social protection expenditure (2009)



Source: OECD (2012).

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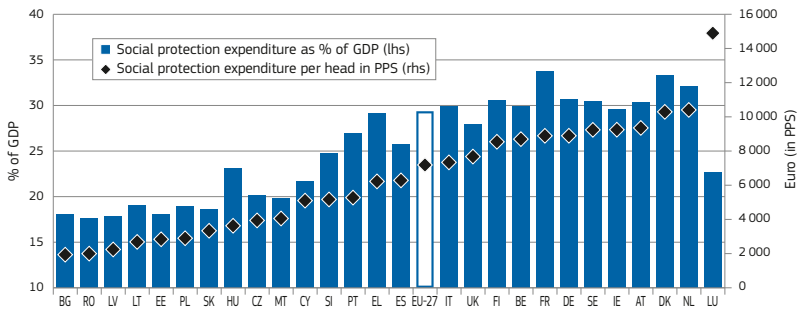
Chart 5: Comparison of social protection expenditure expressed relative to GDP and in PPS per inhabitant (2010)



Source: ESSPROS.

Note: Luxembourg has to be considered as an outlier as cross-border workers constitute a large share of the country's labour force and benefit recipients but they are not counted in the denominator of the ratio, as only the resident population is considered.

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Other, less extreme, examples include Spain and Greece, where spending is 6 200 euro in PPS per head, but as share of GDP it is 26 and 29%, respectively, and Ireland and Sweden, where spending is around 9 200 euro in PPS per head, but relative to GDP it is 29.6 % and 30.4 %, respectively. In the case of the Netherlands and Denmark, the latter spends over 33 % of GDP on social protection (the second highest in the EU), which is more than 1.2 pp higher than in the Netherlands. However, in the Netherlands, spending is 100 euro higher than in Denmark at 10 400 euro in PPS terms per head (the highest in the EU if the special case of Luxembourg[6] is set aside).

(6) See note to Chart 5.

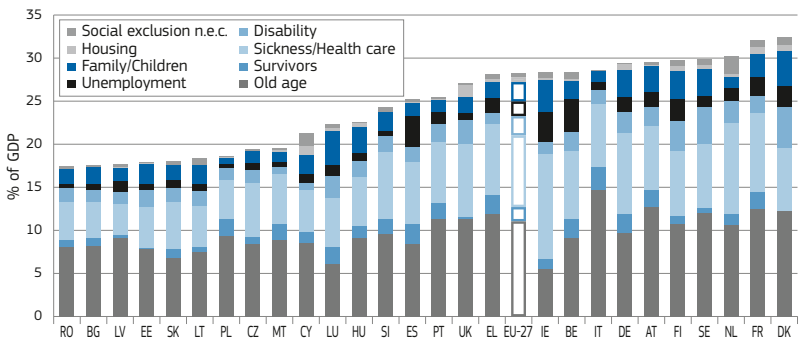
2.2. Composition of social protection spending

Social protection spending can be analysed from different angles. First, in terms of area of spending (i.e. by function); second, in terms of whether given benefits are provided to the recipients in cash or as a service in kind (i.e. by type of provision); and third, in terms of whether the provision of the benefits is universal or targeted to a certain population group or conditional upon the income or wealth of the recipients not exceeding a given amount (i.e. by conditionality of provision). This Sub-section looks at social protection spending from all these points of view.

2.2.1. By function

The composition of social protection spending differs significantly between Member States. First, Box 2 provides an overview and clarification of what are the spending functions of ESSPROS, including some examples of benefits. Then, an analysis follows.

Chart 6: Expenditure on social protection benefits by function relative to GDP (2010)



Source: ESSPROS.

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Chart 6 depicts the composition of social protection spending in EU Member States in 2010. On average at EU level, 11 % of GDP, or nearly 40 % of social protection expenditure, is spent on old age pensions. This varies a great deal, however, between Member States. In Ireland and Luxembourg, only around 6 % of GDP is spent on this function (accounting for 20 and 27 % respectively of total social protection benefits), while in Italy it amounts to nearly 15 % of GDP (which is 51 % of all social protection benefits). Part, but not all, of these expenditure differences are explained by differences in the share of population aged over 65, as shown in Chart 7.

In Chart 7 we can see that the higher the share of population aged over 65, the more Member States tend to spend on old-age pensions. However, large differences can be found between them: while in Italy and Germany the share of this population group is similarly high (above 20 %, which is also the highest value in the whole European Union), their spending on old-age pensions relative to GDP differs by nearly 5 pps, Italy spending more than 14 % of its GDP on this expenditure area.

Another country that devotes half of its social protection spending to old age pensions is Poland. These two countries (together with Malta) also spent the relatively highest share of all benefits on survivors' benefits. When old age and survivor benefits are added together, Italy and Poland are seen to devote more than 60 % of social protection expenditure to these ends. Ireland is at the other end of the spectrum, spending only 23 %, with the remaining Member States allocating between 36 % and 55 % of total expenditure on social benefits to these ends.

In the EU as a whole, expenditure on health care accounted for more than 8 % of GDP, or nearly 30 % of social protection expenditure, although it varied from 4 % of GDP in countries such as Latvia, Bulgaria and Romania to 12 % of GDP in Ireland and nearly 11 % of GDP

Box 2: ESSPROS spending functions

The broad functions, or areas of need and expenditure, that are distinguished in the ESSPROS classification system are defined as follows:

Old age: income maintenance and support in cash or kind (except health care) in connection with old age, includes, inter alia, old-age pensions and the provision of goods and services (other than medical care) to the elderly.

Survivors: income maintenance and support in cash or kind in connection with the death of a family member (e.g. survivor's pensions).

Sickness/health care: income maintenance and support in cash in connection with physical or mental illness, excluding disability. Health care intended to maintain, restore or improve health irrespective of the origin of the ailment, includes, inter alia, paid sick leave, medical care and the supply of pharmaceutical products.

Disability: income maintenance and support in cash or kind (except health care) in connection with the inability of people with physical or mental disabilities to engage in economic and social activities, includes, inter alia, disability pensions and the provision of goods and services (other than medical care) to the disabled.

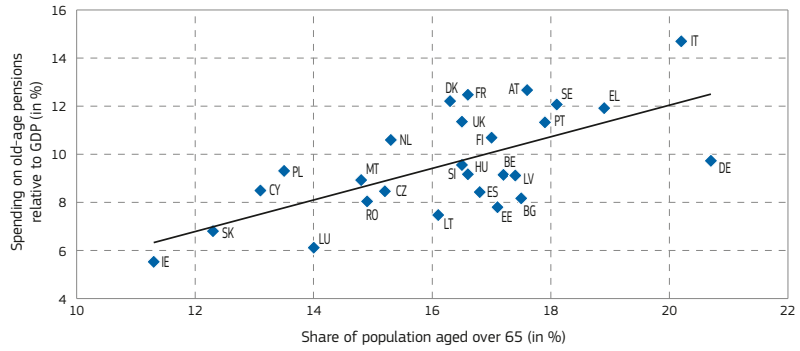
Family/children: support in cash or kind (except health care) in connection with the costs of pregnancy, childbirth and adoption, bringing up children and caring for other family members.

Unemployment: income maintenance and support in cash or kind in connection with unemployment, includes, inter alia, unemployment benefits and vocational training financed by public agencies.

Housing: help towards the cost of housing, includes interventions by public authorities to help households meet the cost of housing.

Social exclusion not elsewhere classified: benefits in cash or kind (except health care) specifically intended to combat social exclusion where they are not covered by one of the other functions, includes income-support benefits, rehabilitation of alcoholics and drug addicts, and various other benefits (other than medical care).

Chart 7: Relation between the share of population aged over 65 and spending on old-age pensions relative to GDP (2010)



Source: EUROSTAT – National data on demography and ESSPROS.

Note: Trend line: y = 0.663x – 1.143, R^2 = 0.442.

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in the Netherlands. In terms of the share of health care expenditure relative to total social protection expenditure, however, it was less than 25 % in Latvia and Bulgaria, but also in Denmark, Sweden and Poland. On the other hand, Ireland devoted more than 43 % of its social protection expenditure to health care, followed by countries such as the Netherlands, Slovenia, the Czech Republic and Germany, whose shares ranged between 32 % and 35 %.

Spending on disability amounted to slightly more than 2 % of GDP on average in the EU, which was equivalent to nearly 8 % of all social protection benefits. In Denmark (which, together with Latvia, spends a smaller share of social protection benefits on health care than any other Member State) the share of spending on disability is the highest in the EU (15 %, or nearly 5 % of GDP). On the other hand, in Ireland (where the share of spending on health care is the highest in the EU) the share of expenditure on disability was one of the lowest (less than 5 %, or slightly more than 1 % of GDP, being lower only in Cyprus, Malta and Greece).

Family/child benefits accounted for a little over 2 % of GDP in the EU on average, or 8 % of all social protection benefits. The importance of this benefit varied considerably across Member States, ranging from around 1 % of GDP in Poland, Malta and the Netherlands (as share of all benefits it ranged from 4 to 6 %) to as high as 4 % in Denmark, Luxembourg and Ireland (as share of all benefits it was between 12 and 18 %). Lithuania and Hungary also belong among the Member States that devote a high share of benefits to the family/child function, but, relative to GDP, the size of this benefit was still quite close to the EU average.

Spending on unemployment benefits was below 2 % of GDP in the EU on average, or 6 % of all social protection benefits. It varied from less than 0.6 % of GDP in Poland, Malta and Romania (representing 2 to 3 % of all benefits) to nearly 4 % of GDP in Belgium, Spain and Ireland (representing 12 to 14 % of all benefits).

Spending on housing was a little above 0.5 % of GDP in the EU on average, or 2 % of expenditure on all social protection benefits. It was almost non-existent in Slovakia, Lithuania and Portugal, and the highest in Cyprus and the UK (more than 1 % of GDP, or more than 5 % of all benefits).

Spending on social exclusion remained below 0.5 % of GDP in the EU on average, or less than 1.5 % of all social protection benefits. It was the lowest in Italy, both relative to GDP and to all benefits (below 0.1 % and only 0.3 %, respectively) and the highest in the Netherlands at 2 % of GDP (accounting for 7 % of all benefits). In Cyprus the share of spending on social exclusion also reached more than 7 % of the size of all benefits.

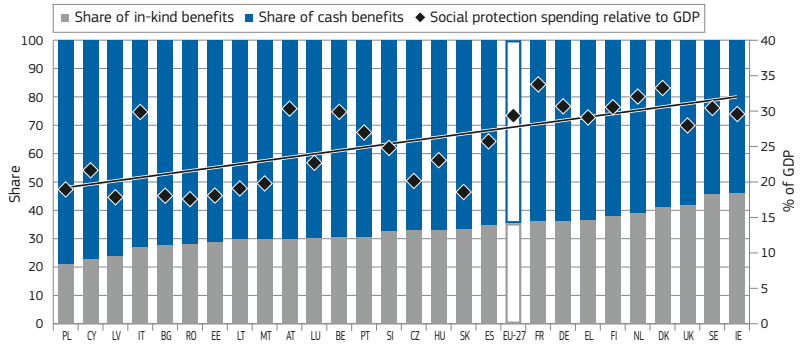
2.2.2. By type of provision

Another important aspect of social protection spending concerns how the given benefits are provided: either in cash or in the form of social services in kind.

In 2010 the average share of benefits provided in kind in the EU as a whole was 35 % (see Chart 8) although it varied greatly, from over 21 % in countries such as Poland, Cyprus and Latvia to more than 40 % in Denmark, the UK, Sweden and Ireland. Chart 8 also shows that it is usually Member States with larger welfare states that provide a higher share of benefits in kind.

It is notable that not all areas of social protection spending have the same composition in terms of their provision in cash and in kind. This is illustrated by Chart 9, which shows that compared to other Member States, Denmark and Sweden provide a significantly higher proportion of their old age and disability benefits relative to GDP in the form of services in kind. In terms of unemployment benefits the highest share provided in kind is in Greece and Austria, while the highest share of funds intended to address social exclusion that are provided in kind is in the Netherlands, Finland, Sweden and Greece.

Chart 8: Composition of gross social protection expenditure: share of cash and in-kind benefits and its relation to the size of spending on social protection benefits relative to GDP (2010)



Source: ESSPROS.

Note: Trend line: y = 0.467x + 18.583, R^2 = 0.488.

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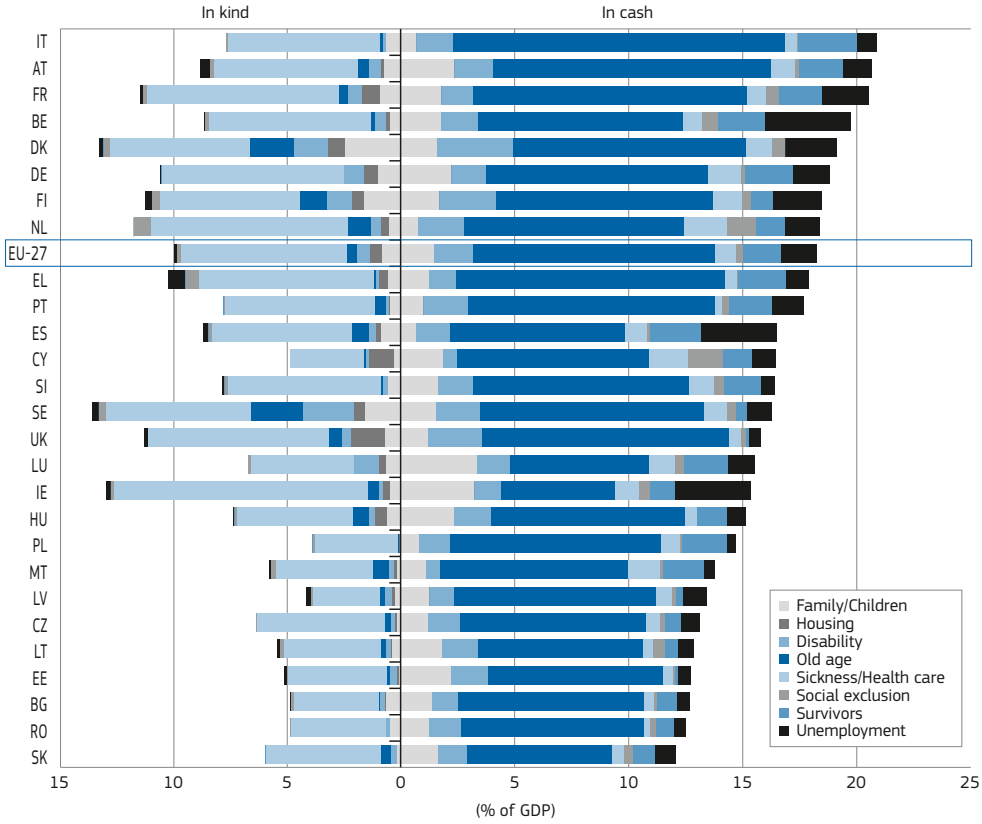
Chart 9: Composition of social protection expenditure by function and by type of provision (in cash/in kind) relative to GDP (2010)



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Source: ESSPROS.

2.2.3. By conditionality of provision

The provision of social protection benefits can be universal or conditional/targeted. In the EU on average nearly 11% of all benefits were means-tested in 2010 (see Chart 10). However, when the distinction is made between in-kind and cash benefits, means-testing is seen to be more common with respect to the provision of in-kind benefits (nearly 15% of these were means-tested, compared to 9% in the case of cash benefits). When comparing Member States in terms of the size of social protection benefits provided after means-testing, one has to bear in mind that different means-tested schemes can correspond to very different levels of targeting, depending on the level of the means test in comparison with average income.

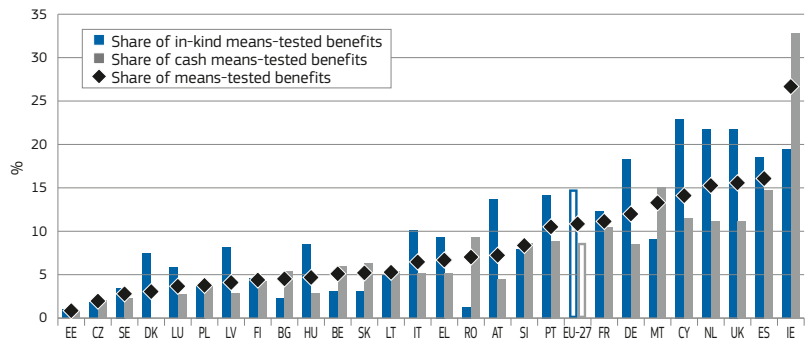
The Member States in which benefits are means-tested the least are Estonia and the Czech Republic, with no great differences between cash and in-kind benefits. At the other end of the spectrum is Ireland where more than 26% of social protection benefits are means-tested.

The countries where the difference in the share of cash and in-kind benefits that are means-tested is highest are Ireland, where the share of cash benefits that are means-tested is 13 pps higher than for in-kind benefits, and Cyprus, the UK and the Netherlands, where the share of in-kind benefits that are means-tested is 11 pps higher than for cash benefits.

Equally large differences in the extent of means-testing can be seen with respect to the different functions of social protection spending (see Chart 11). Some types of social protection benefits are more likely to be provided after means-testing (such as housing benefits in all EU Member States, or social exclusion expenditure in Member States such as the Netherlands, Cyprus, France and Lithuania). However, in the case of most other functions, means-testing tends to be only partial or absent.

In terms of old-age benefits, Spain, the UK and the Netherlands provide benefits

Chart 10: Share of means-tested benefits on total gross expenditure on social protection benefits, also separately for cash and in-kind benefits (2010)



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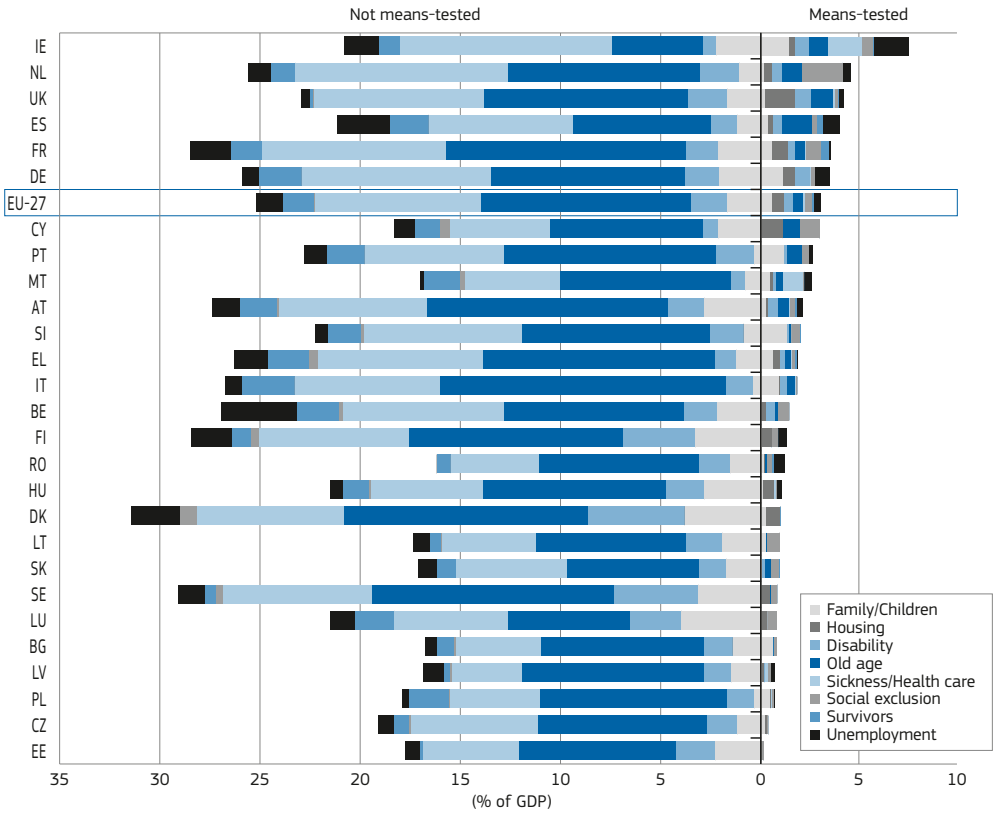
Source: ESSPROS.

Chart 11: Composition of social protection expenditure by function and conditionality (means-tested/not means-tested) relative to GDP (2010)



Source: ESSPROS.

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equivalent to more than 1% of GDP only after means-testing, being closely followed by Ireland. Survivors' benefits are most often means-tested in France and Spain. In terms of health care, Ireland and Malta means test nearly 2 and 1% of GDP of these benefits, respectively. Disability benefits are especially means-tested in the UK, Germany and Ireland (more than 0.7% of GDP).

Ireland provides unemployment benefits equivalent to 1.8% of GDP conditional upon the means of the recipients, followed by Spain and Germany with more than 0.8%. Family benefits are not means-tested in Estonia, Luxembourg and Sweden. Housing benefits are only considered part of social protection when means-tested; therefore this type of benefit is means-tested in all Member States. The country that provides significantly more benefits targeted on social exclusion than any other Member State without means-testing is Denmark (with 0.9% of GDP).

The size of administration expenditure relative to total social protection spending varies a lot across Member States (from 1% in Romania and Estonia to more than 4% in Ireland, France and the Netherlands). Often countries with a higher share of means-tested benefits tend to have relatively higher administration costs.

2.3. Evolution of social protection expenditure in time

This Section considers the evolution of EU Member States' social protection expenditure over time. This reflects many different aspects of economic development: demography (e.g. ageing of populations affects spending on old-age functions), economic cycle (e.g. increase in unemployment affects spending on unemployment benefits) and reforms.

For this purpose countries are grouped based on classification available in the literature (such as Esping-Andersen (1990), Bonoli (1997) or Korpi & Palme (1998)). The five groups are the following:

- Southern Member States (Greece, Italy, Portugal and Spain).
- Nordic and Anglo-Saxon Member States (Denmark, Finland, Sweden, the Netherlands, the United Kingdom and Ireland).
- Western continental Member States (Austria, Belgium, Germany, France and Luxembourg).
- Baltic Member States and South-Eastern Europe (Estonia, Lithuania, Latvia, Bulgaria and Romania).
- The Eastern continental Member States (Cyprus, the Czech Republic, Hungary, Malta, Poland, Slovenia and Slovakia).

Chart 12 shows the development in the size of social protection expenditure relative to GDP of all these groups of Member States. It seems that the recent crisis has speeded up the convergence of the size of social protection expenditure relative to GDP in the EU. Table 9 in the Annex provides a detailed view of this development by spending function. Six of these countries, chosen based on the variation of different spending functions, are depicted in Chart 13.

In the Southern Member States in the 1990s social protection spending was usually lower than 25% of GDP and stayed below the EU average. While in Spain and Italy it was relatively stable during this decade, in Portugal and Greece it was on the increase. Since 2000, spending relative to GDP has grown in all countries and mostly stabilized in 2010. In Italy it has even risen above the EU average.

In all countries in this group old age and survivors' benefits played a significant role both in times of increasing and decreasing overall expenditure. In Italy their role was the most significant. Only in Spain were unemployment benefits even more variable. In the recent years, it was especially spending on pensions and health care that increased the most, except in Spain where a very large increase was in unemployment benefits.

In the Nordic and Anglo-Saxon Member States, after an increase in spending at the beginning of the 1990's, expenditure dropped until 2000. Until 2007 it stayed relatively stable and then it rose during the crisis. In 2010, spending relative to GDP stabilized in Denmark, rose in the Netherlands and Ireland and decreased in Sweden and the UK. Social protection spending was usually higher in these countries than in the EU as a whole, except for Finland and the United Kingdom in 2000's, and Ireland until 2009.

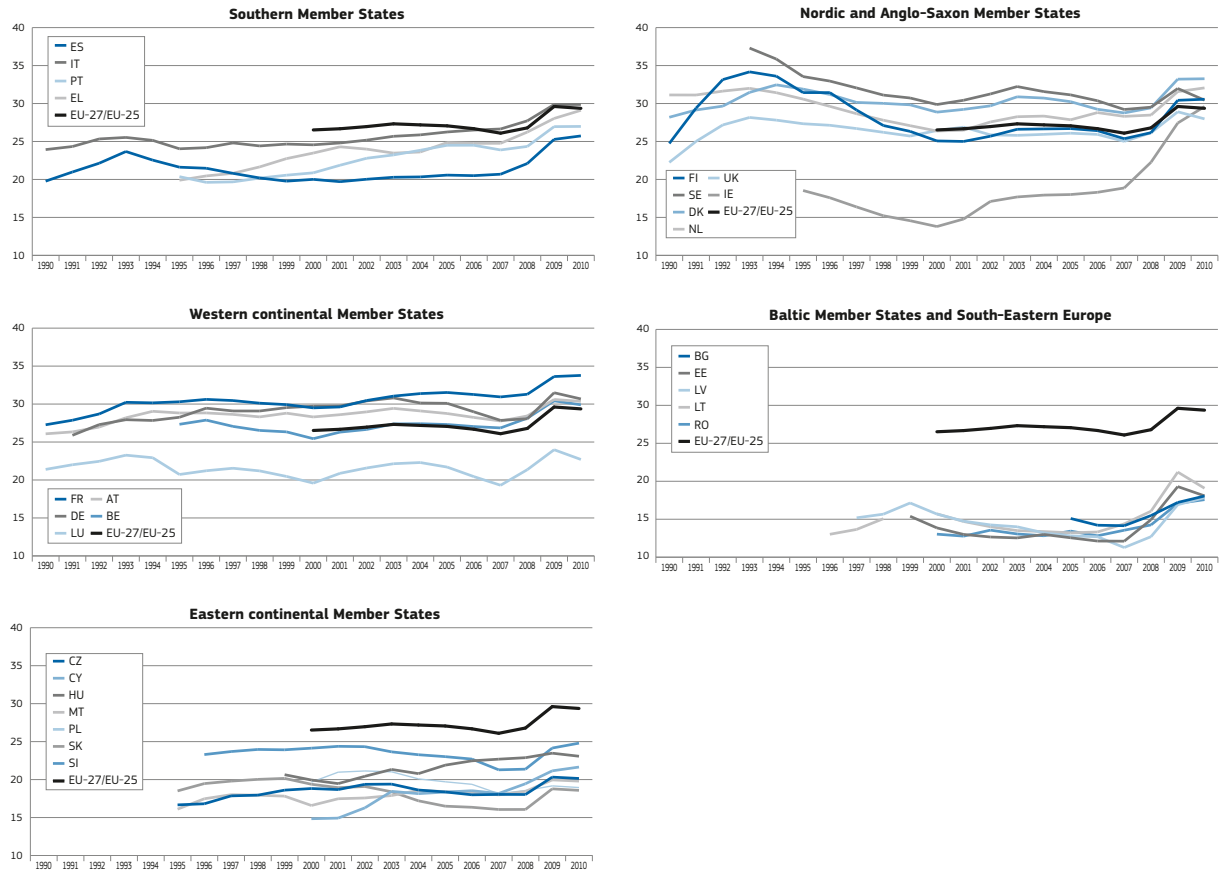
In the Nordic countries, most benefits varied in both directions. In Finland very important changes were in unemployment benefits, followed by changes in old age and survivors' benefits. Also changes in disability benefits were significant. In this country together with Sweden, often there were relative decreases in spending on child benefits. In the UK and Ireland old age and survivors' benefits, together with health care, had a prominent role in changing social protection expenditure. In the crisis years 2008 and 2009 it was spending on pensions and health care that particularly increased (in Ireland health care played a more important role than anywhere else), and the largest increase in unemployment benefits was seen in Finland in 2009 and Ireland in 2010.

In the Western continental Member States, social protection expenditure rose relative to GDP in the 1990's in France, Germany and Austria, while remaining rather stable in Belgium and Luxembourg. Social protection expenditure fell from 2003 until the beginning of the crisis in all countries, except for France where it continued to rise. In 2010, social protection expenditure decreased as a share of GDP in all these countries with the exception of France.

In all Western continental Member States there has been no particularly interesting development in any of the spending functions since the 1990's. Concerning child benefits, given their relatively small share in total spending, their developments had a relatively significant role in Austria. In the crisis years 2008 and 2009 the highest increases were observed in pensions and health care benefits. On the other hand, in 2010 in most countries spending on these functions has decreased, except for France and Luxembourg.

In the Baltic Member States and South-Eastern Europe, although the level of social protection spending relative to GDP was more than 10 pps below the EU average, it did not increase until the

Chart 12: Evolution in social protection expenditure relative to GDP (1990-2010) by groups of Member States



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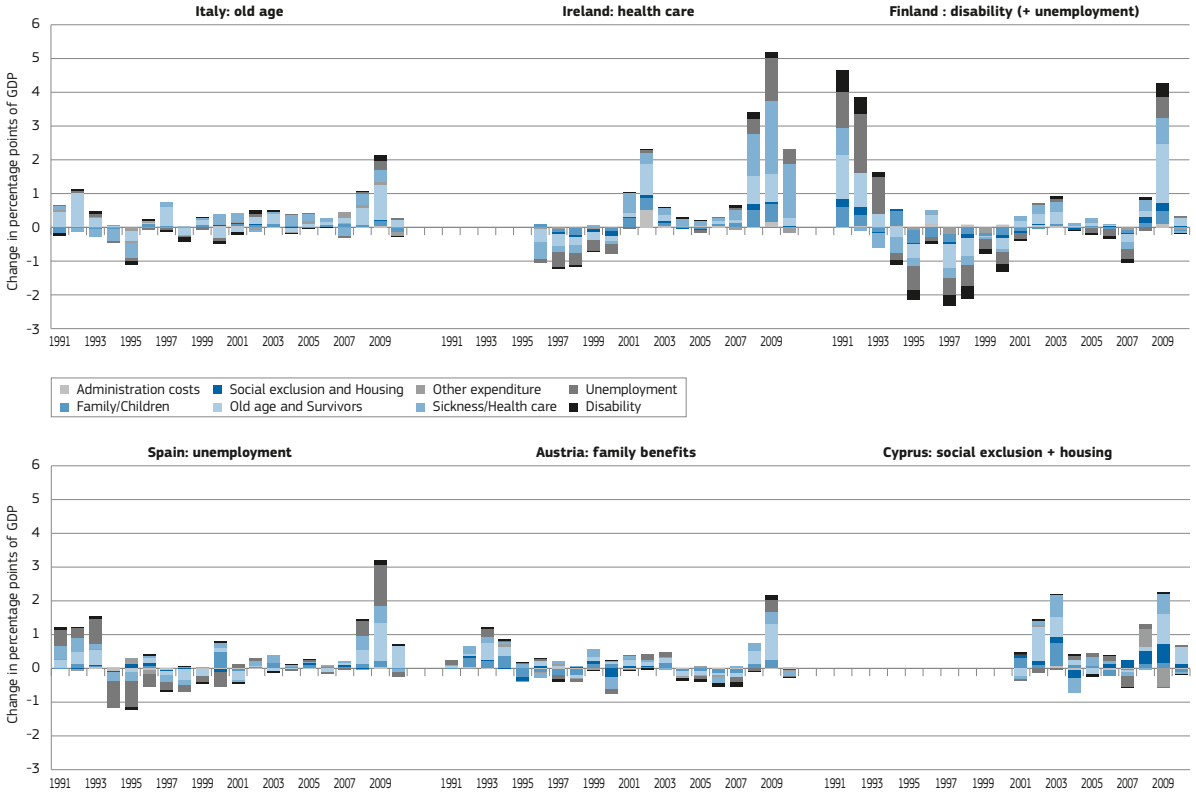
Source: ESSPROS.

Chart 13: Changes in social protection expenditure relative to GDP by function (1990-2010), illustration of Member States with particular changes by function



Source: ESSPROS.

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crisis years. On the contrary: in the Baltic states it was actually decreasing in the first half of the 2000's and the very high increase in social protection spending relative to GDP between 2007 and 2009 can largely be attributed to the developments in GDP in these countries (there was a fall in GDP as high as 10-20%). In 2010, social protection spending relative to GDP decreased again in Lithuania and Estonia.

In the Baltic States especially, pensions were the cause of the decrease in expenditure, together with health care expenditure in Estonia and Lithuania. In the Baltic States in the crisis years 2008 and 2009, these areas of expenditure rose significantly, as did unemployment benefits. In 2010, pensions only rose in Latvia, and health care benefits decreased in all the three countries. In Lithuania also pensions fell significantly. In both Bulgaria and Romania there was a rise in pensions and to a lesser extent in health care expenditure in the crisis years. However, unlike Romania, Bulgaria reduced its health care spending in 2009.

While in some of the Eastern continental Member States social protection spending compared to GDP was rising even before the crisis years (in Cyprus, the Czech Republic, Hungary and Malta), it was declining in Poland, Slovenia and Slovakia. However, it also rose in these three countries in 2008 and 2009. In 2010, social protection spending only continued to rise in Slovenia and Cyprus, and for this entire group of countries except for Slovenia, expenditure remained at least 5 pps below the EU average.

In all countries of this group, pensions and health-care expenditure played a significant role, both in causing expenditure to rise and fall. In Cyprus, social exclusion and housing benefits were steadily rising. On the other hand, family benefits were often decreasing in Malta and Slovakia. In Poland this was the case with disability benefits. In the recent years, pensions and health care expenditure increased significantly relative to GDP in most countries in this group. In Cyprus and Slovenia this was complemented by social exclusion benefits, and in the Czech Republic and Slovakia (and to some extent in Slovenia) by unemployment benefits.

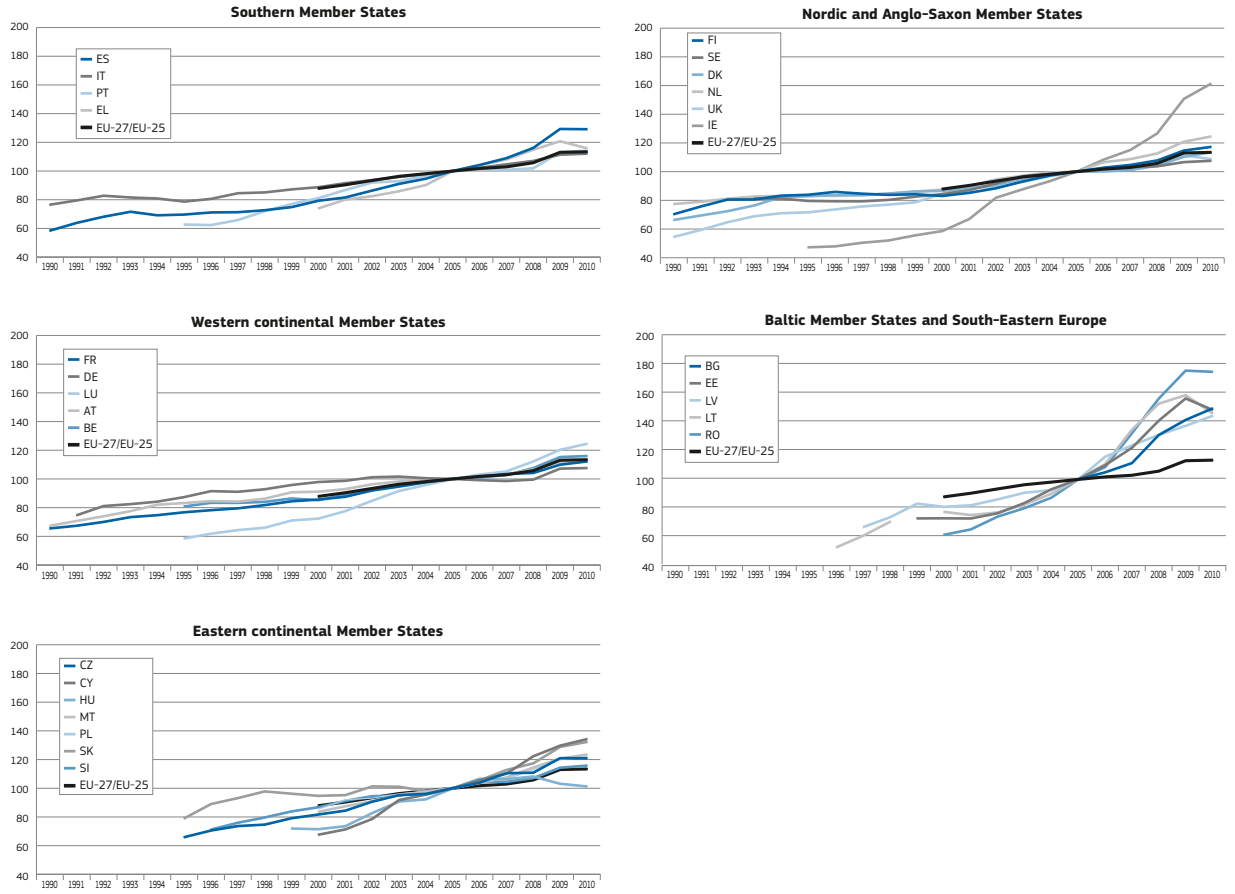
Given that EU Member States had varying growth rates throughout the whole period and had very different GDP shocks during the crisis, it is also important to have a look at the development in real social protection expenditure (Chart 14).

Compared with Chart 12, in the Southern Member States the picture changes particularly for Spain: in real terms social protection expenditure has grown significantly. Relative to GDP, it was not growing significantly from 1990 until the start of the crisis, but this was due to the economic growth in this country. During the crisis the growth in real spending was the highest for Spain, which made it converge closer to the EU average. Real expenditure stayed stable in 2010 in all countries but Greece where it decreased.

The developments in social protection expenditure were very homogenous for the Nordic and Anglo-Saxon Member States, with the exception of Ireland, which has been catching up with the other countries and in 2010 reached the EU average in terms of spending relative to GDP. In most of these countries real social protection expenditure was rising, while relative to GDP there have also been declines. This is most significant in the case of Ireland, which clearly stands out in terms of the growth in real expenditure. The only country where real expenditure decreased in 2010 is the UK.

In the group of Western continental Member States expenditure was rising only slightly relative to GDP and slowly in real terms. Only in Luxembourg was real expenditure growing much more than in the other countries belonging to this group.

Chart 14: Evolution of real social protection expenditure (national currencies in constant prices, indexed (100 in 2005), 1990-2010) by groups of Member States



Source: ESSPROS.

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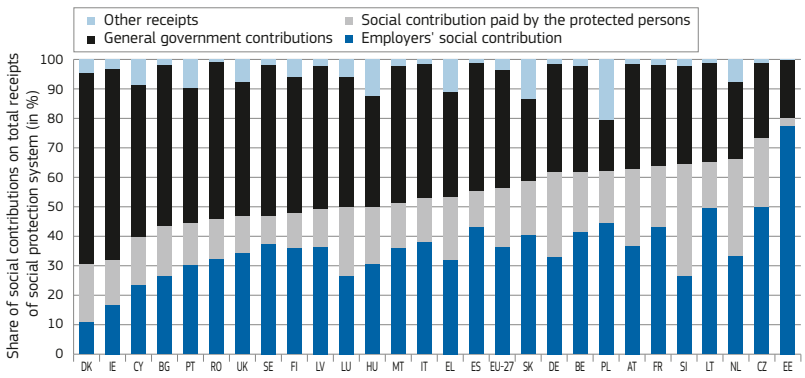
Social protection expenditure relative to GDP was stagnating in the Baltic Member States and Bulgaria and Romania, but this was due to their high economic growth. When looked at in real terms, expenditure was rising very steeply in these countries, most quickly in Romania and Lithuania. In 2010 it, however, decreased in Lithuania, Estonia and Romania.

In the Eastern continental Member States, social protection spending also stagnated relative to GDP. However, in real terms it was growing, at a similar pace as in the Southern Member States. In Hungary real expenditure declined in both 2009 and 2010.

Chart 15: The structure of social protection financing by source (2010)



Source: ESSPROS.

Note: Countries are ranked in ascending order by share of social contributions in total receipts.

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2.4. Sources of finance

Across the EU, social protection spending is, to a large extent, financed through contributions from wages paid by employers and employees, plus other contributions from other protected people, such as the self-employed and pensioners. In 2010, social contributions accounted for 56 % of all social protection receipts (Chart 15); general government contributions financed through taxes represented 40 % of the total. The EU average masks large national differences in the structure of social protection funding. Different financing structures obviously can have different economic and redistributive impacts (for more details see Chapter 4); the analysis of these is, however, not in the scope of this Chapter. Denmark and Ireland finance social spending mainly through general taxes; in the remaining countries, social contributions paid by employers and employees play a far more important role, up to more than 65 % of total receipts in Lithuania, the Netherlands, the Czech Republic and Estonia.

Other receipts[7] are relatively more important, with a share of 10% in the total or more, in Poland, Slovakia and Greece.

Over the period 2000 to 2010, in the EU as a whole, the share of social contributions in total receipts continued to decline, from 61% in 2000 to 56% in 2010. This drop was particularly evident in Romania, Malta and Latvia (by more than 15 pps). On the other hand, the relative importance of contributions increased over the period by more than 5 pps in Lithuania, where it was counterbalanced by a decrease in the share of general Government contributions.

3. The macroeconomic stabilization role of social protection expenditure

One of the effects of the crisis has been to reopen the debate on the effectiveness and efficiency of social expenditures and fiscal policies as a tool of stabilisation of economic activity, including the relative merits of discretionary action as against automatic stabilisation. This Section looks at how social protection expenditure reacts to the business cycle, analysing in detail the spending functions separately. It also investigates how social spending developed during the crisis and to what extent it helped to maintain household purchasing power.

3.1. Social protection spending in the business cycle

There are two factors influencing the actual change in social protection expenditure: the operation of automatic stabilisers and discretionary measures. While discretionary fiscal policy actions require decisions and time for implementation, which makes them rather ineffective in tackling the immediate effects of a crisis, automatic stabilisers are much more timely and effective[8].

The discussion of the role of social protection and its role in smoothing the business cycle is particularly important in the euro area, where fiscal policy is the only macro-economic tool available to national governments[9] and where the room for discretionary policy is very tight since the new Fiscal Compact[10] sets a legally binding maximum structural deficit of 0.5% of GDP, while the maximum actual deficit cannot exceed 3% of GDP[11].

While automatic stabilisers are an established concept in the fiscal policy literature, there is no real consensus about their actual nature and their effectiveness. In't Veld et al. (2012) argue that differences in the final assessment of the working of automatic stabilizers reflect a basic disagreement over how the budget would look without automatic stabilisers (constant absolute revenues and spending, or constant deficit-to-GDP ratio, etc). Table 1 summarises the literature and shows that, despite different estimation methods and benchmarks used, the estimations lie around 10-20%.

Moreover, measuring the smoothing impact of automatic stabilisers is subject to a number of difficulties, and estimates based on macroeconomic data tend to differ in magnitude depending on the estimation approach chosen. Differences in estimations typically depend on the type of the fiscal stimulus and the selected approach, e.g. whether it is econometric-based (e.g. Gali, 1994; Fatas and Mihov, 1999) or model-based (Van den Noord, 2003, Buti et al., 2003). Estimates also vary across countries, albeit there is some evidence that countries with bigger governments tend to have larger automatic stabilisers (e.g. Baunsgaard and Symansky, 2009).

Dolls et al. (2012) find that, in the case of a proportional income shock, 38% of the shock would be absorbed by automatic stabilisers in the EU (with considerable heterogeneity in the results across Member States: from 25% for Estonia to 56% for Denmark), against 32% in the US. Basso et al. (2011) build on a previous version of Dolls et al. (2012) and simulate an income shock of 5% (proportional decline in household gross income by 5 per cent) and they find the highest stabilisation coefficient in Denmark, where automatic stabilisers cushion 56 per cent of the shock. Equivalent figures in other Member States include Belgium (53 per cent), Germany (48) and, perhaps surprisingly, Hungary (48).

Box 3: What are automatic stabilisers?

Automatic stabilisers are usually considered as those elements of the economy that automatically help balance the business cycle, especially in downturns.

They function as a means of adjusting governmental revenues and expenditures according to the business cycle: for example, in downturns, public revenues decrease while public expenditure increases in terms of unemployment benefits or social benefits. This corresponds to an expansionary policy in the Keynesian sense.

Automatic stabilisers are part of the fiscal and economic structure of a country and therefore do not need any discretionary action to be taken in case of need, avoiding the delay that may occur. The response by automatic stabilisers is timely and helps to directly sustain the economy.

The effect is likely to be limited in time (e.g. unemployment benefits are limited in duration) and therefore cannot help sustain an economy indefinitely. In the event of a major crisis, governments usually respond by changing legislation (e.g. increasing the duration of unemployment benefits).

However, automatic stabilisers not only stabilise incomes and output in the short term, they also have a positive impact on long term prospects, since recent literature seems to indicate that lower volatility of GDP goes together with higher GDP growth potential (see seminal papers by Ramey and Ramey, 1995 and Martin and Rogers, 2000 and for an analysis of the different GDP components see Bisio and Ventura, 2012), which is linked to structural factors such as for instance the human capital.

(7) Such as property income – mainly interest and dividends – and miscellaneous receipts such as proceeds of collections or from private lotteries.

(8) A comprehensive overview of these types of arguments is provided in, for example, Hemming et al. (2002), Taylor (2009), and Cogan et al. (2010).

(9) National governments in the euro area can no longer conduct their own monetary or exchange-rate policy.

(10) Treaty on Stability, Coordination and Governance in the Economic and Monetary Union, signed on 2 March 2012.

(11) It should be noted that the room for manoeuvre depends on the initial budgetary situation which can limit countercyclical policy (in the case of a high actual deficit).

Table 1: Degree of output smoothing - Overview of literature

Paper	Sample	Output smoothing	Benchmark budget
Auerbach and Feenberg (2000)	US	8%	Lump sum revenues
Cohen and Follette (2000)	US	10%	Fixed level of revenues
Van den Noord (2000)	19 OECD countries	25%	Fixed ratios of revenues and expenditure
Buti et al. (2002)	Belgium	14%	Fixed ratio of fiscal balance
	France	22%	
Meyermans (2002)	Eurozone	11%	Fixed deficit-to-GDP ratio
	US	20%	
Barrell et al. (2002)	Eurozone	9%	Fixed levels of revenues and expenditure
Brunilla et al. (2003)	EU	Consumption shock: 20-30%	Fixed level of fiscal balance
		Private investment shock: 3-10%	
Barrell and Pina (2004)	Eurozone	11%	Fixed levels of revenues and expenditure
Tödter et Scharnagl (2004)	Germany	Consumption shock: 18-26%	Fixed level of fiscal balance
		Investment shock: 10-15%	
Follette and Lutz (2010)	US	10% after 4 quarters, 20% after 8 quarters	Fixed levels of revenues and expenditure
Dolls et al. (2012)	US vs. Europe	Income shock: 4-22% (EU); 6-17% (US)	Lump-sum revenues and expenditure
		Unemployment shock: 13-30% (EU); 7-20% (US)	

Source: Table 2 in In't Veld et al. (2012).

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The lowest values are found for Estonia (25 per cent), Spain (28) and Greece (29)[12]. In the case of an unemployment shock (some households, not all, become unemployed, so that the unemployment rate increases such that total household income decreases by 5 per cent), the stabilisation coefficients are larger for the majority of countries. Again, the highest value emerges for Denmark (82 per cent), followed by Sweden (68), Germany (62), Belgium (61) and Luxembourg (59).

On the revenue side, taxes are an obvious source of automatic stabilisation with tax revenues increasing in upswings and decreasing in downturns. On the expenditure side, the most prominent automatic stabilisers are unemployment benefits: since unemployment usually increases in downturns, unemployment benefits also tend to increase and the reverse holds during upswings. However, unemployment benefits only account for a very small share of government budgets in most advanced countries. More generally, In't Veld et al. (2012) argue that automatic stabilisation is not necessarily limited to cyclically sensitive items in the budget and Melitz and Darby (2008) argue that age and health related social expenditure also reacts to the cycle in a stabilising manner. In the literature, the size of the government is also associated with automatic stabilisation. Research has shown that the size of government is negatively correlated with the volatility of GDP since the bulk of government discretionary expenditure, such as wages and transfers, is generally not cut during economic downturns or increased during upturns. Also this inertia aspect of government expenditure has a stabilising effect on total output, as we see in the next section.

Estimates of automatic stabilisers generally do not distinguish between various public expenditures and taxes: social protection systems account for a key dimension of overall automatic stabilisation and in standard recessions (translating into increases of unemployment) they represent the major share of automatic stabilisation (as it is clear in case of an 'unemployment shock' in Dolls et al., 2012).

3.1.1. Adjustment of social protection expenditure to the business cycle

Between 2007 and 2009, increases in gross disposable household incomes were recorded in two thirds of EU Member States. These increases ranged from 1% to 8% and include countries that had experienced strong economic and employment shocks. A relatively small decline in income (below 2.5%) was seen in DK, LT and IT with much larger decreases (ranging from 7% to 18%) in HU, EE and LV. In most EU countries, the automatic stabilisers and the stimulus packages adopted at the beginning of the crisis were seen to have contributed to sustaining disposable household income overall. However it is not easy to say how, and by how much, social expenditures smoothed the impact of the crisis.

In this Chapter we focus only on the expenditures side and do not address the impact of automatic stabilisers on tax revenues[13] using a simple framework by computing country-specific correlation coefficients[14] between expenditure as a percentage of GDP and the output gap ($\frac{GDP_t - GDP^*}{GDP^*}$, i.e. the difference between actual and potential[15] GDP as a percentage of potential GDP, see Denis

(12) Basso et al. (2011) also conclude that with the exception of France, taxes seem to have a stronger stabilising role than social security contributions. In France, social security contributions are progressive and therefore have an important role for disposable income stabilisation.

(13) A full analysis of automatic stabilisers should also take into account revenues, i.e. the tax system. Macroeconomic studies on stabilisation effects most often refer to budget balance (revenues-expenditures) in relation to output gap (see European Commission, 2006). We follow this line, but looking only to expenditures, in particular social protection benefits (unemployment benefits, social exclusions, health care, disabilities, pensions, housing benefits, family allowances and other expenditures and administrative costs) and using a simpler framework.

(14) These correlation coefficients by countries are sensitivity parameters of overall social protection expenditure in relation to the output gap, also taking into account possible trends in social protection expenditure and country-specific features.

(15) Potential gross domestic product (GDP) is, according to OECD definition, the level of output that an economy can produce at a constant inflation rate. Although an economy can temporarily produce more than its potential level of output, this comes at the cost of rising inflation. Potential output depends on the capital stock, the potential labour force (which depends on demographic factors and on participation rates), the non-accelerating inflation rate of unemployment (NAIRU), and the level of labour efficiency.

et al. (2006) for details on the computation) using data for 1995-2009 as in equation (1):

$$\frac{expenditure}{GDP}_t = \alpha + \beta\ output\ gap_t \quad (1)$$

where t is time[16].

This simple method assumes that expenditures are not cyclical if the ratio of expenditure to GDP remains constant. This choice makes it possible to ensure comparability across countries but it has the drawback that it also depends on GDP. Therefore, without changes in spending we would register a cyclical effect due to the decrease of GDP at the denominator. Still, as discussed before, this inertia of government expenditure has a stabilising effect on total output and it is important to take it into account.

Unemployment benefits, even though they represent only a relatively marginal expenditure, respond quite significantly to the economic cycle. Chart 16 shows that, when the output gap (the difference between actual and potential GDP) increases by one percentage point, the ratio of unemployment benefits to GDP decreases by 0.08 percentage points (which corresponds to a decrease of around 6% of expenditures to GDP as can be seen in Chart 17).

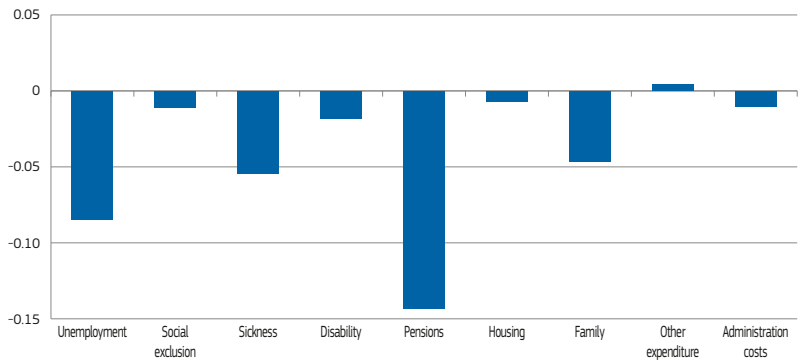
Pensions account for a large share of social expenditures in most Member States and since they do not decrease in a period of crisis (in practice they may even increase if pension schemes are used to support the early exit of older workers from the labour market[17]) they also have an important role in weathering the social consequences. However in percentage terms pensions represent only a 1.46% change in spending as Chart 17 shows.

Sickness and family expenditures can also play a significant role as automatic stabilizers since they too account for a significant share of social expenditures. When the output gap increases by 1 point, sickness expenditures decrease by 0.05 percentage points (or 0.86% of expenditures) and family expenditures by 0.05 percentage points (or 2.19% of expenditures).

(16) There are no country fixed effects because the β is computed country by country.

(17) As Gruber and Wise (2010) show, the pension reforms in the eighties and nineties were introduced explicitly to provide more jobs for the young, assuming that fewer older persons in the labour force would open up more job opportunities for the young. This is commonly known as the 'lump of labour fallacy'.

Chart 16: Cyclicality of expenditure on social protection with respect to output gap (beta coefficients, i.e. percentage points)



Sources: DG EMPL calculations. Expenditures from ESSPROS 1995-2009. Data for BG 2005-2009, CY 2000-2009, EE 1999-2009, HU 1999-2009, LT: 1996-2009, LV 1997-2009, PL 2000-2009, RO 2000-2009, SI 1996-2009. Output gap from AMECO.

Note: Average β of all EU countries between 1995 and 2009. The columns represent percentage point changes in expenditure for a 1-point increase of output gap. To obtain percentage changes, one has to divide β by the actual expenditure. See Box 2 for details on the definition of the different functions.

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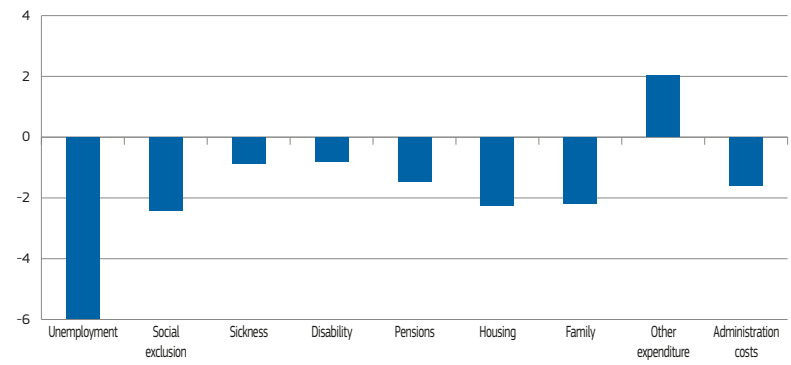
Chart 17: Cyclicality of expenditure on social protection with respect to output gap (percentage increase of expenditure)



Sources: DG EMPL calculations. Expenditures from ESSPROS 1995-2009. Data for BG 2005-2009, CY 2000-2009, EE 1999-2009, HU 1999-2009, LT: 1996-2009, LV 1997-2009, PL 2000-2009, RO 2000-2009, SI 1996-2009. Output gap from AMECO.

Note: The columns represent percentage changes in expenditure for a 1-point increase of output gap. They are obtained dividing average β by the actual expenditure for each function.

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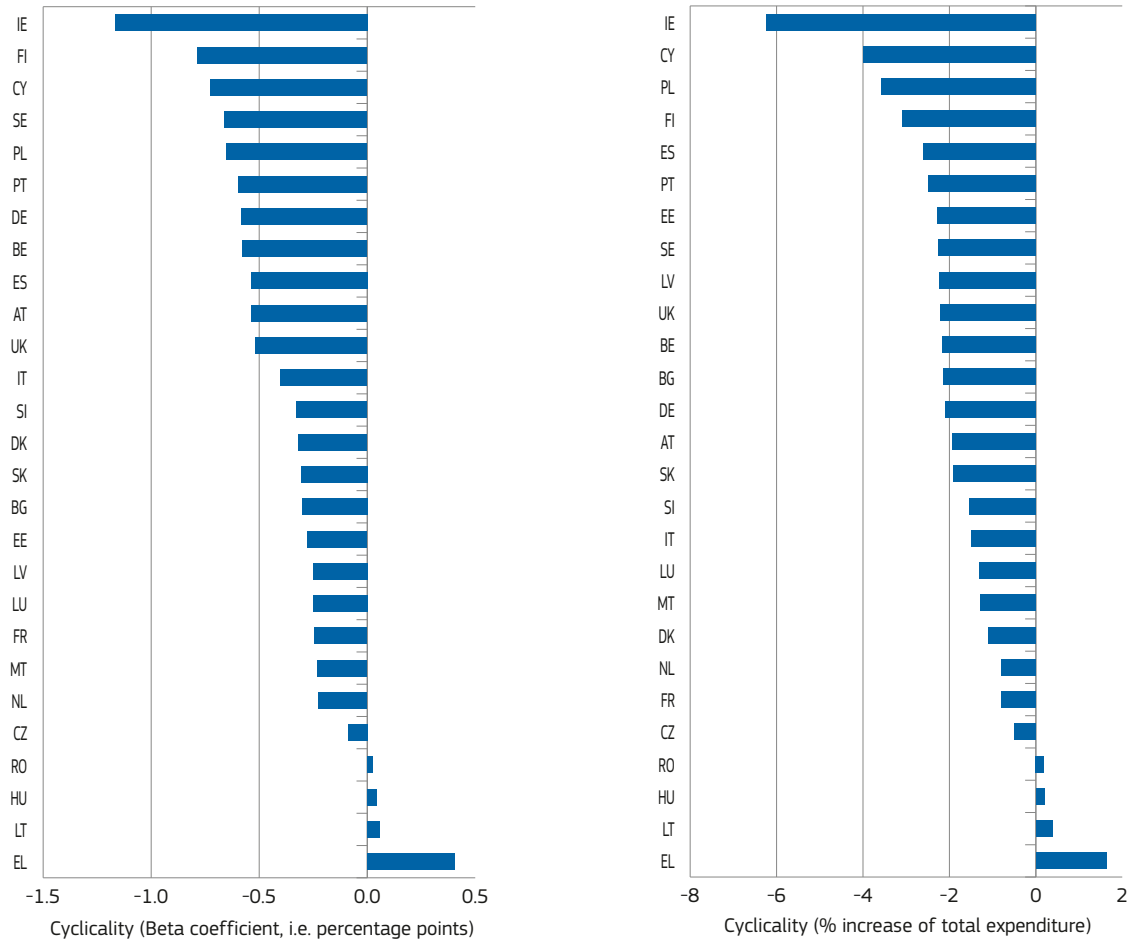
Overall, these findings show that social expenditures do react to the business cycle, whether this is measured in terms of the output gap or the unemployment rate, and that they contribute considerably to offsetting the effect of an economic downturn. The scale of the effect is linked to the level of expenditures, with unemployment benefits reacting more strongly, but pension expenditures still representing a bigger cushion in absolute terms.

The picture is not the same, however, in all Member States, and varies according to economic and social history as reflected in the characteristics of their welfare systems. Chart 18 shows that Greece is a clear outlier (expenditures to GDP increased quite significantly before the crisis). Eastern European Member States, such as Lithuania, Romania, Hungary, are above zero showing slightly pro-cyclical features of the welfare system. Also Hungary increased expenditures to GDP before the crisis. Contrary to this, Ireland, Finland Cyprus and Sweden show a quite strongly anti-cyclical welfare system[18].

(18) The calculations are based on how output gap and expenditures changed between late 1990s and 2000s and therefore conclusions on the anti-cyclicality feature of welfare systems only apply to this period. The current crisis and reforms might change the functioning of the systems and therefore the conclusions of the chapter.

Chart 18: Cyclicality by Member State



Source: DG EMPL calculations.

Note: Columns in the left graph represent percentage point changes in expenditure for a 1-point increase of output gap. Columns in the right graph represent percentage change. See notes in Chart 16 and in Chart 17 for further details.

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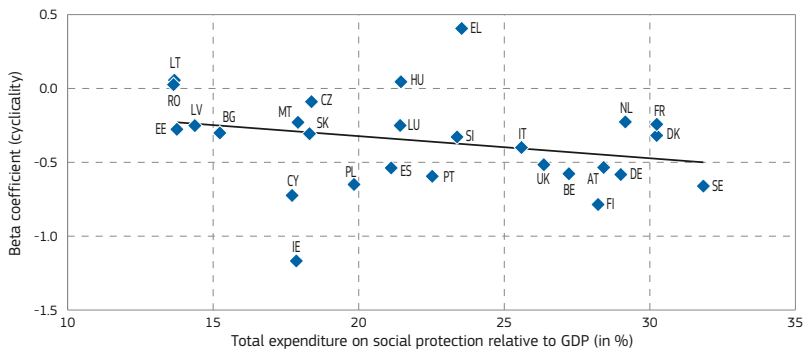
Chart 19 also shows a slightly negative correlation between the coefficient of cyclicality and the spending to GDP ratio[19], meaning that the cyclicality of social expenditures depends only in part on the level of expenditures. These results are consistent with previous literature, e.g. they are broadly in line with the conclusions of Dolls et al. 2012 (except for Hungary), although the figures are lower because they only take social expenditures into account.

These estimations should be considered as 'gross estimations' since they include the upward trends of some types of expenditures, typically health care and pensions and mix two effects: on the one hand elasticity of various expenditures to GDP and on the other hand the size of different types of expenditures in GDP.

Chart 19: Cyclicality of total expenditure on social protection with respect to output gap (beta coefficients) by Member States



Source: DG EMPL calculations and ESSPROS.

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(19) The regression result is: beta= -0.072 -0.013*expenditure/gdp, R^2=0.06

Box 4: Computing cyclicality using unemployment rate

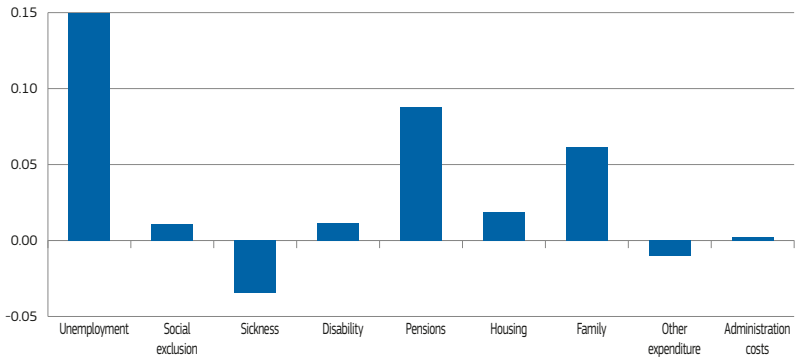
An alternative method to compute the cyclicality of social expenditures would be to use the unemployment rate instead of output gap:

$$\frac{expenditure}{GDP}_t = \alpha + \gamma\ unemployment\ rate_t \quad (2)$$

The results are different, but generally consistent with the previous findings (in this case expenditures will increase when unemployment increases, see Chart 20). Again, expenditures are assumed to be not cyclical if the ratio of expenditure to GDP remains constant with respect to unemployment rate.

In this case, however, unemployment benefits are seen to be the most reactive form of social expenditure relative to a given increase in unemployment (0.15 percentage points when unemployment increases by 1 percentage point, or an increase of 10.6% of unemployment benefits). Pensions also respond to an increase in unemployment rate, but just by 0.96%.

Chart 20: Cyclicality of expenditure on social protection with respect to unemployment rate (gamma coefficients)



Sources: DG EMPL calculations. Expenditures from ESSPROS 1995-2009. Data for BG 2005-2009, CY 2000-2009, EE 1999-2009, HU 1999-2009, LT: 1996-2009, LV 1997-2009, PL 2000-2009, RO 2000-2009, SI 1996-2009. Unemployment rate from Eurostat.

Note: The columns represent percentage point changes in expenditure for a 1-percentage point increase of unemployment rate. To obtain percentage changes, one has to divide γ by the actual expenditure for each function.

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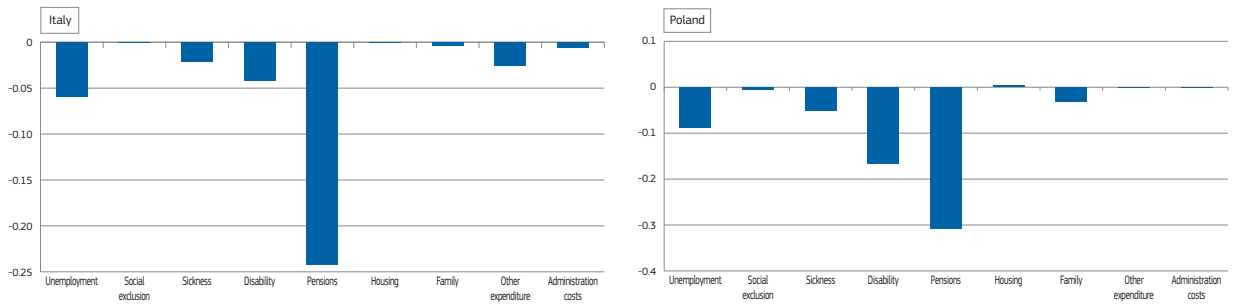
Chart 21: Cyclicality of expenditure on social protection with respect to output gap for Italy (left) and Poland (right)



Source: DG EMPL calculations.

Note: Cyclicality of social expenditures with respect to output gap, i.e. beta coefficients of eq. (1).

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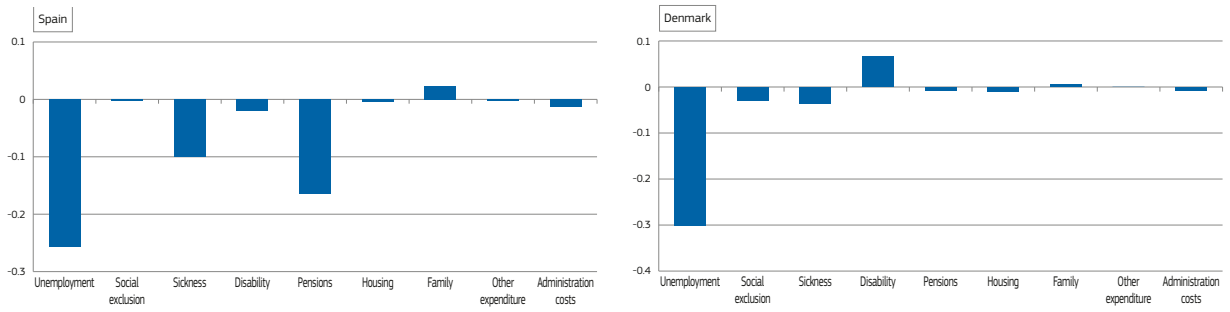
The detailed picture also demonstrates the differences in the structure of social expenditures in different countries. Italy, for instance, is known to have a welfare system tilted towards pensions and indeed this is reflected in Chart 21. Also Poland has a similar profile. In these cases, unemployment benefits play a negligible role as automatic stabilisers.

At the other end of the scale, Denmark and Spain (Chart 22) show the strong anti-cyclical effect of unemployment benefits in their systems. In Denmark, a decrease of 1 point in the output gap is reflected in an increase of unemployment benefits as a percentage of GDP of 0.3 percentage points, or 20%, while

in Spain where a similar decrease in the output gap results in a similar increase of unemployment benefits as a percentage of GDP of 0.25 percentage points, or 18%. A third group of countries can be identified in this (Chart 23). In Ireland and Slovakia health represents a bigger income cushion than either unemployment benefits or pensions, although the welfare states in both countries are relatively limited compared to other continental European countries.

Chart 22: Cyclicality of expenditure on social protection with respect to output gap for Spain (left) and Denmark (right)



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Source: DG EMPL calculations.

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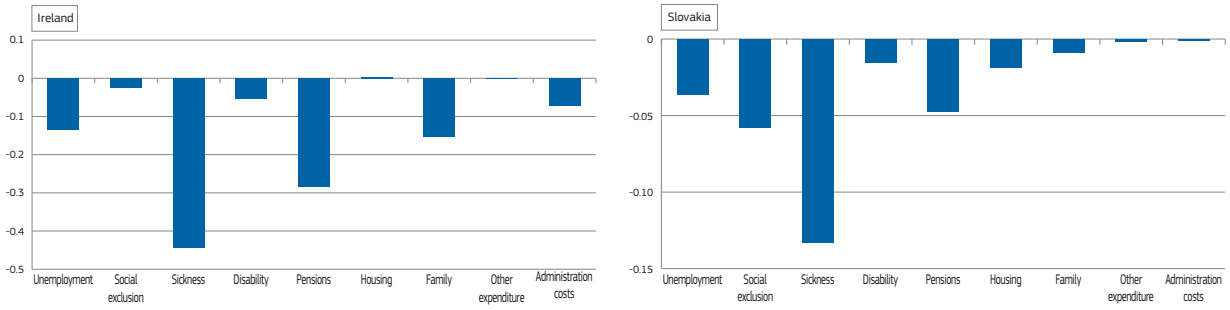
Note: Cyclicality of social expenditures with respect to output gap, i.e. beta coefficients of eq. (1).

Chart 23: Cyclicality of expenditure on social protection with respect to output gap for Ireland (left) and Slovakia (right)



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Source: DG EMPL calculations.

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Note: Cyclicality of social expenditures with respect to output gap, i.e. beta coefficients of eq. (1).

3.1.2. Social protection expenditure and fiscal profligacy

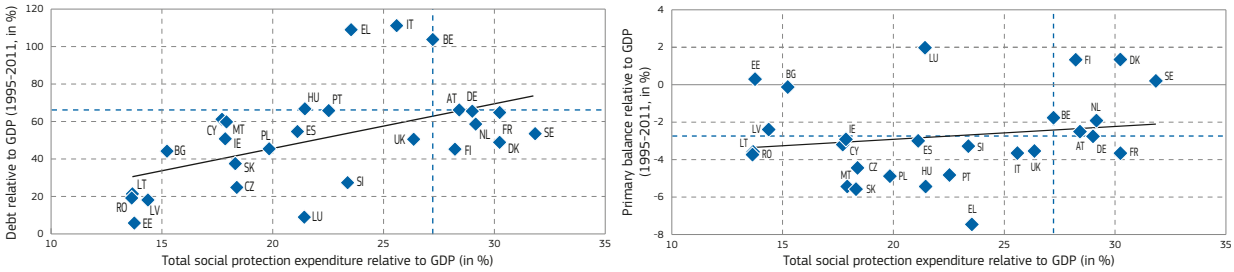
The evidence above appears to show that social expenditures in the EU work as effective automatic stabilisers. However, the crisis, which started as a financial one in 2007 in the US and then became a global economic crisis, and the ensuing debt and fiscal crisis, have put public spending under pressure, especially at the periphery of the EU. In this context, it is reasonable to ask whether social expenditures are a source of fiscal profligacy.

In this respect, the graph on the left in Chart 24 shows that higher social expenditures usually go hand-in-hand with a higher debt level. On the other hand, the link between generous welfare states and primary balance[20] (surplus or deficit) seems to be the opposite: the graph on the right in Chart 24 shows that the surplus is actually higher in countries with higher total expenditures. In particular both graphs show that Member States such as Finland, Denmark and Sweden have relatively high social expenditures (although in net terms they are close to the EU average) and a better fiscal position (both in terms of debt and primary balance) than the overall EU average. While these countries may represent an exception, they also demonstrate that it is possible to combine a relative large welfare state with keeping the accounts in order.

Moreover, no robust correlation (if any, a negative one) can be found between the level of social expenditures and change in debt between 1995 and 2011 as Chart 25, left graph, clearly shows, with the level of total social expenditures between 1995 and 2009 not appearing to be linked with change in the ratio of debt to GDP in the last 15 years. In practice, countries have improved or worsened their fiscal position without there being any clear link between these levels of expenditures and GDP. However, as shown in Chart 25, an increase in social expenditures (in terms of GDP) does reflect an increase of debt relative to GDP and this is especially the case for those countries in the top right part of the graph (EL, PT, IE), although this relationship might be linked to stronger

(20) Government net borrowing or net lending excluding interest payments on consolidated government liabilities.

Chart 24: Total expenditure on social protection (% GDP) and debt (left) and deficit (right)



Source: ESSPROS and National accounts.

Note: Dashed blue lines represent EU averages (EU15-25-27).

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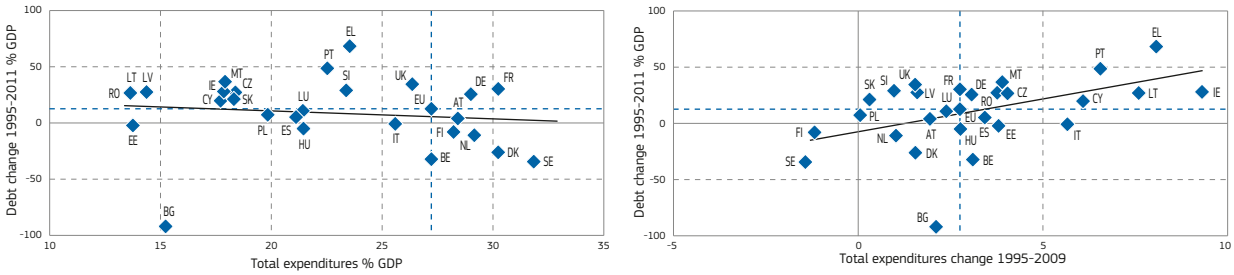
Chart 25: Left: Total expenditure on social protection and debt change (1995-2011); Right: expenditure on social protection change (1995-2009) and debt change (1995-2011)



Source: ESSPROS and National accounts.

Note: Dashed blue lines represent EU averages (EU15-25-27).

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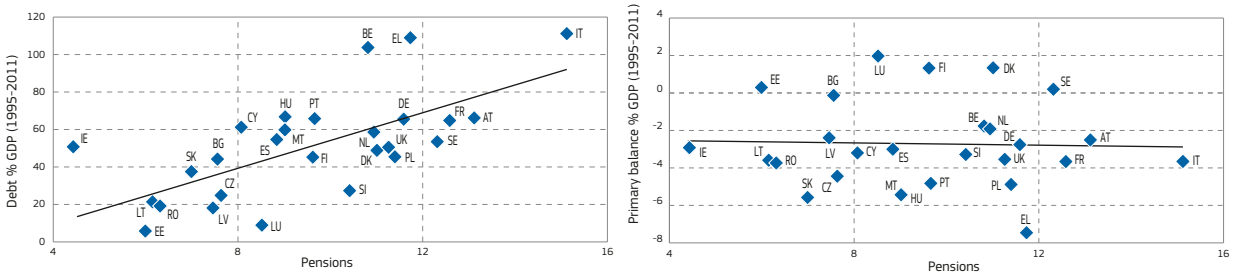
Chart 26: Expenditure on pensions (% GDP), debt (left) and primary balance (right)



Source: ESSPROS and National accounts.

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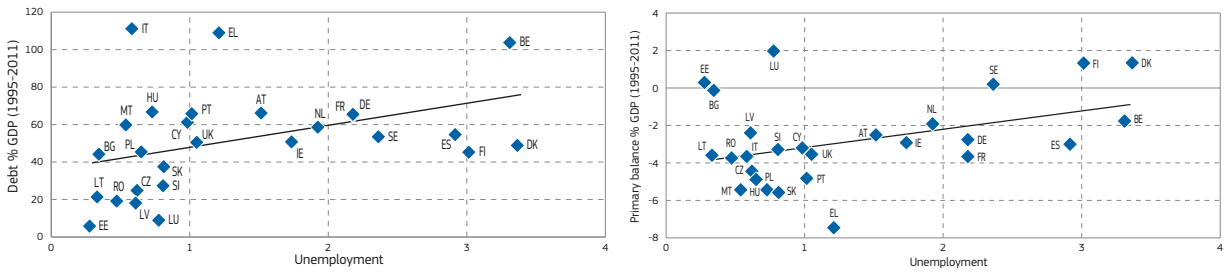
GDP declines in these countries. On the other hand, some Member States managed to reduce debt while also increasing social expenditures as was the case in Belgium, which managed a 'long and successful fiscal consolidation' (IMF, 2011) reducing in debt between 1995 and 2009 while still increasing social expenditures.

It is recognised that the findings will be partially due to the proxy used for the generosity of the welfare state given that total social expenditures also include expenditures that do not depend directly on the business cycle, such as those on health and pensions. Indeed, when looking at pensions alone, it is clear that there is a much stronger relationship between pensions and debt rather than pensions and the current primary balance (see Chart 26).

However, while a truly cyclical social expenditure, such as unemployment benefits, appears to have a significantly lower correlation with debt than pensions, it also has a positive correlation with the primary balance (see Chart 27).

Overall, the link between cyclical social expenditures and the fiscal crisis can be seen as weak with a partial explanation being the positive correlation observed between stronger spending in unemployment and higher employment rates. In other words, Member States with strong welfare states are, in general, those who can afford them. The Scandinavian countries, as well as Germany and Austria, all have high employment rates and high social expenditure. More generally debt, being a stock variable, reflects historical developments and choices in that

Chart 27: Unemployment benefits (% GDP), debt (left) and primary balance (right)



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Source: ESSPROS and National accounts.

the level of the social expenditure to GDP ratio reflects, to some extent, the national preference in terms of social model, which is likely to be quite stable over time, while the primary balance takes into account only the fiscal policies in recent years.

3.1.3. Improving the role of unemployment benefits as automatic stabilisers

Unemployment benefits are a key part of the welfare state. They insure individual incomes during periods of temporary unemployment and provide assistance during longer-term periods of unemployment.

Benefits systems which relate to unemployment contain two main instruments:

- Unemployment insurance to protect individual incomes during spells of unemployment, being payable to job losers who, within a certain reference period, have completed a minimum period of employment or paid contributions.

- Unemployment assistance to prevent unemployment-related poverty. It is generally means-tested and usually paid either to the long term unemployed with insufficient means who have exhausted their unemployment insurance benefits or to those who failed to qualify for unemployment insurance benefits in the first place.

It is important to distinguish between unemployment insurance and assistance as these two instruments generally have different implications in terms of incentives to take up work[21]. Unemployment benefit systems are greatly debated and studied in economic research because they inevitably involve some degree of trade-off between income smoothing and economic efficiency: the bigger the replacement rate (the amount of benefit paid to an unemployed person relative to this person's previous income) and the higher the duration, the lower the incentive to search and take up a new job. The benefits from the stabilisation of income find their counterpart in the weakening of incentives in the labour market. Reduced work incentives also have macro-economic implications in terms of lower employment rates and lower aggregate labour supply, which results in lower potential output on a permanent basis. This also translates into reduced revenues and may imply fiscal imbalances and possibly into the accumulation of deficits in the external balance as they finance consumption while reducing income, and therefore lowering national savings.

However since the take up of unemployment benefits is higher especially during cyclical downturns and recessions, the unemployment benefit system also plays the role of macroeconomic stabilisation. There is a growing debate on the possibility to adapt the generosity and design of the unemployment benefits systems to the economic cycle in order to increase the anti-cyclical effect of unemployment benefits and improve their functioning in time of needs, and to recover those expenditures in better economic times, as stressed in the European Commission's 2011 Annual Growth Survey. During economic downturns, eligibility conditions and replacement rates need to cater for the increased rate of job destruction and the stronger need for stabilising incomes, and the duration needs to be adapted in line with the reduced chances of finding a job. Conversely, during recoveries, the unemployment benefit system needs to provide stronger incentives to re-enter the labour market in order to prevent cyclical unemployment from becoming structural.

As Chart 28 shows, there is a clear relationship between unemployment spending in proportion to GDP and its anti-cyclical functioning, suggesting that unemployment benefits are elastic to output gap and the reaction is higher when spending is also higher. Therefore there is substantial room to increase the stabilisation and smoothing effect by increasing spending in periods of crisis.

The adaptation of the unemployment benefit system over the cycle may take place as a result of discretionary decisions by policy makers, or in light of automatic triggers contained in the legislation. In the former case, the increase or reduction in unemployment benefit generosity would generally require new legislation to be proposed by governments and approved by parliament. When the adaptation is automatic, the revision in eligibility conditions, replacement rates and duration is the outcome of already existing legislation that defines ex-ante the conditions under which this revision will have to take place.

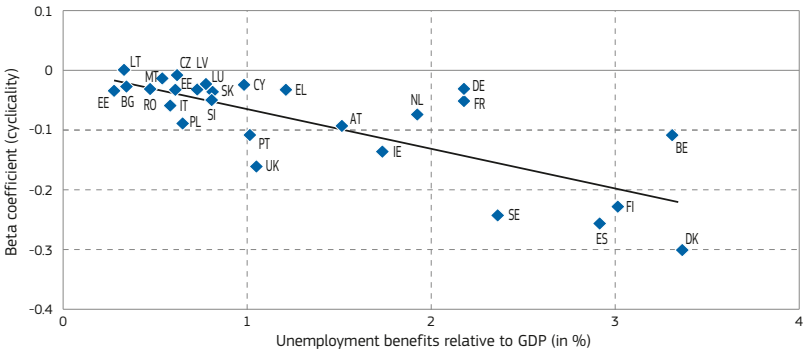
On balance, an automatic adaptation would appear to have the merit of being timely and truly countercyclical both in downturns (by avoiding long legislative delays) and in upturns (by automatically reducing the generosity).

How can unemployment benefits be adapted over the cycle?

This raises the question of whether unemployment benefits can be adapted over the cycle in practice. Here, the literature usually refers to the use of a trigger variable (representing the state of the economic cycle) as it is the case

(21) For a complete benchmarking of unemployment benefits see Stovicek and Turrini (2012).

Chart 28: Cyclicality of expenditure on unemployment benefits with respect to output gap (beta coefficients)



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Source: ESSPROS and DG EMPL calculations.

Note: Beta coefficients are the cyclicality indicators computed in eq. (1).
Trend line: y = -0.066x + 0.005, R^2 = 0.588

Table 2: Pros and cons of an automatic adaptation of unemployment benefits to the cycle

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• more predictable system; • lower risk of hysteresis in unemployment benefit generosity as a result of the constitution of interest groups (once people get accustomed to more generous rules it might be difficult to reverse them); • no risks associated with decision and implementation lags for enacting new legislation.	• low credibility if automatic increases in generosity are likely to clash with budgetary objectives; • need of a careful design to be effective and sustainable without revisions; • additional discretionary legislation may in any case be needed to adapt unemployment benefits in light of structural reforms in the labour market, welfare, and taxation fields.

in the US where the generosity of the unemployment benefits is automatically adjusted over the business cycle on the basis of trigger variables (notably a stable increase in unemployment).

The European Commission (2011) has already discussed the different possibilities presented in the literature concerning the choice of trigger variables and associated changes that would need to take place to ensure a successful implementation of automatic rules for unemployment benefits. Setting a trigger variable requires a choice to be made concerning an appropriate economic indicator, which should ideally move in tandem with labour market conditions, thus reflecting underlying job finding conditions (e.g. Schwartz, 2008). It also requires setting criteria for automatic rules to be turned on or off, usually defined in terms of the level or a relative change of the indicator. Schwartz (2008) proposed a trigger designed on the basis of the average duration of unemployment spells with benefits extended in each quarter following a period of recession, defined as a period of high rates of exhaustion of unemployment insurance benefit and low job finding probabilities. The duration is brought back to the standard one quarter following a recovery.

Wenger and Walters (2006) have suggested two triggers: a first broad trigger requires an increase in the unemployment rate by 20% over the previous two years to activate the extension. This extension is reversed when the unemployment rate has returned to the level of the previous year. The trigger that turns off the automatic extension is increased annually by 10% to avoid benefits being paid for too long as unemployment becomes persistent. Alternatively, a narrow trigger requires a larger increase in the unemployment rate – for example, by 25% over the previous two years – in order to activate the extension of benefits and ensure a faster reversal to the previous duration. The threshold level of the unemployment rate, which brings duration back to normal, is increased over the following years, so that periods of persistent unemployment are not accompanied by too long benefit duration.

Recently, Wenger and Boushey (2010) have proposed a two-tier trigger system for the US. The first-tier extends benefits by 20 weeks when the state unemployment rate is at or above an average of 6.5% over a period of three-months or when it increases by 20%. The extension is withdrawn when state unemployment rate falls below an average of 6.5% over a three-month period *and* when the number of persons claiming unemployment insurance returns to pre-recession level. If state unemployment rate rises above an average of 8.5% over a three-month period, the second tier is activated and benefits are automatically extended by additional 13 weeks (on top of 20 weeks from the first tier). The second tier turns off when state unemployment rate falls below an average of 8.5% over a three-month period. These policy triggers, however, risk staying activated for too long if the unemployment rate becomes persistent.

In practice, the use of sophisticated trigger variables can prove problematic because statistics are not always timely, there can be problems in interpreting labour market data, and there can be a problem in case automatic rules fail to turn on or off. However, the US example shows that the choice of a trigger variable can be simpler than that proposed in the literature[22].

What are the pros and the cons?

Adapting unemployment benefits over the business cycle as indicated above could contribute to improving the smoothing of output and help the unemployed better weather the social consequences of the crisis. Table 2 summarises the pros and cons of an automatic adaptation.

Improvement the effectiveness of automatic stabilisers can also pass through other instruments. For instance, other social expenditures or labour market policies (e.g. short time working schemes) can be indexed to economic developments in order to make them more generous in times of crisis and more stringent in good economic times. In any case, these rules need to be financially balanced over the whole economic cycle.

(22) For a more in depth discussion, see European Commission (2011).

3.2. Role of social protection spending in the recent crisis

The crisis has hit EU Member States in different ways. This has been reflected in the different working of automatic stabilisers, the different measures taken by governments and also the different impacts on different households.

The previous Section showed that social expenditures react to the business cycle. This Section deals with the matter of how social protection spending developed during the crisis, which was influenced by the combination of both long term trends and sensitivity to the cycle, and whether it managed to sustain household incomes. First, an overview is provided of the development of GDP, unemployment rate and hours worked in the period 2007-2009, then the developments in social protection expenditure in the same period are reviewed and then this is linked to the developments in the gross household disposable income.

Table 3 provides a background for the following analysis by illustrating whether in the EU Member States the GDP shock translated or not into a shock in the labour market. While in the Baltic States this shock to the labour market was quite strong, e.g. in Germany, Denmark, Hungary or Slovenia this shock was much milder, particularly compared to the size of the GDP shock.

Between 2007 and 2009 social protection expenditure increased in real terms in all EU Member States except Hungary (see Chart 29). In several countries the largest part of the increase was due to old-age and survivors pensions (e.g. in Romania, Bulgaria, Poland, Latvia, Portugal and the Czech Republic). In some Member States the majority of the increase was due to health care and disability expenditure, such as in the Netherlands and Germany. Unemployment benefits increased most significantly in Latvia, Spain and Estonia, while family benefits rose very significantly in Lithuania, Luxembourg and Bulgaria.

Between 2009 and 2010, however, social protection expenditure decreased in reals terms in more than one third of the Member States. The largest decreases – between 5 and 10% – were seen in Greece, Estonia and Lithuania. In Lithuania, old age and survivors' pensions and health care and disability benefits decreased both by around 4%, child benefits were lowered by 2.6%. In Estonia there were equally large decreases in unemployment benefits and health care and disability – both by 2.4%. On the other hand, child and social exclusion benefits increased. In Greece, pensions and spending on health care and disability both decreased by nearly 2%, and there were falls in spending also in all other areas.

Concerning increases in real spending in 2009-2010, old age and survivors pensions increased the most in Latvia (by nearly 9%), health care and disability benefits by more than 5.6% and unemployment benefits by 1.6% in Ireland, child benefits increased the most in Slovakia and Luxembourg (by 0.6%) and social exclusion benefits rose the most in Lithuania (by 1.7%).

The analysis of the developments in social protection expenditure in 2011 is currently only possible with data from National accounts that only make a distinction between cash and in-kind benefits. Chart 30 provides a basic overview of this, showing for two periods (2007-2009 and 2009-2011) not only changes in real social protection expenditure, but also changes in real gross household disposable income (GHDI), which are significantly influenced by changes in social benefits. In this chart, EU Member States are grouped according to the size of the GDP shock in the first period.

In the first period, while cash benefits increased in real terms in all the countries indicated (with the exception of Hungary), in-kind benefits decreased in three Member States (in Latvia, Hungary and Bulgaria). In spite of this, GHDI decreased in 9 Member States out of 26 for which data is available, the largest declines (between 6% and 15%) being seen in Hungary, Estonia and Latvia.

In the second period, due to continuing effects of the crisis and the impact of fiscal consolidation programmes, in-kind benefits decreased in 16 Member States (by 5% or more in Greece, Portugal and Ireland) and cash benefits were lowered in 10 Member States (particularly

Table 3: Development of GDP, unemployment rate and hours worked between 2007 and 2009

	GDP change (in%)	Unemployment rate change (in pps)	Hours worked change (in%)
	2007-2009	2007-2009	2007-2009
AT	-2.5	0.4	-2.7
BE	-1.9	0.4	*n.a.*
BG	0.4	-0.1	*n.a.*
CY	1.7	1.4	0.7
CZ	-1.7	1.4	-0.6
DE	-4.1	-0.9	-1.5
DK	-6.6	2.2	-2.3
EE	-17.4	9.1	-17.3
EL	-3.4	1.2	-1.6
ES	-2.9	9.7	-6.2
FI	-8.1	1.3	-2.1
FR	-2.8	1.1	-1.7
HU	-6.0	2.6	*n.a.*
IE	-9.8	7.3	*n.a.*
IT	-6.6	1.7	-3.8
LT	-12.4	9.4	-8.1
LU	-4.6	0.9	1.3
LV	-20.4	11.7	-18.5
MT	1.3	0.4	*n.a.*
NL	-1.8	0.1	0.4
PL	6.8	-1.4	3.1
PT	-2.9	1.7	-3.0
RO	0.3	0.5	*n.a.*
SE	-5.6	2.2	-1.7
SI	-4.7	1.0	1.7
SK	0.5	0.9	0.6
UK	-5.4	2.3	*n.a.*

Source: National accounts, Labour Force Survey.

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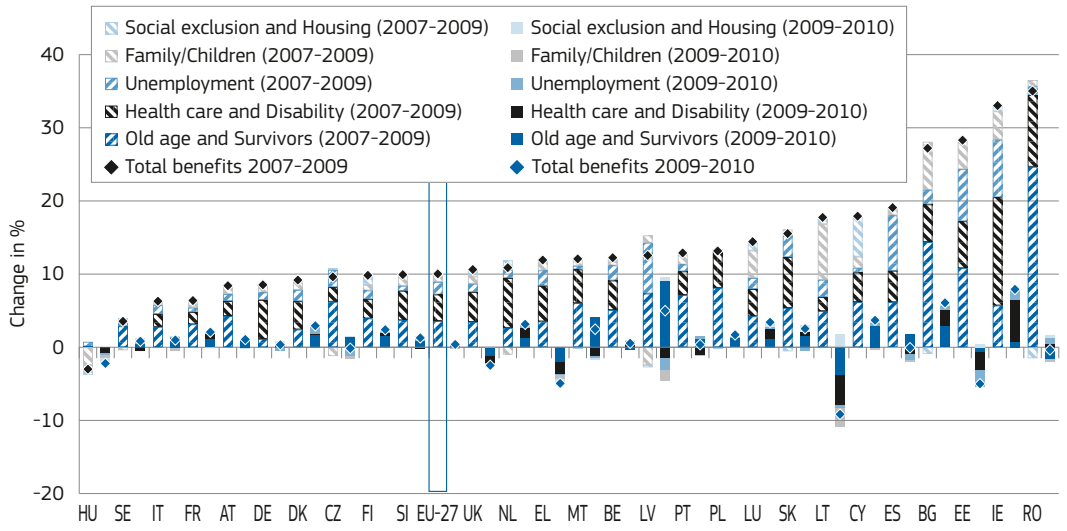
Chart 29: Percentage change in social protection expenditure by function (national currencies in constant 2000 prices, 2007-2009 and 2009-2010)



Source: ESSPROS.

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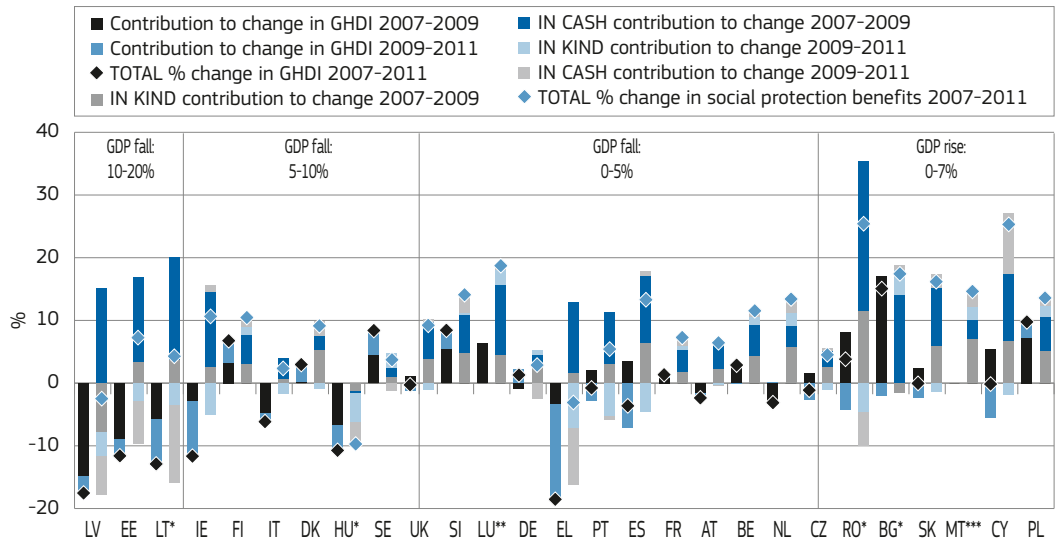
Chart 30: Percentage change in GHDI and social protection expenditure (national currencies, deflated by HICP, 2007-2009 and 2009-2011)



Source: Eurostat (for HICP), National Accounts and European Commission economic forecast – Autumn 2012.

Notes: * – For Lithuania, Romania and Bulgaria, GHDI data is only available until 2010.
** – GHDI data for Luxembourg is not available for 2009-2011.
*** – GHDI data for Malta is not available.
Member States are sorted according to the size of the GDP change in 2007-2009.

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in Greece and the Baltic States). In line with this development, GHDI decreased in 17 Member States out of 25 for which data is available, the largest declines (between 7 and 15%) being seen in Cyprus, Spain and Greece.

There are significant differences between countries with similar GDP shocks, not only in the size of the change in social protection expenditure, but also in the change in GHDI. While Italy and Finland had similar GDP shocks and increased their cash social protection benefits in a similar proportion, GHDI increased in Finland while it decreased in Italy. Another example is the Czech Republic where spending on cash benefits increased nearly as much as in the Netherlands, but GHDI only increased in the Czech Republic. Clearly, it is important to look in detail at what causes such differences and what is the role of social benefits.

There are two ways of looking at the role of social protection expenditure in sustaining the GHDI in the crisis. First, combining components of GHDI from different years, it is possible to compare actual change in GHDI with how GHDI would have been if social transfers had not increased or if taxes had not decreased. Second, it is possible to analyse the development in time of the different components of GHDI and identify there the role of social transfers.

3.2.1. Counterfactual scenarios of GHDI development

Jenkins et al. (2011) have looked at the impact of the 2008-2009 crisis years on household income and concluded that although GDP fell, gross household disposable income rose in most

Table 4: Impact of social transfers and taxes on GHDI in 2007-2011

	2009 vs 2007				2011 vs 2009			
	(1a)	(2a)	(3a)	(4a)	(1b)	(2b)	(3b)	(4b)
	Actual change in GHDI (in%)	Contribution of social transfers to change in GHDI (in pps)	Contribution of taxes to change in GHDI (in pps)	Change in GHDI if social transfers and taxes stayed at 2007 value (in%)	Actual change in GHDI (in%)	Contribution of social transfers to change in GHDI (in pps)	Contribution of taxes to change in GHDI (in pps)	Change in GHDI if social transfers and taxes stayed at 2009 value (in%)
EE	-8.3	8.2	3.0	-19.5	-4.5	-2.1	-0.3	-2.1
LV	-14.6	7.9	4.0	-26.6	-3.0	-2.7	-1.1	0.8
RO*	8.1	6.4	-0.9	2.5	-3.9	1.7	6.2	-11.8
IE	-2.7	6.1	4.3	-13.1	-6.9	2.4	-2.3	-7.0
BG*	17.1	5.7	0.4	11.0	-1.7	-7.3	5.1	0.6
ES	3.4	4.5	2.0	-3.1	-8.1	1.3	-0.2	-9.2
LT	-5.6	4.5	5.4	-15.5	-1.3	-2.6	0.2	1.1
EL	-3.1	4.5	-0.3	-7.2	-20.1	-0.8	1.4	-20.7
SE	4.2	4.5	3.6	-3.8	4.6	-0.4	0.0	4.9
CZ	3.4	4.3	1.5	-2.4	-2.5	-0.7	-0.1	-1.7
UK	1.1	4.3	1.5	-4.7	-0.5	-0.6	0.9	-0.8
DK	0.1	3.2	0.9	-4.0	3.8	4.6	-0.6	-0.2
FI	3.3	3.2	1.6	-1.5	2.8	0.7	-0.1	2.2
NL	-3.3	3.0	-2.1	-4.2	-0.3	0.1	0.7	-1.1
LU	6.4	2.6	-0.2	3.9	*n.a.*	*n.a.*	*n.a.*	*n.a.*
PT	2.1	2.4	-0.2	-0.1	-2.6	0.3	-0.4	-2.6
HU	-6.4	2.4	0.7	-9.5	0.0	0.9	4.2	-5.1
SK	5.9	2.1	0.7	3.1	2.2	0.7	-0.2	1.8
CY	5.6	2.1	0.4	3.1	-3.0	1.5	-1.0	-3.5
PL*	7.2	1.6	0.4	5.2	2.4	-2.6	7.7	-2.7
IT	-5.0	1.5	0.4	-6.8	-1.4	0.7	0.3	-2.4
FR	0.7	1.4	0.4	-1.2	0.6	0.1	-0.6	1.1
BE	3.0	1.4	0.7	1.0	-2.6	0.0	-1.0	-1.6
SI	1.4	1.3	-0.4	0.5	-1.5	1.4	0.5	-3.4
AT	0.2	1.2	0.3	-1.3	-1.2	-0.4	-0.2	-0.5
DE	-0.6	0.4	0.0	-0.9	2.6	-1.7	0.3	3.9
MT	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*n.a.*

Source: National Accounts, DG EMPL calculations.

Note: * Data is only available until 2010. *Actual change in GHDI*: GHDI in the last year of the given period is compared with GHDI in the first year of the given period (change is expressed in percentage). *Contribution of social transfers to change in GHDI:* the change in social transfers between the first and last year of the given period is calculated and its contribution to GHDI change is computed. *Contribution of taxes to change in GHDI*: the change in taxes between the first and last year of the given period is calculated and its contribution to GHDI change is computed. *Change in GHDI if social transfers and taxes stayed at 2007/2009 value*: GHDI is computed as the sum of all its components (including social transfers and taxes) with value from the last year of the given period and compared with GHDI calculated with the initial year value of social transfers and taxes and the last year value of all the other components (change is expressed in percentage). Countries are sorted based on the importance of the contribution of social transfers on GHDI change in 2007-2009.
n.a.: not available.

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Member States between 2007 and 2009. In effect, the household sector was protected from the impact of the downturn by additional support of governments through their tax and benefit system. In this Section, the same type of analysis is performed for two periods: 2007-2009 and 2009-2011 and special focus is put on the role of social transfers.

Table 4 shows the role of the tax-benefit system during the first part of the crisis (period 2007-2009), driven mostly by the working of automatic stabilisers and fiscal stimulus, and also in the two years afterwards (period 2009-2011), when fiscal cuts and the retrenchment of fiscal stimulus measures were taking place in many countries. The table is split in two parts: 2007-2009 and 2009-2011. Columns (1a) and (1b) show how GHDI changed in these two periods and columns (2a/b) and (3a/b) show the role played by social transfers and by taxes separately[23].

Columns (4a/b) indicate how GHDI would have developed if social benefits and taxes had remained at their value of the initial year of the given period.

Column (1a) shows that in the first period of the crisis in some EU Member States the real GHDI dropped (e.g. in Latvia, Estonia and Hungary) while in others it rose (e.g. Bulgaria, Romania, Poland, Slovakia, Cyprus). In the period 2007-2009, the tax-benefit system had a positive impact on GHDI in all Member States. On average, the positive effect of social transfers was three times higher than the effect of taxes[24]. Social transfers improved GHDI throughout the EU (the most in the Baltic States, Romania, Ireland and Bulgaria) and taxes also

(23) Taking the example of Greece in the period 2007-2009, by changing from the 2007 to the 2009 value, column (2a) shows that social transfers helped to raise GHDI by 4.5 pps and column (3a) shows that taxes had a slightly negative effect on GHDI.

(24) A micro-simulation study in Dolls (2012) confirms that social transfers had a key role for stabilisation of income in the EU.

affected GHDI positively, except for Luxembourg, Portugal, Greece, Slovenia, Romania and the Netherlands.

In the period 2009-2011, although the economic situation did not improve much in the EU, due to increasing budgetary constraints, taxes were increased and benefits were reduced in many countries. Table 4 show that the impact of the tax-benefit system on GHDI was mixed: in eleven Member States (out of 25 for which data is available) it contributed negatively to the change in GHDI. Of these countries, in France, Germany and Sweden the GHDI increased in spite of this. In countries such as Austria, Estonia, the Czech Republic and Belgium, the GHDI would have decreased even without the negative influence of the tax-benefit system.

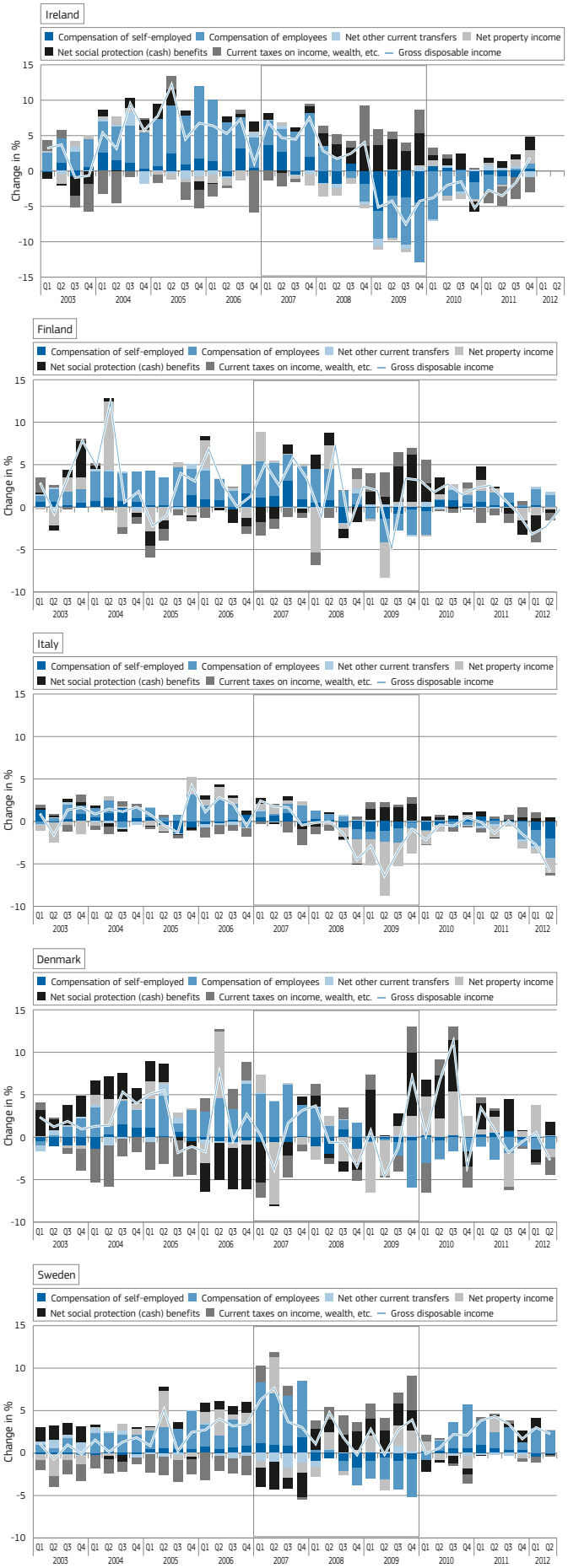
Looking at the effect of social transfers and taxes separately, in this period on average in the EU the effect of taxes was only slightly higher than that of social transfers. While the positive effect of benefits was the highest in Denmark, Ireland and Cyprus, taxes had the biggest positive impact on GHDI in Hungary and Greece. On the other hand, social transfers decreased the most in Lithuania and Latvia.

3.2.2. Development of GHDI components in time

It is possible to identify the role of social protection expenditure in sustaining GHDI by analysing detailed quarterly data on GHDI components. This is, however, only available for Ireland, Finland, Italy, Denmark and Sweden (where GDP fell by 5-10% between 2007 and 2009), and Germany, Greece, Portugal, Spain, France, Austria, the Netherlands and the Czech Republic (where GDP fell by 0-5%).

Chart 30 shows that in the first group of countries (with a GDP fall of 5-10%), Finland and Sweden follow a similar pattern in terms of GHDI development: in both periods, it rises. This is also the case of both categories of social protection expenditure, except for cash social expenditure between 2009 and 2011 in Sweden. The situation is different in Ireland and Italy, where social protection expenditure rises in the first period but GHDI falls. In the second period, GHDI falls in line with reduced social protection expenditure, although further than the reduction in cash benefits.

Chart 31: Evolution of real GHDI by components in Ireland, Finland, Italy, Denmark and Sweden (% change for GHDI (deflated by HICP), contribution to change in pps for the components)



Source: National Accounts.

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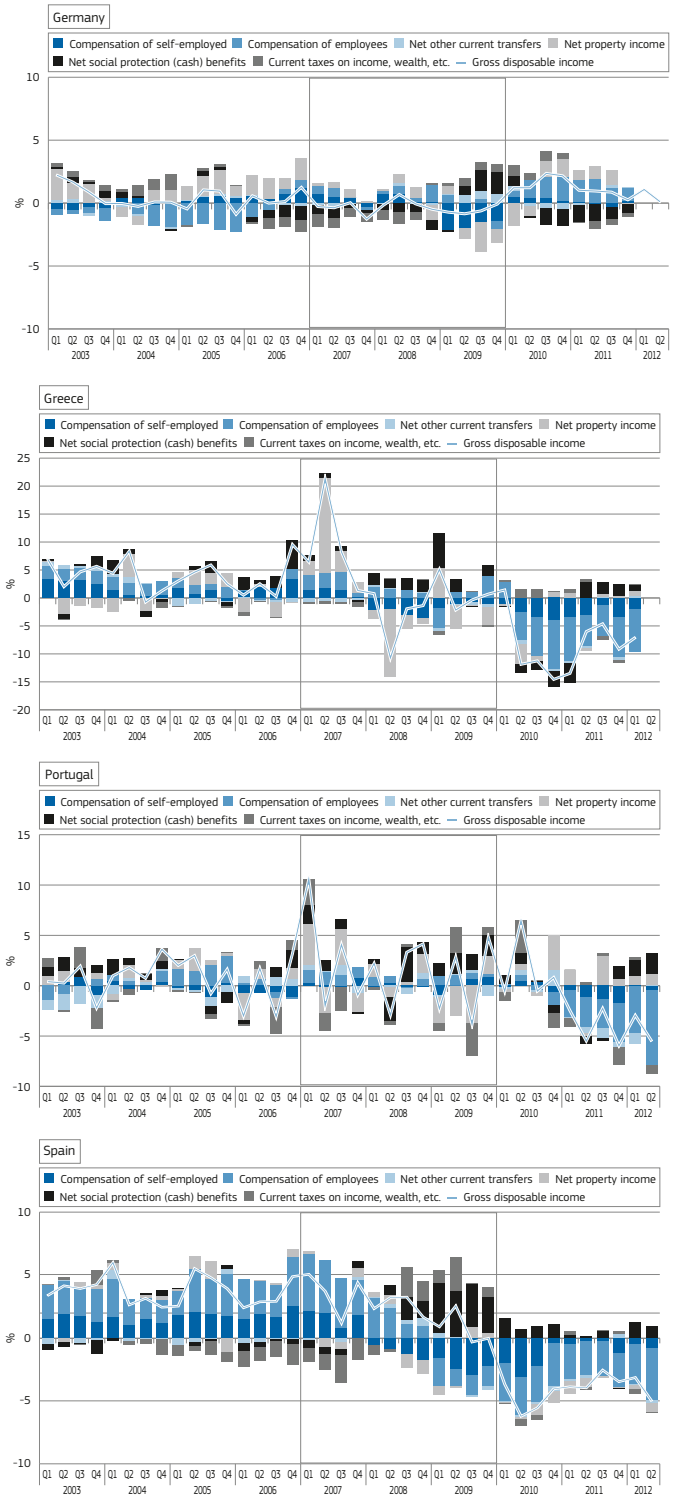
Chart 31 shows the development in real GHDI by component in Ireland, Finland, Italy, Denmark and Sweden. Generally, in this group of countries the positive effect on GHDI of social protection benefits was stronger than the effect of taxes.

While the negative effect of the compensation of employees on GHDI was relatively similar in 2009 in these countries, in some of them GHDI decreased particularly in periods where net property income fell significantly. This was the case in Finland in the second quarter of 2009, in Denmark in the first half of 2009 and in Italy during this whole year (but also at the end of 2008 and at the beginning of 2010). In the case of the latter country while the tax-benefit system was able to outweigh falls in the compensation of employees and the self-employed, falls in property income made GHDI fall much further. On the other hand, property income played nearly no role in Ireland where the fall in GHDI was mainly due to a large decrease in the compensation of both employees and self-employed.

In Sweden GHDI increased in 2010 and 2011 mainly because of increases in the compensation of employees. Only in Finland this component had a similarly positive impact on GHDI, although to a lesser extent. However, when at the end of 2010 it didn't increase, GHDI fell because other components were not growing sufficiently. Also, Finland was the only country in this group that started lowering social benefits and increasing taxes since the second half of 2010. While in the first half of 2012 in Sweden GHDI kept growing, in Finland it only stabilized in the second quarter of 2012.

In Italy, however, the compensation of employees was falling and the social benefits were not increasing fast enough to compensate, resulting in a negative development in GHDI. In Denmark the development was similar, although the compensation of employees was declining more slowly and was, in some quarters, compensated by increases in net property income (such as in most of 2010) or social protection benefits (such as in most of 2011). However, in the first half of 2012, changes in the tax-benefit system had a rather negative effect on GHDI.

Chart 32: Evolution of real GHDI by components in Germany, Greece, Portugal, Spain, France, Austria, the Netherlands and the Czech Republic (% change for GHDI (deflated by HICP), contribution to change in pps for the components)



Source: National Accounts.

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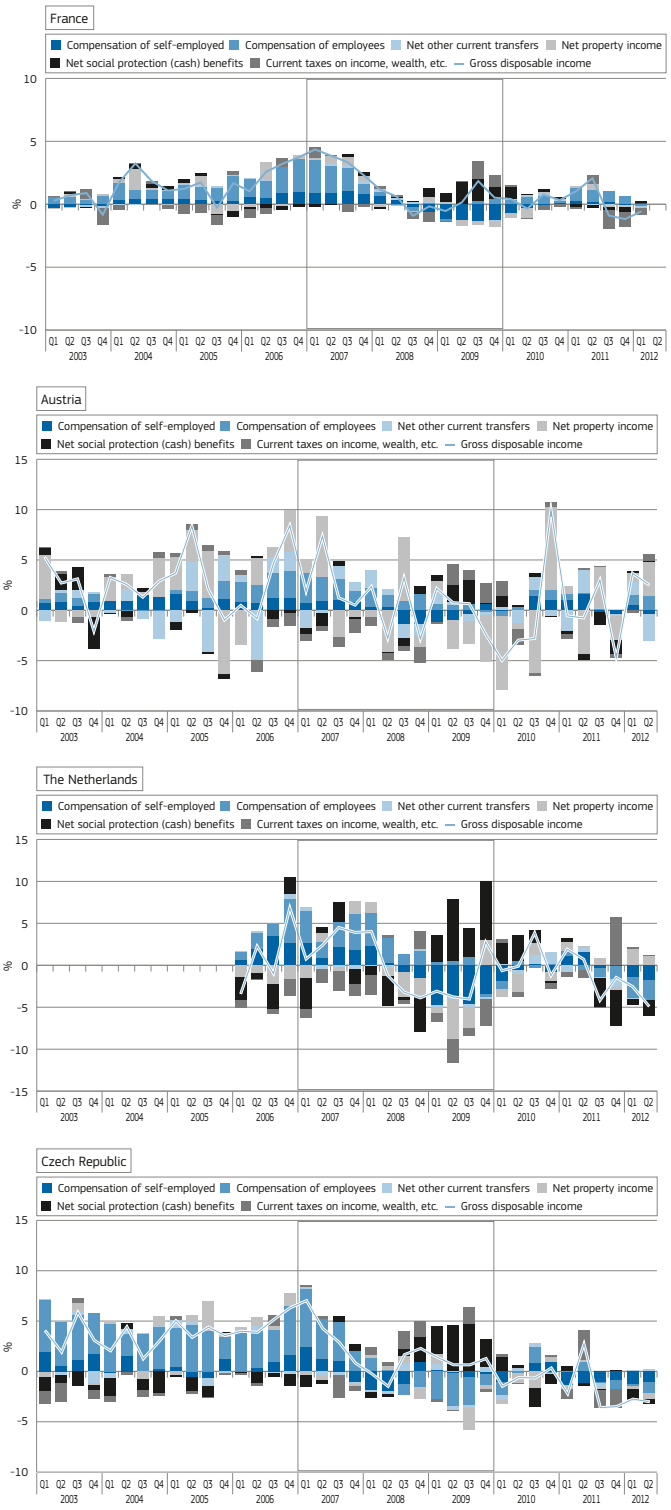
In Ireland, the drop in GHDI continued after 2009, mainly because social protection benefits did not compensate for the further decreasing compensation of employees. In 2011 particularly, increases in social protection benefits were accompanied by increases in taxes, which during most of this year made GHDI continue decreasing. Only at the end of the year GHDI increased.

Chart 30 shows that in the second group of countries (with GDP fall of 0-5 %), Greece, Portugal and Spain follow a similar pattern, as well as Germany and France, and also Austria with the Netherlands and the Czech



Source: National Accounts.

Republic. In the Southern countries, social protection expenditure rose in the first period and GHDI increased in Portugal and Spain. However, in the second period they all decreased their spending on in-kind social protection benefits and Greece and Portugal also on cash benefits. In the three countries, GHDI decreased in this second period.

In Germany and France, changes in GHDI were not very large and only in Germany in the first period GHDI slightly decreased. Spending on both types of benefits increased in both countries in both periods, except for cash benefits in Germany in the second period. In the remaining three countries, social protection expenditure also rose in the first period but GHDI only increased in the Czech Republic. In the second period, cash benefits increased in the Netherlands, stayed nearly stable in the Czech Republic and slightly decreased in Austria. In-kind benefits fell in the Czech Republic, stayed stable in Austria and increased in the Netherlands. While in the Netherlands GHDI stayed nearly stable in the second period, it decreased in Austria and in the Czech Republic.

Chart 32 shows the development in the real GHDI by component in Germany, Greece, Portugal, Spain, France, Austria, the Netherlands and the Czech Republic.

GHDI had rather limited variability in Germany and France. Its changes had a similar development in these two countries, particularly in 2009 and 2010: during the first year, compensation of the self-employed started to fall. Although social protection expenditure increased, in Germany this was not sufficient to maintain GHDI due to a fall in property income. However, in 2010 the compensation of employees increased significantly enough to enable GHDI to resume growth. When in the second half of 2010 also property income also began to increase, GHDI continued growing although social protection benefits started to decrease. In France benefits started to decrease slightly later than in Germany, in the second half of 2011; however, the accompanying increases in taxes translated into a decline in GHDI. In the second half of 2012, nevertheless, GHDI was already close to being stable.

Changes in GHDI in Portugal, Spain and Greece had different causes, especially until 2009. In the first period in Portugal it was mainly the increase in the compensation of employees that was sustaining the growth of GHDI along with social protection benefits. In periods when the net property income grew, GHDI also grew, and vice versa. In Spain, compensation of the self-employed started to decrease already in 2008 and in 2009 was accompanied by falls in the compensation of employees. Higher social protection benefits and lower taxes were able to maintain GHDI until the end of 2009. The development in Greece was similar for the self-employed, however, was better until 2009 for employees. GHDI was relatively stable; only large changes in property income had a significant impact on GHDI.

Since 2010 the development in GHDI has been similar in the three Southern countries: compensation of both employees and self-employed declined

so much that neither social protection benefits, nor increasing property income (in the case of Portugal) were sufficient to maintain GHDI that started to decrease. In the second quarter of 2012, it was at best 5 % lower than one year ago in all the three countries.

In Austria the compensation of employees had a positive development until 2009 while net property income was very variable, often causing both positive and negative peaks in GHDI. In 2009 and 2010 especially, GHDI decreased because of this component, and the social protection benefits did not rise enough to compensate. Since 2010 the compensation of employees has again proved a positive development in Austria. In 2012, rises in the compensation of employees, together with increasing property income, lead to an increase in GHDI.

In the Netherlands a significant drop in GHDI between 2007 and 2009 was caused by a simultaneous fall in the compensation of the self-employed, net property income and current taxes. Although social benefits increased significantly, they were not sufficient to maintain GHDI. In 2010 social benefits rose further and, together with less negative development in other components, this led to a slight increase in GHDI. In 2011, however, social benefits fell and GHDI followed. In the first half of 2012, both social protection benefits and compensation of employees and self-employed were decreasing, causing GHDI to fall as well.

In the Czech Republic the compensation of self-employed started to fall already at the end of 2007, i.e. earlier than in Austria or the Netherlands. Then, a decrease in the compensation of employees followed. However, higher social protection benefits and lower taxes helped to sustain GHDI until the end of 2009. Then social benefits decreased significantly and GHDI started to fall. This was also due to higher taxes, particularly since the second half of 2011.

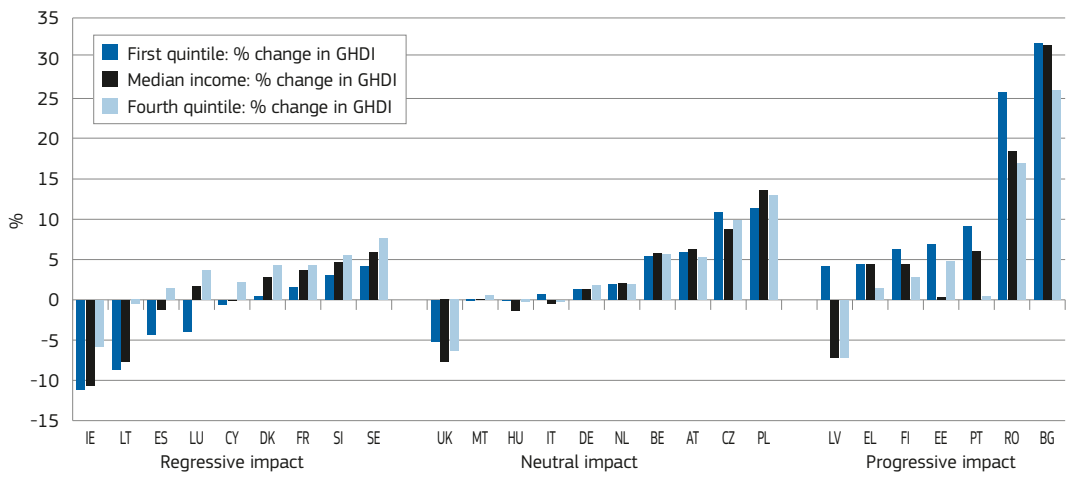
EU-SILC data were used to evaluate the redistributional consequences for citizens in terms of changes in GHDI. Chart 33 shows the changes in GHDI between 2007 and 2009 for the first quintile, fifth decile (to capture the mean income) and the fourth quintile of income distribution.

The size of the change is not always fully consistent with the previous charts that were based on National Accounts. There are a number of reasons for the differences between the two sources. First, in EU-SILC high-earners are under-represented. Second, the survey does not capture the incomes of the self-employed very well. Third, National Accounts take into account imputed rent, while EU-SILC does not. Fourth, National Accounts take account of the property income attributed to insurance policy holders, which is not the case of EU-SILC.

In Chart 33 Member States where GHDI developed by more than 2 pps less favourably for the first quintile than it did for the fourth quintile are categorised as those where economic developments have had a regressive impact on GHDI. Those where this is reversed are grouped as those where the economic developments had a progressive impact on GHDI, and those where the difference is smaller than 2 pps in absolute value are classified as neutral.

Member States where the regressive impact was strongest were Lithuania, Luxembourg and Spain; those where the impact was most neutral were the Netherlands, Hungary and Belgium; and those where the impact was most progressive were Latvia, Romania and Portugal.

Chart 33: Changes in GHDI in different parts of the income distribution (percentage change of national currencies deflated by HICP, reference years 2007-2009); Member States grouped according to the degree of progressivity of the change



Source: EU-SILC, DG EMPL calculations.

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4. Efficiency of spending on social protection

Social protection spending is expected to help to prevent and reduce poverty and protect incomes of the population, while supporting their active reintegration in employment and society.

Therefore, this Section looks at social protection spending from two perspectives. First from the social point of view, examining to what extent the Member States manage to prevent/reduce poverty by providing the population with social protection benefits and whether they do so in an efficient way; and second, from the labour-market point of view, examining whether social protection spending is sufficiently employment-friendly, i.e. to what extent benefits create disincentives to participate in the labour market.

4.1. Social protection expenditure and poverty reduction

The shares of the population living in poverty vary significantly across the EU Member States and also the extent to which the countries manage to reduce poverty by providing the population with social benefits is very diverse. In the following analysis, poverty reduction is linked to the size of social protection expenditure and the efficiency of the provision of benefits is assessed.

4.1.1. Poverty reduction effects of social protection spending

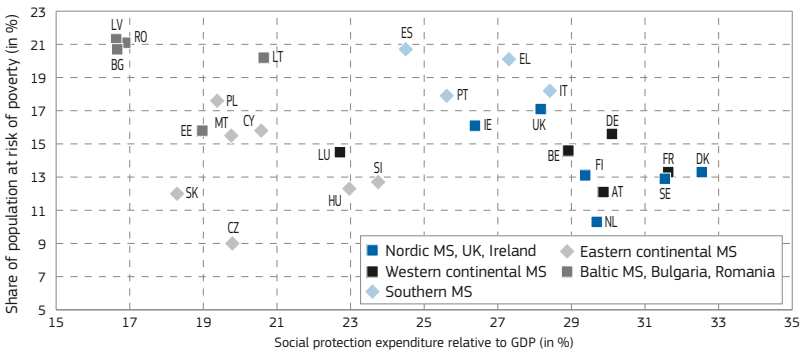
The European Union's main indicator used for tracking poverty in Member States is the share of population at risk of poverty or social exclusion (AROPE). It is composed of three sub-indicators that focus on different aspects of poverty.

The 'at-risk-of-poverty rate' (AROP) measures relative poverty indicating the proportion of people with an income below 60% of the national median income, which varies both among countries and over time. This is the agreed main headline indicator that has long been used to quantify poverty at the EU level. This measure of relative poverty is complemented by two other indicators that capture non-monetary dimensions of poverty and social exclusion: severe material deprivation and the percentage of population living in very low work intensity, or jobless, households.

The analysis performed in this Subsection focuses on the income based measure of poverty because it allows a comparison of the share of the population at risk of poverty before social transfers and after social transfers. The impact of transfers on non-monetary indicators is not directly measurable.

Chart 34 provides an overview of the share of the population at risk of poverty after social transfers and of the size of social protection expenditure in 2009. Member States are grouped by main types of welfare systems as defined

Chart 34: Share of the population at risk of poverty (in percentage) and expenditure on social protection relative to GDP (in percentage); countries grouped as defined in Section 2 (reference year 2009)



Source: ESSPROS and EU-SILC.

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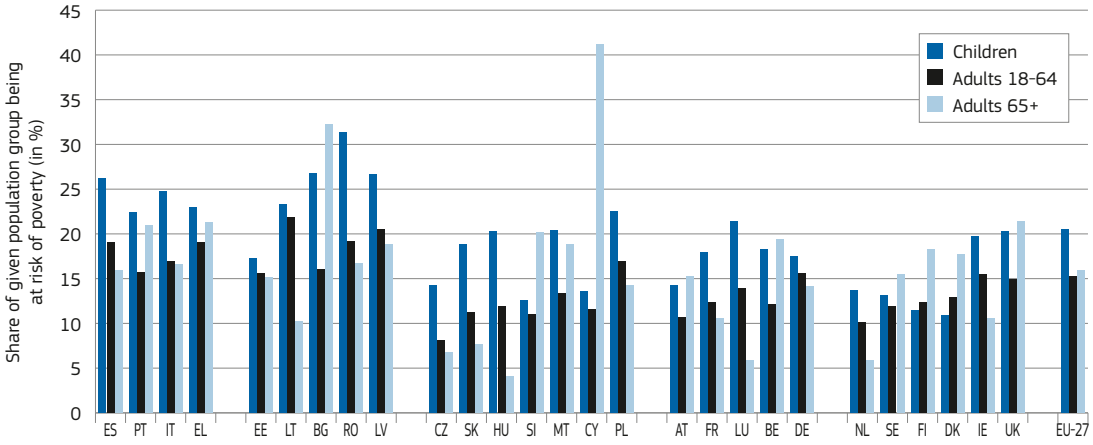
Chart 35: Share of population at risk of poverty by age; countries grouped as defined in Section 2 (reference year 2009)



Source: EU-SILC.

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in Section 2, and represented by different symbols. As can be seen, countries belonging to the same group are often found close to each other. There is, however, a very weak correlation between the relative size of social protection expenditure and the share of the population at risk of poverty, which indicates that it is not only the size of expenditure relative to GDP that matters.

In 2009, the lowest share of the population at risk of poverty was in the Czech Republic and the Netherlands (noting that the former was spending less than 20 % of its GDP on social protection, while the latter was spending nearly 30 %). It was the highest in Bulgaria, Romania, Latvia, Lithuania, Spain and Greece, with social protection expenditure ranging from 16 % to 27 % of GDP.

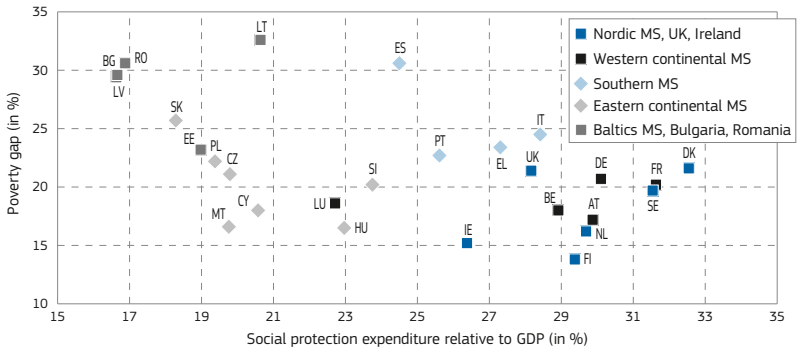
When AROP is viewed by age groups within the Member State groups, the picture is very diverse (see Chart 35). In some countries the situation is quite similar for all age groups (such as in Greece, Estonia or Sweden), while children appear to be worse off than the rest of the population in some countries (Spain, Romania, Slovakia, Hungary or Ireland) and older people in others (Bulgaria and Cyprus).

When investigating the depth of poverty in the EU, we may look at the poverty gap that measures the percentage difference between the median income of the population and the median income of the part of the population that is at risk of poverty (see Chart 36).

The picture does not change much for certain groups of countries (such as the Western continental Member States, or South-Eastern and Baltic Member States), but in others it does: within the Southern Member States, Spain stands out as having not only the highest share of the population at risk of poverty (though still very close to the other states in this group), but also the significantly highest poverty gap.

In the group of Nordic Member States, although Finland belongs to the group of countries with the higher share of population at risk of poverty, the poverty gap in this country is the lowest. In the case of the UK and Ireland, although

Chart 36: Poverty gap (in percentage) and expenditure on social protection relative to GDP (in percentage); countries grouped as defined in Section 2 (reference year 2009)



Source: ESSPROS and EU-SILC.

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they have a similar share of population being at risk of poverty, the poverty gap is significantly lower in Ireland.

The picture also changes for the Eastern continental Member States. While the Czech Republic has the lowest share of the population at risk of poverty, in terms of poverty gap it is at about the average, and Slovakia, which also has a relatively low share of population at risk of poverty, has the highest poverty gap of this group of countries. The opposite is true for Cyprus and Malta.

4.1.2. Effectiveness of social protection benefits in poverty reduction

The effectiveness of social protection benefits in poverty reduction can be assessed in several ways. In Box 5 we discuss this issue and we explain which measure of effectiveness is chosen for this analysis and why.

When analysing the effectiveness of social protection benefits in poverty reduction, it is possible to look separately at the effect of pensions and other social transfers (see Chart 38). We can see that, in the groups shown in this chart, the Member States have relatively homogenous at-risk-of-poverty rates before and after social transfers.

In this Chapter, in the analysis of the poverty reduction effects of social transfers there is particular interest in social transfers other than pensions (old age and survivors, as the objective of these is consumption smoothing over the lifetime, rather than purely poverty reduction). Therefore, we continue by excluding spending on pensions and the population aged over 65 years from the analysis.

The effectiveness of transfers in terms of relative poverty reduction varies quite significantly across the EU Member States. The countries that stand out as being the most effective within each group are: Portugal, Lithuania and Estonia; the Czech Republic and Hungary; Austria and Luxembourg; Denmark and Ireland. The two groups below the EU average in terms of effectiveness are the Southern group together with the Baltic Member States and South-Eastern Europe.

Nevertheless, in some countries pensions have a significant poverty reduction effect not only on populations aged over 65, but also on children and working-age adults. Chart 39 shows two Member States (one of EU-15, one of EU-12) where this poverty reduction effect of pensions is significant (Greece, Poland) and a corresponding example of two Member States where this effect is very low (Finland, Estonia).

There is a strong link between the poverty-reduction effect of pensions on children and working-age adults and the prevailing household structures in the Member States (see Chart 40).

Box 5: The most suitable measure of the effectiveness of poverty reduction

To be able to measure to what extent Member States can reduce poverty through social protection spending, it is necessary to use an indicator of poverty that is available both before and after the transfers.

Of the three indicators forming the 'at risk of poverty or social exclusion' indicator, only the 'at risk of poverty' indicator provides such data. Moreover it is available both including and excluding pensions. We can thus measure the poverty reduction effect of social transfers by comparing AROP before social transfers (AROP BST) and AROP after the transfers (AROP). This method suffers from two important drawbacks: it assumes that people would behave in the same way if they were not receiving transfers, and it cannot always distinguish between the different types of benefits or take account of the complexity of the tax-benefit system.

A choice has to be made between poverty reduction in absolute and relative terms, as shown in the following formulas:

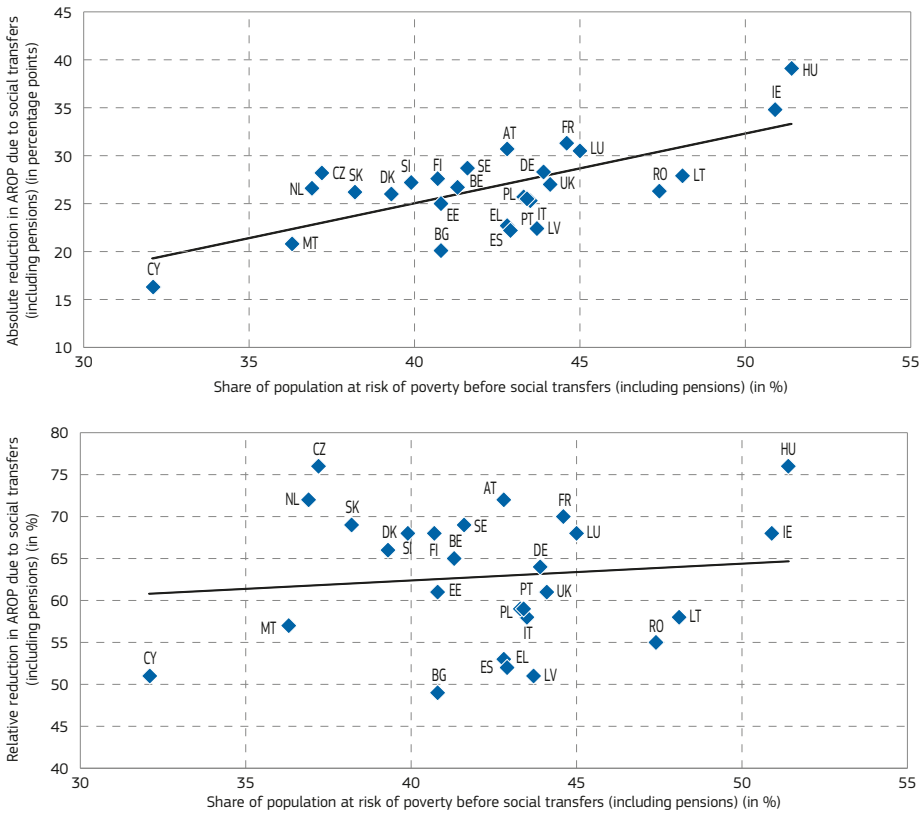
ABSOLUTE EFFECTIVENESS (in percentage points) = AROP BST – AROP

*RELATIVE EFFECTIVENESS (in %) = (AROP BST – AROP) / AROP BST *100*

Both these measures have advantages and disadvantages. The measure of absolute poverty reduction shows how large a part of the population is lifted out of poverty thanks to social transfers; however, it does not indicate if this reduction in poverty is small or large relative to the level of poverty before social transfers. On the other hand, the measure of relative poverty reduction indicates how important the poverty reduction is compared to poverty before transfers, but it does not show how large the part of population lifted out of poverty is.

Chart 37 shows that the relative measure of poverty reduction is more suitable for cross-country analysis: while the absolute reduction in AROP is strongly correlated with the initial share of the population at risk of poverty, the correlation between the relative reduction in AROP and the initial share of population at risk of poverty is almost non-existent.

Chart 37: Relation between the share of the population at risk of poverty before transfers and absolute reduction in AROP due to social transfers (top panel) and relative reduction in AROP due to social transfers (bottom panel) (reference year 2009)



Source: EU-SILC.

Note: Trend line: 1) Top: y = 0.725x – 4.065, R^2 = 0.471; 2) Bottom: y = 0.205x + 54.137, R^2 = 0.013.

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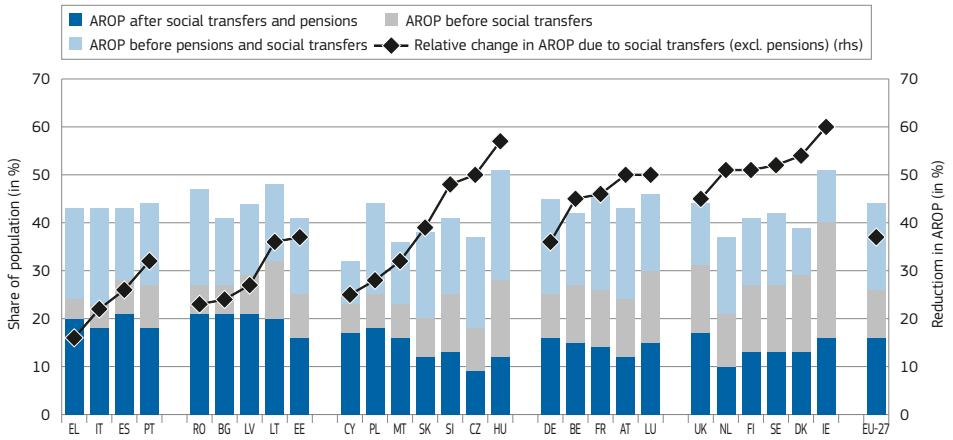
Chart 38: Poverty reduction effect of social protection expenditure; countries grouped as defined in Section 2 (reference year 2009)



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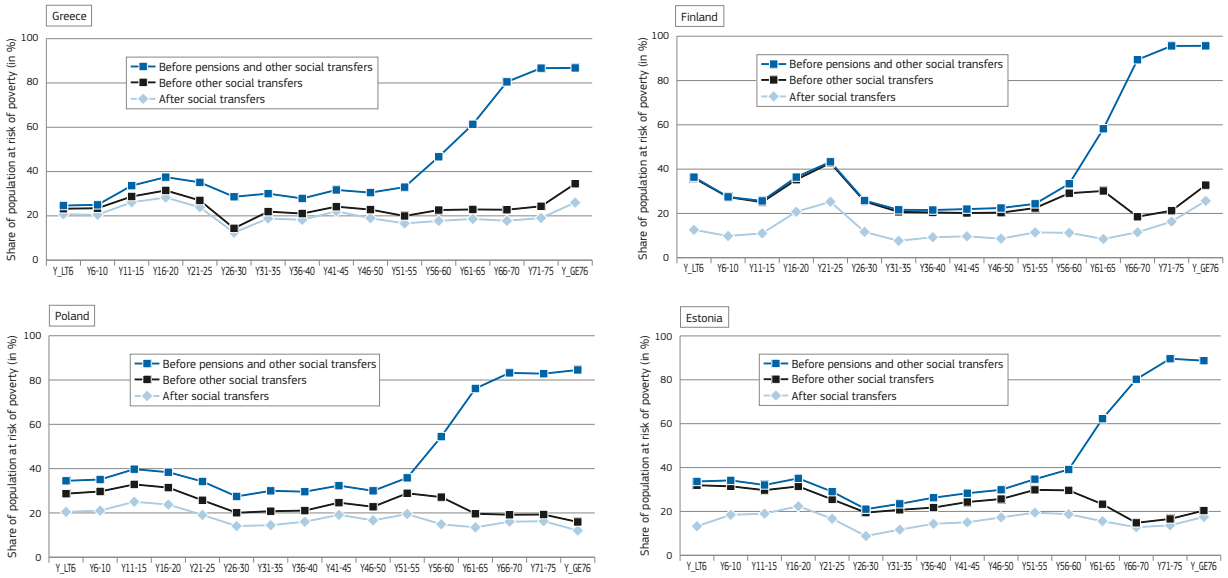
Source: EU-SILC.

Chart 39: Poverty reduction effect of pensions and other social transfers in selected Member States by age (reference year 2009)



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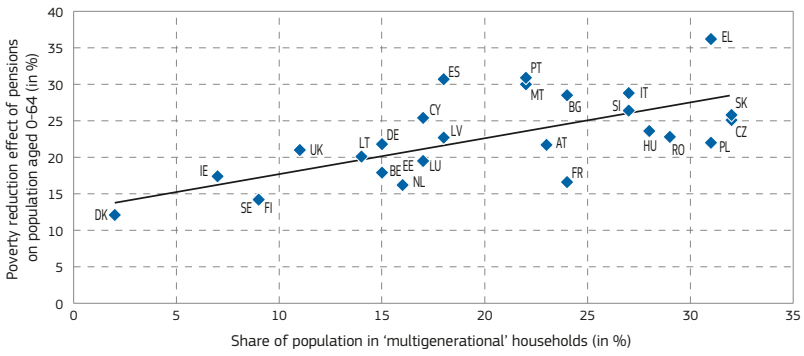
Source: EU-SILC.

Chart 40: Relation between the share of population living in 'multigenerational' households and the poverty reduction effect of pensions on the population aged 0-64 (reference year 2009)



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Source: EU-SILC.

Note: Trend line: y = 0.479x + 13.043, R^2 = 0.448.

This Chart shows that there is a positive relation between the share of 'multigenerational' households and the poverty reduction effect of pensions on the population aged 0-64. Households defined as 'multigenerational' for this purpose are the following: households with three or more adults with and without dependent children (assuming that the third adult is older than 65) and households with two adults where at least one is older than 65).

As Chart 40 is only showing a correlation, it is not possible to say to what extent social expenditure has been designed so as to reflect household structure, or whether the populations have adjusted their living arrangements to the design of the welfare state.

4.1.3. Efficiency of social protection benefits in poverty reduction

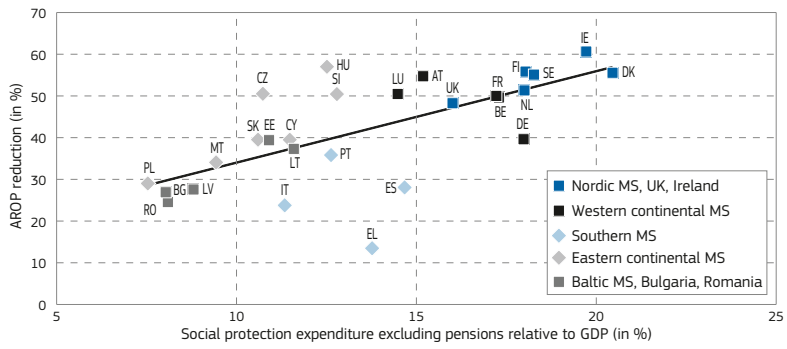
By linking the effectiveness of social protection spending to the size of this spending, we can analyse its efficiency[25]. Chart 41 shows that there is a positive correlation between the size of social protection expenditure excluding pensions and the extent to which Member States manage to reduce poverty of the population aged 0-64. However, at the same time, there are major differences in the extent of poverty reduction for the same level of spending (see e.g. Greece and Spain versus Luxembourg and Austria for spending reaching 14-15% of GDP), or in the level of spending used for a given reduction in poverty (see e.g. the Czech Republic and Hungary versus Denmark and the Netherlands).

Although the countries belonging to any one group are placed relatively close to each other in the graph, there are sometimes significant differences in the extent to which they manage to reduce poverty of the population given the size of their spending. While the group of Nordic and Anglo-Saxon countries is the most homogenous, the southern group and the group of EU-12 countries (excluding the Baltic countries and South-Eastern Europe) are the most heterogeneous.

Given that the currently available data do not allow a distinction to be made in terms of the poverty reduction effects of different kinds of spending (by area or means-tested or not), this has had to be approached in a different way. By regressing the poverty reduction effect of social transfers (excluding pensions) on the population aged 0-64 against the size of different kinds of cash spending (expressed relative to GDP), taking into account stable differences among countries (either fixed or random) and also years, it is possible to assess the relative contribution of different spending activities to poverty reduction.

(25) The size of social protection expenditure relative to GDP is used as a proxy for the social transfers received by households (the reduction in the at-risk-of-poverty rate is measured based on these). While cash benefits received by households reduce poverty directly (given the way poverty reduction is calculated in this analysis), the impact of in-kind benefits is more complex to quantify. Taking the example of child-care services, these may influence the employment rate of women by allowing them to take up jobs, thus raising their income but not appearing in data at the micro-level as one of the household's incomes.

Chart 41: Relation between expenditure on social protection (excluding pensions, relative to GDP) and relative reduction in the share of population (aged 0-64) at risk of poverty (in percentage) (reference year 2009)



Source: ESSPROS and EU-SILC.

Note: Trend line: y = 2.179x + 12.115, R^2 = 0.437.

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Table 5: Relative importance of spending functions for poverty reduction of the population aged 0-64

Dependent variable: poverty reduction effect of social transfers (on population 0-64)				
Spending function	coefficient		significance	
	fixed effects	random effects	fixed effects	random effects
Family/children benefits	0.07	0.07	***	***
Health care/sickness	0.06	0.06	***	***
Disability	0.02	0.05		***
Unemployment benefits	0.05	0.04	***	***
Social exclusion and housing	0.05	0.07	*	***

Source: DG EMPL calculations.

Note: *, **, *** Mean statistical level of significance of 10%, 5% and 1%, respectively.

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Table 5 shows the regression results. Most social protection spending functions have a positive and statistically significant effect on poverty reduction. In terms of the size of coefficients, both methods give similar results; however, the second method provides significant coefficients also for disability and social exclusion and housing[26]. Both methods show that family, health care and unemployment benefits all have a positive and significant effect on poverty reduction and that the effect of family benefits is the highest (when spending on this function rises by 1 pp, poverty reduction effect increases by 0.07 pp, *ceteris paribus*). According to the second method, social exclusion benefits have as strong an effect on poverty reduction as family benefits, and disability benefits have a similarly large effect as unemployment benefits. Given the small differences in the sizes of the coefficients, it is not straightforward to give policy recommendations to Member States to start spending more or less on a given function, as they all contribute positively to poverty reduction. For more details see Table 10 in the Annex.

(26) Possibly because of more degrees of freedom in this random-effects estimation.

To assess the importance or suitability of means-testing of social protection benefits for the efficiency of social spending, in Chart 42 social protection expenditure (excluding pensions) is plotted against the poverty reduction effect of this spending, indicating the share of means-tested benefits across the Member States.

There is, however, no clear pattern indicating to what extent means-testing of social benefits helps efficiency: we can see that furthest up from the regression line there are countries with various importance of means-tested benefits. This might be caused by the fact that the thresholds in the means-test can be set in such way that two benefits, one with a low limit on income, covering only the poorest quintile of the population, and the other one with a very high limit on income, covering the whole population except for the richest quintile, are both considered as 'means-tested'.

A good way to assess the importance and suitability of means-testing is micro-simulation, such as that performed in Levy et al. (2008). The authors take the example of Poland's tax-benefit system in 2007 and show that, with the same level of expenditure, child poverty risk could be reduced by 5 pps by applying either a tax system more friendly towards single parents and large families (such as in France) or a means-tested benefit system (such as in the UK).

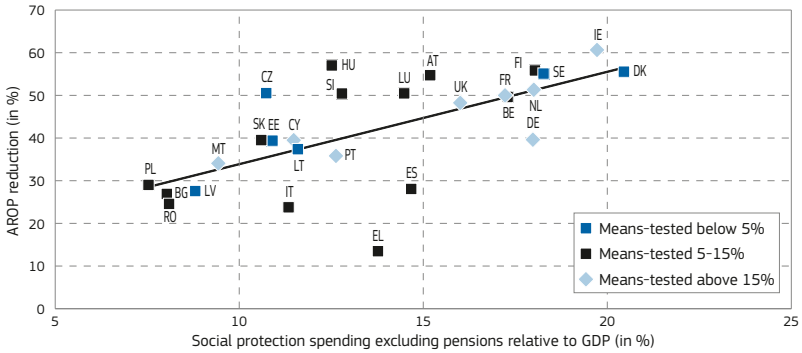
4.1.4. Important factors influencing the effectiveness of poverty reduction

There are several important factors influencing the effectiveness of the poverty reduction effect of social protection spending. First, it is important that a sufficiently large share of the population is covered by benefits. Second, the replacement rate of the given benefits must be sufficient to have an effect on poverty reduction. Third, low take-up, especially of means-tested benefits, can negatively affect the effectiveness of social protection spending in poverty reduction.

Taking the example of unemployment benefits, we look at the (pseudo) coverage rates of unemployment insurance, comparing different sources of these statistics, and of the net replacement rates of unemployment benefits (see Table 6). In most countries the different sources of coverage rates give relatively consistent results, although in some countries they vary significantly (such as Italy, Greece and Belgium with 81–97 pps differences in coverage rates)[27].

The way in which coverage and the height of replacement rates influence the effectiveness of poverty reduction is relatively straightforward. If unemployment benefits only cover a small part of the unemployed, or if the replacement rate is very low, the effect on poverty reduction will be rather limited.

Chart 42: Relationship between expenditure on social protection (excluding pensions, relative to GDP) and the poverty reduction effect of this spending (in percentage); the share of means-tested benefits is indicated (reference year 2009)



Source: ESSPROS and EU-SILC.

Note: Trend line: y = 0.022x + 0.121, R^2 = 0.437.

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Table 6: Unemployment insurance pseudo-coverage rates and net replacement rates of unemployment benefits (reference year 2009)

	Coverage rate - administrative sources (in%)	Coverage rate - SILC (in%)	Coverage rate – LFS (in%)	Replacement rate (in%)
Austria	88	74	50	52
Belgium	148	89	67	65
Bulgaria	49	20	12	25
Cyprus	54	n.a.	26	n.a.
Czech Republic	54	50	30	20
Denmark	55	85	51	63
Estonia	33	46	36	26
Finland	94	89	59	44
France	82	69	40	49
Germany	110	85	75	45
Greece	115	30	22	24
Hungary	36	59	44	22
Ireland	62	n.a.	n.a.	58
Italy	103	36	6	24
Latvia	35	41	23	24
Lithuania	31	18	27	21
Luxembourg	33	52	31	29
Malta	46	41	25	46
Netherlands	67	55	n.a.	38
Poland	27	24	15	22
Portugal	n.a.	43	41	55
Romania	45	29	15	25
Slovakia	16	30	10	21
Slovenia	40	31	34	24
Spain	39	57	40	41
Sweden	40	37	31	43
United Kingdom	62	33	n.a.	29

Source: Coverage rates: EC/OECD database on benefit recipients, SILC and LFS; replacement rates: OECD Tax-Benefit Models.

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Among the EU Member States, both the coverage and replacement rates vary a lot. In some Member States both are relatively high, such as Belgium or Austria. In some countries the coverage is good, but replacement rates are not very high (below 50%), such as Germany, Finland or France. In the Southern Member States coverage of unemployment benefits is rather low (especially according to the surveys) and the replacement rates are above 50% only in Portugal, 41% in Spain and only 24% in both Italy and Greece.

(27) In SILC and LFS the coverage rates are always below 100% because in these surveys the people identified as unemployed are asked about whether they actually receive benefits (some of them might not be eligible, such as young people or those who have lost their entitlements, and some of them might not be claiming benefits). People that continue receiving benefits when they start to work are not taken into account in the surveys for this purpose. This is different in the administrative sources, which also include those at work but still receiving benefits among the unemployment benefits recipients, and coverage rates thus can exceed 100%.

Table 7: Net income of people living on social assistance relative to the median equivalised income (including cash housing assistance) (2010)

	Single person (in %)	Lone parent with 2 children (in %)	Couple with 2 children (in %)
Greece	0	9	2
Bulgaria	14	26	22
Romania	17	27	26
Slovak Republic	23	33	30
Spain	35	33	25
Hungary	31	39	29
Estonia	32	34	31
Poland	31	41	33
Portugal	26	42	43
France	41	42	36
Slovenia	30	53	44
Czech Republic	50	45	42
Belgium	45	55	39
Latvia	36	50	46
Sweden	56	48	43
Austria	49	50	46
Malta	59	54	44
Luxembourg	51	54	51
Lithuania	27	77	56
Germany	47	60	53
Finland	57	56	50
Netherlands	74	64	52
United Kingdom	66	76	65
Denmark	71	73	71
Ireland	77	71	70

Source: OECD Tax-Benefit model.

Note: Countries are sorted based on the average net income of the 3 family types.

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The Baltic States have both low coverage and replacement rates and compared to them, Bulgaria together with Romania perform slightly better in both. Of the other EU-12 countries, some have coverage rates similar to those of Portugal and Spain, but have much lower replacement rates (such as the Czech Republic or Hungary). On the other hand, some other countries, such as Slovakia and Poland, have both very low coverage and replacement rates. Sweden stands somewhat surprisingly among the EU-12 countries, having a similar coverage as these countries, but offering higher replacement rates.

Broadening the scope beyond unemployment benefits only, we can look at the relative size of incomes of people living on social assistance including cash housing benefits. This means comparing what such households are getting in these benefits with the median equivalised income. This is shown in Table 7 for three model household types. In the EU on average, lone parents with two children are getting higher social assistance benefits relative to the median income than singles without children or couples with two children (49% versus 42% for the latter two household types).

Only in three countries do all the three model household types receive sufficiently high social protection benefits to get them above the poverty threshold, i.e. 60% of median income (in Ireland, Denmark and the United Kingdom). On the other side of the spectrum, there are Member States in which households do not even reach 40% of the median income (Greece and Spain; Bulgaria and Romania; Slovakia, Hungary and Estonia). Of the Western continental Member States, in France the net income of people living on social assistance is the lowest (on average for the 3 family types it is 40% of the median income) and of the EU-12 it is the highest in Lithuania (53% of the median income on average).

Matsaganis et al. (2008) explore, using EUROMOD for five chosen Member States, the effect of non-take-up of benefits on the effectiveness of spending on social assistance in terms of poverty reduction. They conclude that imperfect targeting of these benefits can have a significant negative effect both on the reduction in the share of the population at risk of poverty and on poverty gap reduction.

4.1.5. Child poverty reduction

A part of the population that deserves particular attention is children, i.e. the population aged 0-17. As shown in Chart 35, in 2009 the share of children at risk of poverty or social exclusion was in most Member States higher than in the rest of the population (the exceptions being Slovenia, Sweden, Finland and Denmark).

The poverty reduction effect of social transfers on children also differed a great deal between Member States (see Chart 43). First, in some Member States the poverty reduction effect of pensions on children is very high compared to others, as in Romania, Poland, Slovakia and Bulgaria. As illustrated by Chart 44, these are the Member States where the share of households with three or more adults with dependent children is the highest. It is likely that in such countries there are disproportionately more multi-generational households than elsewhere (for cultural or economic reasons). The additional pension income of the eldest household member(s) then also has a poverty reducing impact on children.

The relative efficiency of transfers in terms of poverty reduction (or the percentage change in AROP due to social transfers) also varied greatly among the Member States, even slightly more than when the whole population is taken into account. Usually, the Member States perform worse in terms of child poverty reduction than they do for the whole population. For Lithuania, Estonia and Germany it is quite similar and only in Romania, Bulgaria, Latvia and Cyprus is child poverty being reduced more than poverty of the total population.

We can also take a look at the efficiency of spending on child and family benefits in the poverty reduction of children (see Chart 45). There are enormous differences in the extent to which Member States manage to reduce child poverty with child and family benefits: while both Spain and the Czech Republic spend approximately 1.5% of their GDP on these benefits, the Czech Republic reduces child poverty by more than 30%, but Spain by only 3%.

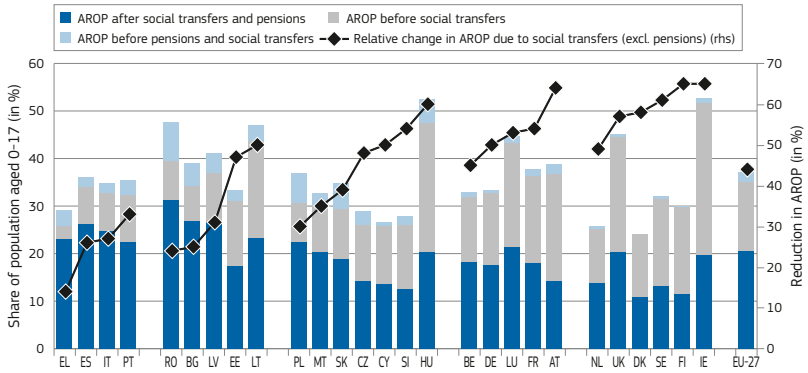
In terms of conditionality of child and family benefits, it seems that there is no clear relationship between a higher or lower share of means-tested benefits and higher efficiency of spending in poverty reduction: when Member States are grouped according to the share of means-tested child/family benefits, we can see that groups are spread relatively evenly around the regression line.

Nevertheless, data allowing the identification of the poverty reduction effects of other spending functions on children is currently not available. Therefore, to compare the poverty reduction effect of child benefits with the remaining spending functions, the same analysis is performed as for the whole population: by regressing the poverty reduction effect of social transfers (excluding pensions) on children against the size of different kinds of cash spending (expressed relative to GDP), taking into account stable differences among countries (either fixed or random) and also years, we can assess which spending areas play a more important role in child poverty reduction.

Table 8 shows the regression results. In terms of the size of coefficients, both methods are similar; however, the second method gives more significant results[28]. As expected, family/child benefits have a higher impact on the reduction of poverty among children relative to other functions: with a 1 pp rise in the size of spending on child benefits, the child poverty reduction effect increases by 0.11 pp, *ceteris paribus*. This suggests that when governments want to reduce child poverty further, it is more effective to concentrate expenditure on family benefits rather than on other social protection spending functions.

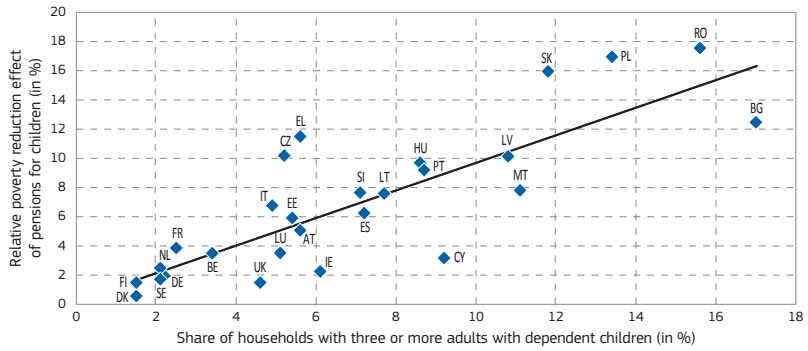
Both methods suggest that health care and unemployment benefits have positive and significant effects on the poverty reduction of children, although lower than family benefits. According to the second method, social exclusion benefits have nearly as strong an effect on poverty reduction as health care benefits, and disability benefits have a similarly large effect as unemployment benefits. For more details see Table 11 in the Annex.

Chart 43: Poverty reduction effect of expenditure on social protection for the population aged 0-17; countries grouped as defined in Section 2 (reference year 2009)



Source: EU-SILC.

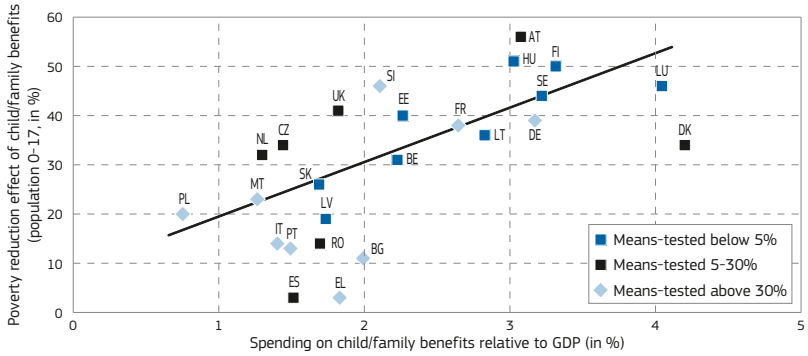
Chart 44: Relation between the share of households with 3 or more adults with dependent children and the poverty reduction effect of pensions on the population aged 0-17 (reference year 2009)



Source: EU-SILC.

Note: Trend line: y = 0.957x + 0.164, R^2 = 0.685.

Chart 45: Relationship between expenditure on child/family benefits (relative to GDP) and the poverty reduction effect of this spending (in percentage) on children; the share of means-tested child/family benefits is indicated (reference year 2009)



Source: ESSPROS and EU-SILC.

Note: Trend line: y = 10.915x + 6.085, R^2 = 0.420.

(28) Possibly because of more degrees of freedom in this random-effects estimation.

Table 8: Relative importance of spending functions for the poverty reduction of children

Dependent variable: poverty reduction effect of social transfers (on population 0-17)				
Spending function	Coefficient		Significance	
	Fixed effects	Random effects	Fixed effects	Random effects
Family/children benefits	0.11	0.11	***	***
Health care/sickness	0.07	0.08	***	***
Disability	0.01	0.04		**
Unemployment benefits	0.03	0.03	***	**
Social exclusion and housing	0.05	0.07		**

Source: DG EMPL calculations.

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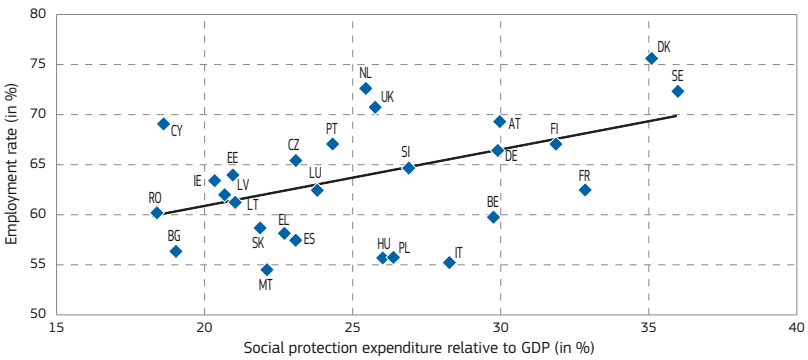
4.2. Labour-market friendliness of social protection spending

The efficiency of welfare systems can also be evaluated in terms of their labour market friendliness in order to ensure that the social protection system provides a shield against personal and economic problematic moments, but does not represent a subsidy encouraging people to stay out of the labour market. In that respect, welfare systems should also be designed to activate inactive or unemployed people and minimise disincentives to a return to or entry into work.

How can the labour friendliness of a welfare system be best evaluated? A simple scatter plot of social expenditures and employment rate averages between 1995 and 2010, as in Chart 47, shows that large welfare states usually go hand-in-hand with higher participation in the labour market, not the reverse.

Chart 46: Employment rate and expenditure on social protection (averages 1995-2010)



Source: ESSPROS and Labour Force Survey.

Note: Trend line: y = 0.518x + 50.129, R^2 = 0.189.

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4.2.1. Financial disincentives

However, welfare provisions may create some distortions, and may give inefficient or inappropriate incentives to inactive or unemployed people to look for a job and to accept it. In this respect, a widely used method to assess the employment friendliness of welfare systems consists of computing the financial disincentives to work in terms of marginal effective tax rate [29].

The 2011 Annual Growth Survey (AGS) has clearly set as a priority 'to make work more attractive' or 'make work pay'. To make work pay can also be done by linking training and job search more closely to benefits, by shifting taxes away from labour and improving tax benefit systems, and by encouraging the development of flexible work arrangements and childcare facilities in order to encourage more second earners to enter the labour force. In this way welfare systems can be designed to better protect, but also integrate individuals at the lower end of the pay scale, including second earners (primarily women) and the low skilled, into the labour market.

The literature usually refers to three traps: low-wage traps for people who are working but do not have (financial) incentives to work more, the unemployment trap and inactivity trap for people who are on unemployment benefits or outside the labour market, with no incentives to look for a job and/or accept one (see details in Box 6).

These three traps encompass the combined effects of income tax, social security contributions and the withdrawal of welfare benefits on an individual's earnings. In the case of low-wage traps, income taxes and social security contributions are particularly relevant, especially for single persons. Social benefits can also play a key role of disincentive for couples. Chart 47 demonstrates this in terms of social assistance in Luxembourg, Denmark and Lithuania, housing in Finland, Sweden, France, Germany, the Netherlands, the UK and Poland, and family benefits in the UK, the Czech Republic, Italy and Malta) [30].

Concerning inactivity traps (see Chart 48) and unemployment traps (see Chart 49), social benefits play a more important role. Therefore a better design of welfare systems can help reduce the marginal effective tax rate (METR) and increase the incentive to take on work.

(29) The marginal effective tax rate (METR) represents the part of a change in earnings 'taxed away' by the combined operation of taxes, social security contributions (SSCs), and any withdrawal of earnings related social transfers. It is the percentage of an extra euro of income that the recipient loses after beginning to work. Calculating the METR is typically very dependent on individual circumstances and involves a consideration of institutional characteristics and level of revenues and it is computed taking different household types (single, single with children, one earner, two earners, etc) into account.

(30) The charts do not cover the entire variety of households, but all estimations can be found in Carone et al. (2004), OECD (2007) and OECD (2009). The full tax and benefits indicators database can be downloaded here: http://ec.europa.eu/economy_finance/db_indicators/tax_benefits_indicators/index_en.htm.

The policy tools that Member States have used to reduce these traps have been mainly focused on low wage workers. They include reducing the tax wedge (direct labour taxation and social security contributions) on lower wages, increasing minimum wages, reducing the level or duration of unemployment benefits, introducing in-work benefits, and reviewing the design of out-of-work benefits (social assistance, child/family benefits, housing benefits, disability schemes).

In fact, important features of the reforms of benefits do not impact directly on the financial incentives but are rather instrumental in encouraging the return to work of the unemployed and the inactive. While some of these tools have no impact on the adequacy of benefits (in-work benefits, lower tax wedge, increased minimum wage), others may affect adequacy and lead to poverty and exclusion if a return to work fails to result, or does not last.

Member States can focus on smoothing the transition between unemployment or inactivity and work, allowing a rollover of the benefits for a certain period. This is often done through in-work benefits (the example of France which changed the *Revenu Minimum d'Insertion to Revenu de Solidarité Active* can be of some interest). If the unemployed or inactive do not lose all the benefits while taking up work, the METR is reduced. This can be particularly important when the job is only temporary or part-time, but may lead to higher low-wage traps.

Box 6: What are 'low-wage trap/poverty trap', 'unemployment trap' and 'inactivity trap'?

The **'low-wage trap'** (or 'poverty trap') is related to the financial consequences of increasing working hours (or work effort) for those already in (low-paid) work. The 'trap' refers to a situation where an increase in gross in-work earnings fails to translate into a net income increase that is felt by the individual to be a sufficient return for the additional effort. Both taxes and benefits can result in large parts of any additional gross earnings being effectively 'taxed away'. The influence of taxes will be more relevant for earners of higher wages (and low-wage earners with high-wage spouses in joint tax systems). Yet, due to the withdrawal of income-tested benefits and the operation of SSC earnings thresholds above which contributions are sometimes payable on earnings as a whole, the part of an additional working hour that is taxed away at low earnings is often much higher than at average and high income levels.

The term **'unemployment trap'** is frequently used to refer to a situation where benefits paid to the unemployed and their families are high relative to net in-work earnings. While the judgment whether work 'pays' is an individual decision that will depend on many factors, tax-benefit systems will play an important role. Unemployment benefit systems provide income security during unemployment and contribute to more equitable income distribution. By providing income support to liquidity constrained persons during unemployment, they also contribute to a more efficient match between workers and jobs. Yet, at the same time, out-of-work benefits can discourage job search and put upward pressure on wage levels. In theoretical models of imperfect labour markets, unemployment benefits are deemed to increase equilibrium unemployment rate.

The **'inactivity trap'** is a situation similar to the unemployment trap except that it applies to people not receiving any unemployment benefits, including those not considered part of the labour force or 'inactive' as far as paid employment is concerned. For these individuals, a situation where employment is judged not to 'pay' may be brought about by minimum income or other income related benefits which would be lost upon taking up paid work. However, the tax system may also have an important deterrent effect, which can be particularly relevant for partners or spouses of working individuals: if their incomes are taxed jointly, then any potential earnings of the currently 'inactive' partner may be taxed at relatively high rates and may thus reduce the net gain from work. Together, benefits and taxes can effectively create a wage floor below which a transition into employment does not bring any financial gain in the short term.

Source: Carone et al. (2004).

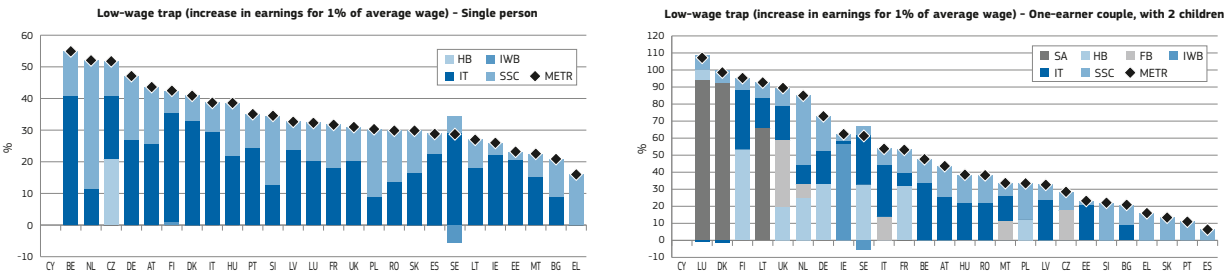
As illustrated in Table 12 in the Annex, between 2001 and 2010, the largest reductions in the unemployment trap were achieved by Denmark, Germany, Greece, France, Austria, Portugal, Finland, Sweden and Slovakia for all types of households. The inactivity trap was also considerably reduced between 2001 and 2010 in a number of countries, in particular in Denmark, France, Austria, Finland, the Czech Republic, Hungary, Poland and Slovakia.

At the present time, a major overhaul of unemployment benefit systems is underway in some countries, while the tax wedge has increased in most countries due to pressing needs to consolidate public finances. Some of these reforms have an impact on METRs (e.g. the level of unemployment benefits but not their duration)[31] and, therefore, on unemployment and inactivity traps.

Concerning unemployment benefits, the objectives are either clearly to address insufficient incentives to take up work while supporting fiscal consolidation plans and employment recovery (as appears to be the case in Belgium, Portugal, the Czech Republic, Slovenia, Finland and Greece), or to improve income stabilisation and income security (as in Italy). Incentive-friendly measures include reduction in the maximum level of benefits (Portugal, Slovenia), adaptation of the design of benefits over the unemployment spell (e.g. Portugal, Belgium, Slovakia, Slovenia, Finland), a cut in benefit duration (Portugal, Hungary, Slovakia, Slovenia, Finland), and stricter eligibility criteria (the Czech Republic). In contrast, measures designed to stabilize consumption include extending benefit coverage to new groups of workers (Italy, Portugal), temporarily lengthening the benefit duration (Denmark), and increasing benefit generosity as part of a comprehensive reform of unemployment benefit system (Italy as of 2017). The possibility of continuing to draw unemployment benefits while working has been introduced to support labour market integration of specific categories of the unemployed in Belgium and France. However, a similar scheme

(31) METRs are also affected by changes in the average wage.

Chart 47: Low-wage trap for a single person and one earner couple with two children (2010)



Source: OECD/EC Tax and Benefits database.

Note: METR; Marginal Effective Tax Rate, SA; Social Assistance, HB; Housing Benefits, FB; Family Benefits, IWB; In-work Benefits, IT; Income Tax, SSC; Social Security Contributions.

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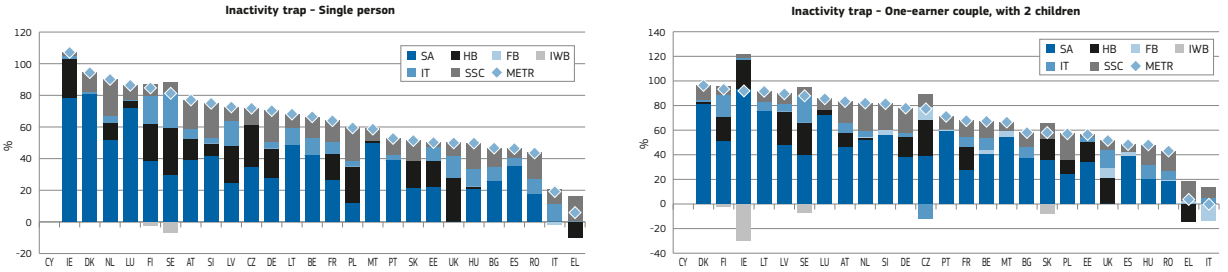
Chart 48: Inactivity trap for a single person and one earner couple with two children (2010)



Source: OECD/EC Tax and Benefits database.

Note: METR: Marginal Effective Tax Rate, SA: Social Assistance, HB: Housing Benefits, FB: Family Benefits, IWB: In-work Benefits, IT: Income Tax, SSC: Social Security Contributions.

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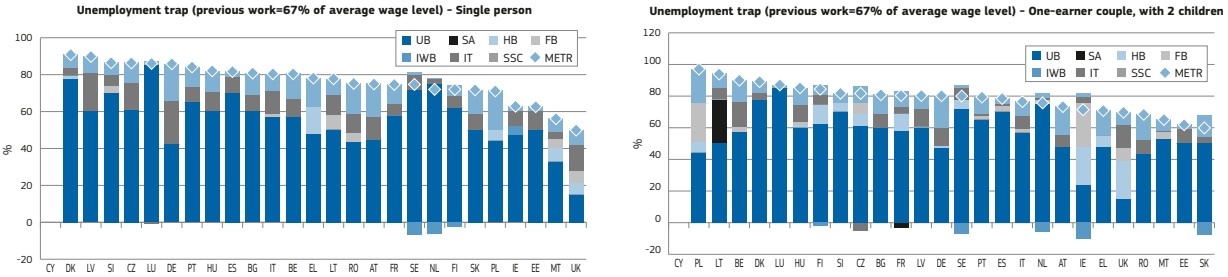
Chart 49: Unemployment trap for a single person and one earner couple with two children (2010)



Source: OECD/EC Tax and Benefits database.

Note: METR: Marginal Effective Tax Rate, UB: Unemployment Benefits, SA: Social Assistance, HB: Housing Benefits, FB: Family Benefits, IWB: In-work Benefits, IT: Income Tax, SSC: Social Security Contributions.

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was abolished for all unemployed persons in order to limit its misuse in the Czech Republic.

Concerning the tax wedge, around half the Member States have changed the structure of their personal income taxes since 2011. In some countries these have been increased, especially in the form of surcharges on high income earners (Belgium, Greece, Italy, Cyprus, Luxembourg, Portugal, Spain), often only on a temporary basis, while in others they have been reduced (e.g. Hungary, Latvia, Finland, Germany), mainly in order to boost work incentives of specific vulnerable groups, notably of parents (Hungary, Malta, Germany) and of low and medium income earners (Belgium, Finland, Ireland, Hungary, the Netherlands). As a result, income tax progressivity has increased, except in the UK where it has been decided to reduce the level of the top rate of income tax. Social security contributions have increased in many countries as a result of a rise in the standard rates (Greece, Latvia, the UK), a rise in the rates for specific groups (Bulgaria, France, Hungary, Poland, Austria, Portugal), and on account of action to broaden the tax base (Cyprus, Slovakia). Targeted cuts in social security contributions were decided on in Spain and other countries to support the employment of young people and the long-term unemployed, while Germany reduced social security contributions across the board.

While these measures are generally designed to support those facing particular difficulties, it has also to be

recognised that the introduction of measures targeted at low wage earners, such as in-work benefits and the reduction of the tax wedge on low wages, may create disincentive effects higher up the earnings distribution, and/or introduce a bias in the setting of wages, which can also impact on the long-term adequacy of social protection by lower overall contributions.

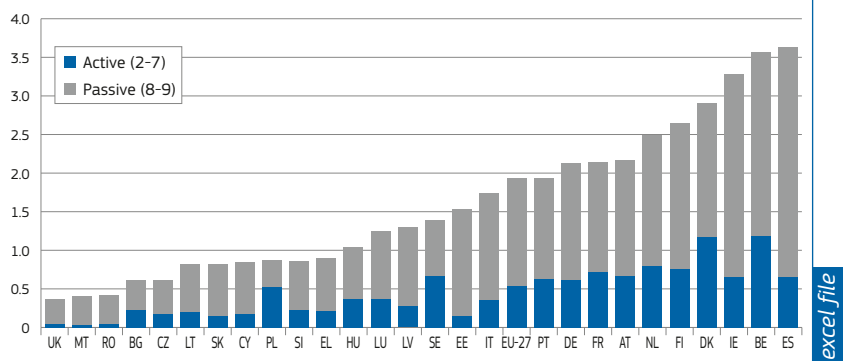
The issue of financial incentives is broader than poverty, unemployment and inactivity traps. Pension system designs, for instance, provide strong (dis)incentives to work or not. Also in-kind services, in particular childcare and health care, can provide incentives or disincentives to work, especially for women. Calculations available generally do not take account of access to in-kind services. We will briefly discuss this issue at the end of this section.

4.2.2. Activation policies and support services

Financial disincentives do not explain the entire picture. The correlation between inactivity traps and the employment rates is 0.44, demonstrating both that financial disincentives are an important factor affecting the decision to work, and the fact that it is clearly not the only one. More generous benefits by definition entail bigger disincentives (there cannot be a disincentive where there is no benefit), although they may also have enabling or capacity maintaining effects through which they contribute to employability. To mitigate their effect as disincentives, they can be accompanied by off-setting activation policies (eligibility and work-availability conditions, participation in activation measures and effective enforcement of the system).

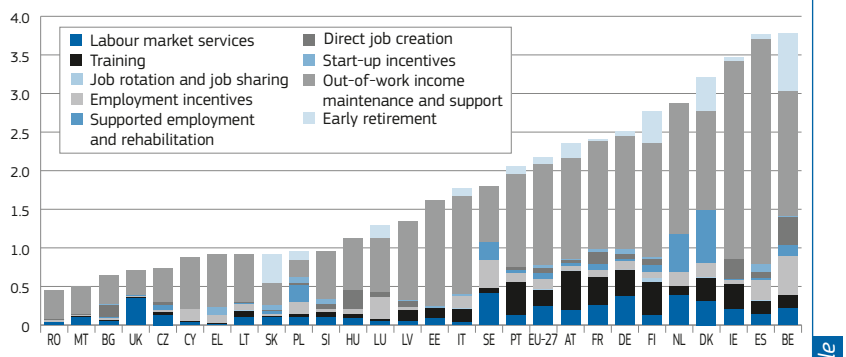
In this context it is to be noted that active labour market policies (ALMPs) account only for a small share of labour market expenditures in all EU Member States (see Chart 50). Poland (55%), Sweden, Denmark (both 37%), Bulgaria (34%), Hungary (32%), Belgium, Portugal (both 31%) and France (30%) had the highest share of ALMPs spending compared to total labour market policy spending in 2009. Sometimes ALMPs go hand in hand with passive labour market policies, as in Denmark, providing an effective tool to provide protection and promote activation. Passive policies often have a more prominent role, as in Spain and Belgium. Most eastern European countries spend little on labour market policies, passive and active. The United Kingdom spends almost as much on active as on passive policies, but both are below the EU average.

Chart 50: Active and passive labour market policies expenditure relative to GDP (2009)



Source: Eurostat – Labour Market Policy database.

Chart 51: Labour market policies expenditures in percentage of GDP by category (2009)



Source: Eurostat – Labour Market Policy database.

Note: Early retirement and out-of-work income maintenance and support belong to passive labour market policies.

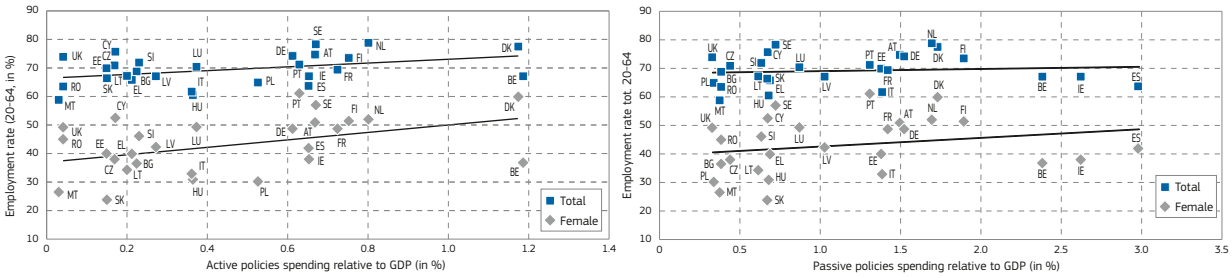
How do active labour market policies work in practice? Boone and Van Ours (2006) presented a theoretical framework to analyse the impact of benefit sanctions as an activation measure to increase job-finding rates of recipients of unemployment benefits. They use a search and matching model in which benefit sanctions affect the intensity with which unemployed workers search for a job both *ex post*, and *ex ante*. In this context, sanctions are seen to increase the search intensity because they reduce the value of being unemployed (*ex post*) while they also increase search intensity because of stricter enforcement of job search requirements and efforts by the non-sanctioned (*ex ante*).

Among EU Member States, ALMPs can be grouped into six categories: start-up incentives; direct job creation; supported employment and rehabilitation; employment incentive; job rotation and job sharing; and training. Chart 51 shows that, among active labour market policies, training accounts for the biggest share.

Among passive labour market policies the biggest share is taken by unemployment benefits (out-of-work income maintenance and support). In some countries, notably, Belgium, Denmark, Finland and Slovakia, early retirement continues to play a significant role, although this is being slowly phased out in order to promote active ageing and reduce costs with the number of people involved becoming quite limited.

Do ALMPs really increase labour market participation? Chapter 1 has already presented the issue in details, with a focus on transitions. A simple scatter plot (Chart 52) shows that there is a strong

Chart 52: Active and passive labour market policies and employment rate (20-64), 2009



Source: Eurostat – Labour Market Policy database and Labour Force Survey.

Note: trend lines: 1) Left: Total: y = 6.379x + 66.524, R^2 = 0.146; Female: y = 13.240x + 37.203, R^2 = 0.187;
2) Right: Total: y = 0.777x + 68.486, R^2 = 0.011; Female: y = 3.032x + 39.664, R^2 = 0.051.

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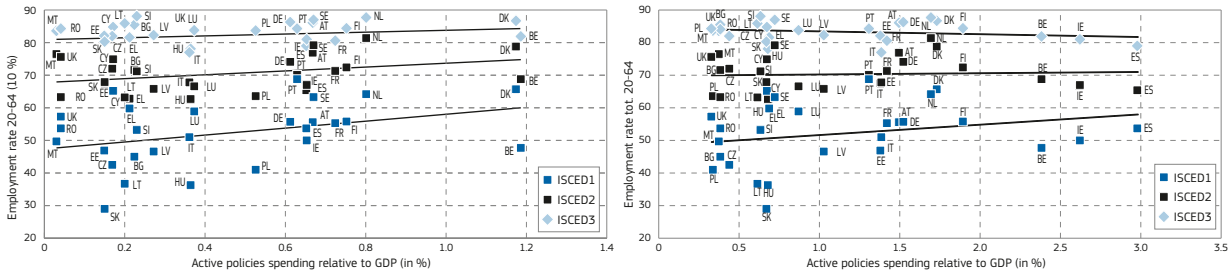
Chart 53: Active and passive labour market policies and employment rate by education level (20-64), 2009



Source: Eurostat – Labour Market Policy database and Labour Force Survey.

Note: ISCED1: Pre-primary, primary and lower secondary education; ISCED2: Upper secondary and post-secondary non-tertiary education; ISCED3: First and second stage of tertiary education.
Trend lines: 1) Left: ISCED1: y = 1.1264x + 82.913, R^2 = 0.0158; ISCED2: y = 10.957x + 47.287, R^2 = 0.1321; ISCED3: = 5.3691x + 67.918, R^2 = 0.1003;
2) Right: ISCED1: y = -0.875x + 84.407, R^2 = 0.049; ISCED2: y = 3.161x + 48.585, R^2 = 0.057; ISCED3: = 0.438x + 69.814, R^2 = 0.003

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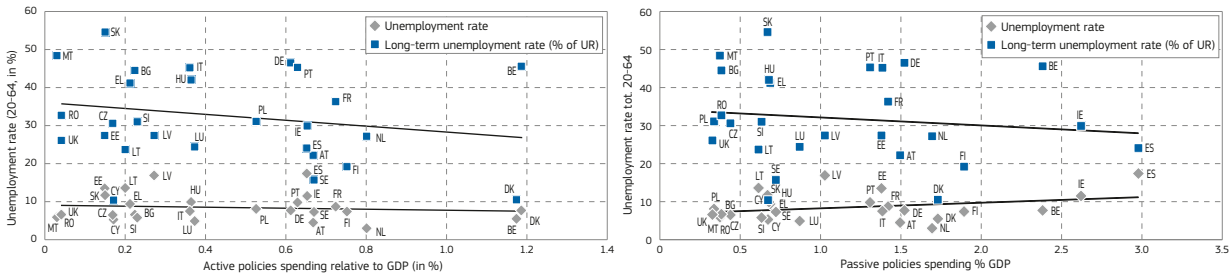
Chart 54: Unemployment and long term unemployment and LMPs (2009)



Source: Eurostat – Labour Market Policy database and Labour Force Survey.

Note: Trend lines: 1) Left: UR: y = -7.399x + 35.268, R^2 = 0.041; LT UR: y = -1.379x + 9.111, R^2 = 0.015;
2) Right: UR: y = -2.084x + 34.334, R^2 = 0.017; LT UR: y = 1.418x + 6.888, R^2 = 0.084.

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correlation between the use of active labour market policies and employment rates (blue squares, left graph), while the correlation with passive policies is much weaker (blue squares, right graph). The same picture can be found when relating the employment rate of women to LMP expenditures (grey diamonds). Moreover the correlation is even higher for ALMPs, partly reflecting the fact that low spending countries such as Italy and Malta have a very low female employment rate compared to countries such as Denmark, Sweden or the Netherlands, which also spend more on ALMPs.

ALMPs also seem more effective in helping promote the employment of the low skilled. Chart 53 shows the correlation of LMPs and employment rate for three education levels (primary, secondary and tertiary) and the relation both for active and passive policies is clearly stronger for the low skilled than it is for the medium skilled, with little obvious impact in the case of the high skilled.

The relation between unemployment and LMPs provides interesting results. The left hand graph in Chart 54 shows a negative correlation between unemployment rate and long term unemployment, on the one hand, and ALMPs on the other, while the graph on the right shows a positive correlation with passive LMPs. In short, these simple correlations confirm that ALMPs

are associated with increased active participation in the labour market while passive policies may appear to reduce incentives to participate, even though they represent a key form of protection and insurance for workers.

The overall impression provided by these figures is confirmed by a large set of empirical studies[32] (both using experimental design on policy reform in one country and non-experimental, mostly cross country studies). The majority of such studies confirm that ALMPs accelerate the re-employment of unemployment benefit recipients and other jobseekers although the effect is not generally found to be very large. As Chapter 1 shows, ALMPs can be effective in supporting positive transitions in the labour market and hence improve the overall employment.

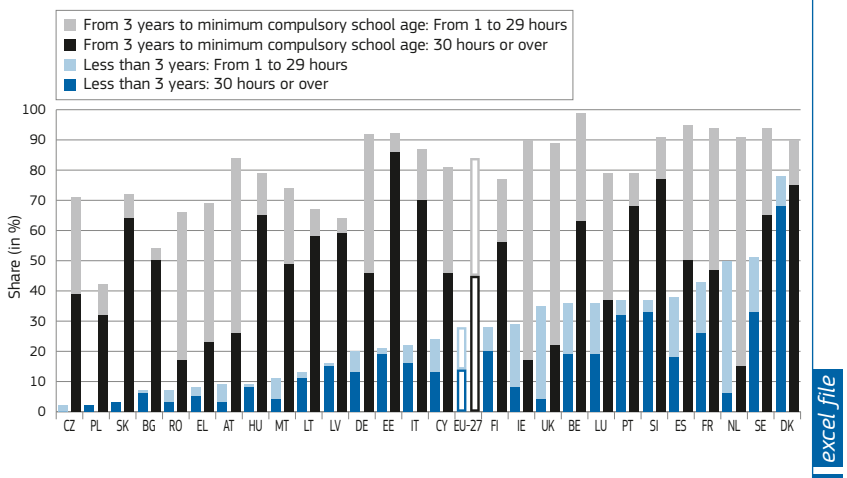
For a summary of empirical literature on ALMPs see Chapter 1.

4.2.3. Can parents afford to work?

Active labour market policies may not be enough to ensure high levels of labour market participation with the lack of enabling services being identified as a particular obstacle to participation, especially for women with care responsibilities. This is also a compounding factor of child poverty. As the OECD report Benefits and Wages 2007 highlighted, both the availability and affordability of childcare play a crucial role in allowing parents, especially those of young children, to take-up a job. Single parents with low prospective wages face the greatest disincentives to work. In some countries (Ireland, Slovakia, the UK), high childcare costs are a powerful financial disincentive for these parents, but inactivity traps deriving from the design of the tax-benefit system may also be a problem where childcare support is well developed, especially with respect to potential second earners.

Efforts of Member States to increase the scale of childcare provision have led to the development of more formal arrangements during the past decade.

Chart 55: Children cared for by formal arrangements in 2010 (share of the population of each age group and by weekly time spent in care)



Source: EU-SILC.

However, progress is slow and uneven. Large differences persist between Member States, with rates of provision ranging from 2 % in the Czech Republic, Poland and Slovakia to more than 50 % in the Netherlands and Denmark and 78 % in Sweden. Across the EU, the so-called Barcelona targets[33] have not been met. Moreover, in many countries the provision of childcare is largely on a part-time basis, which particularly hampers the labour market participation of single parents (see Chart 55).

The more recent economic research confirms this intuition: labour supply responses are found to be substantial for low-skilled women or low-income families, for mothers of younger children and for single parents. Full-time employment rates react significantly more strongly to changes in childcare costs than part-time employment rates (see European Commission and OECD, 2011).

Chart 56 shows that there is a strong correlation between the employment rates of women with young children and the proportion who have access to formal childcare, especially in the first three years of a child's life (left graph)[34].

Childcare provisions are therefore a key factor in enabling female employment and foster labour market participation.

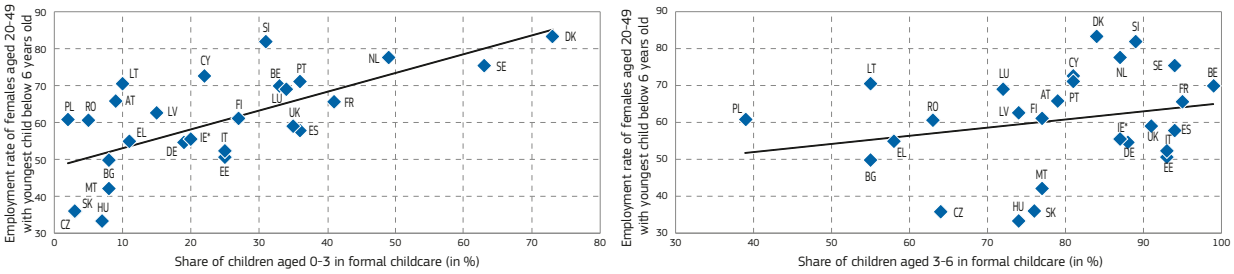
The labour market friendliness of welfare systems is a key element in evaluating their effectiveness and efficiency. Policy makers are increasingly focusing on the possible disincentive effects of welfare systems. Do benefits (both in cash and in kind) entail a financial disincentive to work insofar as they are strictly related to work status and work income? Would a better design allow for a benefits rollover while accepting a new job? Would the provision of in-work benefits coupled with a reduction in the tax wedge decrease financial disincentives and thereby make welfare systems more efficient? Active policies are seen as a key factor in providing incentives to work and are shown to correlate quite strongly with higher participation. However, they still represent a small share of total labour market expenditures. Reducing the level and/or duration of unemployment benefits may appear to be an easy way to reduce financial disincentives and force people to look for a job. However, in countries where benefits are already low and short-term, this could have serious social consequences. Moreover, as this Chapter has shown, in-kind provisions such as childcare are probably much more effective in fostering the labour market participation of women. An efficient welfare state, therefore, does not only provide activating benefits but also creates the material conditions for people to work.

(32) For a complete overview see Boeri and van Ours (2008), Kluve and Schmidt (2002). OECD Employment Outlook 2007 contains an overview on what countries do to activate the unemployed.

(33) In 2002, at the Barcelona Summit, the European Council set the targets of providing childcare by 2010 to at least 90 % of children between 3 years old and the mandatory school age and at least 33 % of children under 3 years of age. Member States have restated their commitment to achieve them in the European Pact for gender equality (2011-2020).

(34) For a child to be considered as being in formal childcare, at least 1 hour per week of formal childcare is required.

Chart 56: Relation between the employment rates of women 20-49 with youngest child below 6 years old and share of children in formal childcare (2010)



Source: EU-SILC and Labour Force Survey.

Note: Trend lines: 1) Left: y = 0.523x + 47.326, R^2 = 0.504; 2) Right: y = 0.121x + 50.914, R^2 = 0.018.

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5. Main findings

Deteriorating economic and labour market conditions have brought about declines in employment and increasing unemployment. At the same time, higher budget deficits and debt levels since 2009 have led to an increased focus on fiscal consolidation across the EU. In this situation many observers worry about the risks of creating a vicious circle of declining government revenues and a downward spiral of households' disposable income. As social protection spending typically accounts for a significant fraction of total government expenditures in EU Member States, debate about the effectiveness and efficiency of social protection spending and its multiple roles in smoothing the business cycle, improving income distribution and reducing incentive distortions in the labour market has gained renewed salience since the onset of the crisis. To contribute to this debate, this Chapter looks at how social protection expenditure reacts to the business cycle, to what extent it has managed to sustain household incomes in the crisis, and what are the effects of social spending on policy outcomes, both in terms of poverty reduction and employment friendliness.

Social protection benefits have significantly helped cushion the effects of the crisis and in the EU on average their stabilising role was stronger than that of taxes, in the period 2007-2009. Developments in the Member States have been very diverse, as they went through different GDP shocks and had different transmission mechanisms in relation to the labour market. The resilience and cushioning role of welfare systems differed as well because of their different size and design. The importance of social protection benefits in alleviating the effects of the crisis on households is shown both when comparing the actual change in GHDI with scenarios of how GHDI would have developed if social transfers and taxes had not changed and when the developments of GHDI components are traced over time.

Cyclicality of both total social protection expenditure and different types of benefits vary significantly across Member States. Unemployment benefits respond strongly to the cycle, notably in Spain and Denmark. These are followed by social exclusion, housing and family benefits. Pensions are generally considerably less anti-cyclical, followed by sickness and disability benefits. However, looking at individual countries, pensions are strongly anti-cyclical e.g. in Italy and Poland; in the latter country, disability benefits also have this behaviour. Ireland and Slovakia are examples of countries where the sickness benefits have this effect.

With respect to the poverty reduction effects of social protection spending, there are large differences between Member States both in terms of effectiveness and efficiency. Member States with similar levels of spending achieve significantly different outcomes in terms of poverty reduction and, conversely, similar poverty reduction requires very different levels of spending in different Member States. At the same time, a direct link between means-testing of benefits and efficiency of social protection spending is difficult to establish, lending some support to the view that the efficiency of social protection expenditure depends on the overall design of the spending and interaction between its different elements. The same conclusions hold for the poverty reduction of children, both with respect to all social benefits and child and family benefits only.

In the EU, larger welfare states tend to have higher employment rates. However, also in terms of labour-market friendliness, the efficiency of social protection spending is linked to the design of the whole tax-benefit system and also the extent to which people are incentivised to search for jobs and take them up. One aspect that is shown to facilitate the taking up of jobs, in particular among women, is the provision of childcare services. Also active labour market policies are shown to have a positive effect on employment rates for women and the low-skilled population more than for the whole population on average. However, many Member States spend a very low share of their funds on active labour market policies compared to passive labour market policies.

Table 9: Detailed overview of the development of social protection spending by function relative to GDP (1990-2009, changes in percentage points of GDP)

			1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Southern Member States	GREECE	Administration costs						0.12	-0.01	-0.01	0.00	0.01	-0.04	-0.08	0.13	0.00	-0.06	-0.02	-0.02	0.24	-0.19	0.28
		Family/Children						0.01	-0.06	0.06	-0.05	0.03	-0.10	0.06	0.03	-0.08	-0.03	-0.07	0.01	0.10	0.24	-0.04
		Housing and Social exclusion n.e.c.						0.07	0.10	-0.02	0.33	0.02	-0.01	-0.11	-0.05	0.02	0.03	-0.01	-0.04	0.02	0.02	-0.08
		Old age and survivors						0.47	0.09	0.69	0.19	-0.16	0.82	-0.31	-0.28	0.12	0.72	0.00	0.17	0.35	0.68	0.53
		Other expenditure						-0.03	0.00	-0.01	-0.01	0.01	0.00	0.00	0.01	-0.01	0.01	-0.01	0.00	0.00	0.00	0.00
		Sickness/Health care						-0.06	0.12	0.01	0.32	0.64	0.07	0.03	-0.11	0.05	0.64	0.19	-0.12	0.58	0.60	0.25
		Unemployment						-0.04	0.09	0.10	0.25	0.14	0.01	0.07	-0.18	0.06	-0.11	-0.13	-0.02	0.20	0.33	0.10
		Disability						0.02	0.02	0.04	0.06	0.03	0.08	0.04	-0.06	-0.01	0.04	-0.05	0.04	0.00	0.11	0.02
		Total						0.56	0.35	0.85	1.09	0.73	0.82	-0.31	-0.52	0.15	1.23	-0.10	0.01	1.48	1.79	1.07
	SPAIN	Administration costs	0.04	0.02	0.04	-0.07	-0.01	-0.03	-0.03	0.00	-0.01	-0.02	-0.01	0.01	0.00	0.00	0.02	0.01	0.00	0.01	0.04	0.00
		Family/Children	-0.02	0.10	0.02	-0.01	-0.01	0.07	-0.02	0.02	0.00	0.48	-0.05	0.01	0.15	0.03	0.08	0.02	0.05	0.11	0.16	-0.01
		Housing and Social exclusion n.e.c.	0.00	-0.02	0.05	-0.02	0.14	0.08	-0.02	-0.02	-0.01	-0.08	0.01	0.02	0.00	0.00	0.05	0.02	0.03	-0.02	0.02	0.01
		Old age and survivors	0.19	0.35	0.44	0.03	-0.07	0.16	-0.11	-0.30	-0.20	0.12	-0.28	0.02	-0.08	-0.02	-0.01	-0.09	0.07	0.43	1.11	0.65
		Other expenditure	0.04	-0.04	0.02	-0.01	0.15	-0.12	0.01	0.01	0.01	-0.03	0.00	0.00	0.00	0.00	-0.01	0.01	0.00	-0.02	0.00	0.00
		Sickness/Health care	0.38	0.44	0.14	-0.25	-0.28	0.05	-0.22	-0.15	0.03	0.13	-0.04	0.15	0.23	0.08	0.04	0.04	0.06	0.40	0.52	-0.10
		Unemployment	0.49	0.29	0.76	-0.80	-0.75	-0.40	-0.23	-0.21	-0.17	-0.43	0.11	0.08	0.00	-0.05	0.04	-0.07	-0.04	0.45	1.19	-0.14
		Disability	0.08	0.01	0.06	0.00	-0.10	0.05	-0.06	0.04	-0.07	0.07	-0.06	0.02	-0.04	0.01	0.03	-0.01	0.01	0.06	0.15	0.05
		Total	1.21	1.15	1.54	-1.13	-0.93	-0.14	-0.67	-0.61	-0.42	0.23	-0.30	0.32	0.26	0.05	0.24	-0.07	0.19	1.41	3.18	0.46
	ITALY	Administration costs	0.00	0.01	-0.01	-0.01	-0.10	-0.02	0.01	-0.02	0.02	0.03	0.03	-0.02	0.01	0.00	0.01	0.02	-0.01	0.02	0.03	-0.01
		Family/Children	-0.17	-0.02	-0.04	-0.03	0.01	0.08	0.01	0.02	0.03	0.01	0.07	0.07	0.07	0.03	-0.02	0.04	0.10	0.04	0.15	-0.13
		Housing and Social exclusion n.e.c.	0.00	0.00	0.00	0.00	-0.01	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	-0.01	0.00	0.00	0.00	0.00	0.02	0.01
		Old age and survivors	0.45	0.99	0.27	0.04	-0.28	0.05	0.58	-0.19	0.15	-0.30	-0.12	0.23	0.30	-0.11	0.07	0.08	0.15	0.52	1.06	0.20
		Other expenditure	0.06	0.01	0.03	0.01	-0.08	0.01	-0.02	-0.02	0.03	0.00	0.04	-0.05	0.00	-0.04	0.09	0.02	0.19	0.06	0.06	-0.09
		Sickness/Health care	0.10	-0.09	-0.23	-0.36	-0.44	0.05	0.15	-0.01	0.04	0.34	0.28	-0.06	0.05	0.32	0.23	0.09	-0.24	0.33	0.36	0.01
		Unemployment	0.04	0.07	0.08	-0.04	-0.06	-0.05	-0.04	-0.05	-0.06	-0.11	-0.02	0.06	0.02	0.03	0.01	0.00	-0.07	0.06	0.29	0.05
		Disability	-0.08	0.04	0.09	0.01	-0.14	0.04	-0.07	-0.12	0.02	-0.07	-0.06	0.12	0.05	-0.02	-0.02	-0.01	0.02	0.04	0.17	-0.03
		Total	0.40	1.00	0.20	-0.38	-1.11	0.15	0.62	-0.40	0.24	-0.10	0.24	0.37	0.50	0.19	0.38	0.25	0.14	1.08	2.15	0.01
	PORTUGAL	Administration costs						-0.07	-0.01	0.03	0.00	0.01	0.04	0.00	0.00	-0.07	-0.01	-0.01	-0.02	0.01	-0.01	-0.01
		Family/Children						-0.02	-0.01	0.00	0.01	0.08	0.08	0.28	0.05	-0.23	0.00	0.00	0.01	0.09	0.22	-0.03
		Housing and Social exclusion n.e.c.						0.01	0.03	0.13	0.06	-0.03	-0.02	0.09	0.00	-0.11	0.02	0.02	0.01	0.01	0.06	0.00
		Old age and survivors						0.23	-0.11	0.09	0.28	0.25	0.47	0.70	0.47	0.52	0.49	0.33	0.00	0.63	1.05	0.19
		Other expenditure						0.17	0.30	0.20	0.05	-0.32	0.37	-0.78	-0.24	0.01	0.03	-0.11	-0.16	-0.14	0.16	0.16
		Sickness/Health care						-1.14	-0.02	0.12	0.19	0.13	0.05	0.45	-0.24	0.57	0.11	-0.19	-0.31	0.08	0.80	-0.29
		Unemployment						0.04	-0.14	-0.05	-0.16	0.02	0.01	0.12	0.36	0.08	0.07	-0.06	-0.12	-0.10	0.32	0.08
		Disability						0.04	0.03	-0.02	-0.05	0.18	0.00	0.07	0.04	-0.16	-0.06	0.03	-0.02	-0.11	0.02	-0.06
		Total						-0.75	0.06	0.50	0.38	0.31	1.00	0.92	0.44	0.61	0.66	0.01	-0.62	0.46	2.61	0.03

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			1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Nordic and Anglo-Saxon Memer States	DENMARK	Administration costs	-0.02	0.01	0.02	0.08	-0.01	-0.05	-0.03	0.01	0.01	-0.02	0.03	0.02	0.03	0.00	-0.04	-0.06	-0.02	0.02	0.10	-0.04
		Family/Children	0.07	0.09	0.20	0.27	-0.05	-0.07	-0.07	0.09	-0.01	-0.09	0.08	0.09	0.12	-0.08	-0.09	-0.06	-0.07	0.11	0.40	-0.15
		Housing and Social exclusion n.e.c.	0.21	0.04	0.14	0.08	0.00	-0.16	-0.07	-0.08	-0.04	-0.06	0.00	0.01	0.00	0.03	-0.04	-0.21	-0.07	0.02	0.16	0.02
		Old age and survivors	0.09	0.04	0.37	1.13	-0.02	0.12	-0.25	-0.36	-0.16	-0.35	0.10	0.08	0.30	-0.07	-0.06	-0.25	-0.11	0.32	1.01	0.21
		Other expenditure	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		Sickness/Health care	0.20	-0.02	0.20	-0.33	-0.02	-0.13	-0.07	0.32	0.04	-0.02	0.09	0.28	0.12	-0.01	-0.05	0.05	0.31	0.23	0.85	-0.22
		Unemployment	0.31	0.32	0.65	-0.33	-0.58	-0.38	-0.49	-0.30	-0.17	-0.28	-0.11	-0.18	0.29	-0.13	-0.30	-0.47	-0.47	-0.19	0.74	0.30
		Disability	0.09	0.03	0.23	0.10	0.11	-0.04	-0.07	0.20	0.14	-0.15	0.19	0.17	0.33	0.10	0.10	0.00	-0.04	0.15	0.53	-0.07
		Total	0.96	0.51	1.81	0.99	-0.56	-0.70	-1.05	-0.12	-0.19	-0.96	0.36	0.47	1.19	-0.17	-0.48	-1.00	-0.48	0.67	3.78	0.05
	FINLAND	Administration costs	0.02	0.03	-0.01	0.04	-0.07	0.08	-0.18	0.07	-0.15	0.07	-0.01	0.06	0.04	-0.02	-0.01	0.01	-0.06	0.01	0.09	-0.06
		Family/Children	0.58	0.34	-0.12	0.43	-0.38	-0.27	-0.24	-0.20	-0.11	-0.22	-0.10	-0.03	0.04	0.01	0.03	-0.04	-0.10	0.09	0.39	-0.03
		Housing and Social exclusion n.e.c.	0.24	0.23	-0.03	0.06	-0.03	0.01	-0.08	-0.09	0.00	-0.09	-0.05	0.03	0.02	-0.03	-0.01	0.02	-0.04	0.20	0.22	0.03
		Old age and survivors	1.28	1.00	0.39	-0.28	-0.42	0.28	-0.70	-0.56	-0.02	-0.31	0.17	0.30	0.35	0.01	0.10	0.04	-0.22	0.18	1.77	0.25
		Other expenditure	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		Sickness/Health care	0.82	-0.09	-0.45	-0.46	-0.24	0.12	-0.30	-0.26	-0.07	-0.11	0.16	0.25	0.28	0.11	0.12	0.01	-0.22	0.31	0.77	-0.06
		Unemployment	1.06	1.74	1.09	-0.22	-0.72	-0.13	-0.48	-0.62	-0.27	-0.34	-0.17	0.06	0.10	-0.02	-0.13	-0.21	-0.28	-0.10	0.60	0.04
		Disability	0.65	0.51	0.15	-0.15	-0.29	-0.09	-0.33	-0.37	-0.15	-0.26	-0.06	0.02	0.08	-0.02	-0.06	-0.10	-0.14	0.11	0.42	-0.03
		Total	4.66	3.76	1.02	-0.57	-2.16	0.00	-2.30	-2.03	-0.77	-1.26	-0.07	0.69	0.91	0.05	0.04	-0.28	-1.06	0.80	4.26	0.14
	NETHERLANDS	Administration costs	0.01	0.03	0.03	0.27	-0.02	-0.04	-0.09	-0.02	-0.03	0.08	-0.03	-0.02	0.09	0.00	0.04	0.03	-0.14	-0.11	0.23	-0.01
		Family/Children	-0.07	-0.09	-0.02	-0.13	-0.03	-0.08	0.01	-0.08	-0.07	0.04	-0.04	0.13	0.07	-0.01	-0.02	0.21	0.09	-0.38	0.11	-0.06
		Housing and Social exclusion n.e.c.	0.01	-0.04	-0.07	0.73	0.08	-0.11	-0.04	0.19	-0.14	-0.09	0.02	0.00	-0.05	-0.07	-0.01	0.50	0.00	0.05	0.31	0.02
		Old age and survivors	-0.04	0.18	0.12	-0.43	0.07	0.08	-0.11	-0.27	-0.06	-0.13	-0.10	0.35	0.03	0.32	-0.02	-0.14	-0.05	-0.03	0.78	0.21
		Other expenditure	0.02	0.01	0.00	0.03	-0.19	-0.02	0.18	0.03	-0.05	-0.05	0.08	0.04	-0.06	0.13	-0.07	-0.09	-0.05	0.02	0.11	0.00
		Sickness/Health care	0.07	0.38	0.14	-0.54	-0.19	-0.50	-0.36	-0.03	0.08	-0.17	0.27	0.41	0.31	-0.18	-0.09	0.85	-0.18	0.75	1.01	0.23
		Unemployment	-0.01	0.07	0.28	0.18	-0.13	-0.06	-0.39	-0.52	-0.37	-0.26	-0.03	0.11	0.28	0.01	-0.06	-0.23	-0.22	-0.10	0.40	0.13
		Disability	0.00	-0.02	-0.10	-0.69	-0.43	-0.22	-0.17	-0.16	-0.08	-0.11	-0.06	0.04	0.02	-0.12	-0.26	-0.17	0.05	-0.04	0.13	-0.03
		Total	-0.01	0.51	0.37	-0.57	-0.84	-0.95	-0.97	-0.86	-0.72	-0.70	0.11	1.08	0.69	0.08	-0.48	0.95	-0.50	0.18	3.09	0.49
	SWEDEN	Administration costs				0.01	-0.02	-0.01	-0.03	0.03	0.06	0.06	0.16	-0.01	-0.12	-0.01	-0.01	-0.01	0.01	-0.01	0.00	-0.03
		Family/Children				-0.09	-0.53	-0.28	-0.22	-0.37	-0.06	-0.20	0.13	0.07	0.09	-0.03	-0.02	0.10	-0.06	0.10	0.19	-0.10
		Housing and Social exclusion n.e.c.				-0.06	-0.16	-0.13	-0.19	-0.16	-0.14	-0.16	-0.03	-0.04	0.01	-0.06	-0.05	-0.03	-0.04	0.02	0.11	-0.02
		Old age and survivors				-0.39	-0.74	0.25	-0.24	-0.31	-0.35	-0.34	0.08	0.23	0.63	-0.25	-0.02	-0.43	-0.12	0.49	1.07	-0.61
		Other expenditure				0.00	0.00	0.00	0.00	-0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		Sickness/Health care				-0.78	-0.39	-0.02	0.04	0.23	0.20	0.25	0.43	0.39	0.08	-0.52	-0.31	-0.13	-0.28	0.04	0.39	-0.50
		Unemployment				-0.22	-0.43	-0.26	-0.12	-0.36	-0.28	-0.48	-0.29	-0.03	0.05	0.07	-0.07	-0.22	-0.54	-0.21	0.44	0.05
		Disability				0.09	-0.04	-0.14	-0.13	0.01	0.19	0.00	0.09	0.21	0.23	0.12	0.04	-0.04	-0.11	-0.12	0.27	-0.33
		Total				-1.44	-2.31	-0.59	-0.90	-0.94	-0.38	-0.86	0.56	0.83	0.97	-0.66	-0.43	-0.77	-1.15	0.30	2.46	-1.54
	UNITED KINGDOM	Administration costs	-0.03	0.05	0.03	0.00	-0.09	-0.05	-0.06	-0.04	0.00	-0.07	0.02	0.00	-0.32	0.02	0.00	-0.01	-0.09	0.01	0.04	0.01
		Family/Children	0.15	0.20	0.07	-0.01	0.02	-0.01	-0.09	-0.02	-0.26	-0.19	0.00	-0.01	0.02	-0.05	-0.12	-0.08	0.08	0.08	0.25	-0.06
		Housing and Social exclusion n.e.c.	-0.02	0.37	0.20	-0.04	0.02	0.05	-0.13	-0.04	-0.08	-0.11	0.03	0.05	-0.12	0.03	0.00	0.00	-0.25	0.05	0.26	0.04
		Old age and survivors	0.80	0.80	0.22	-0.10	-0.09	0.17	0.30	-0.38	0.09	1.00	-0.44	-0.65	-0.02	0.00	0.20	-0.24	-0.83	0.44	1.02	-0.44
		Other expenditure	0.18	0.03	0.02	0.01	0.01	0.00	0.00	0.00	-0.02	-0.05	0.04	-0.21	0.00	0.00	0.00	0.00	0.58	0.01	-0.21	0.00
		Sickness/Health care	0.85	0.41	0.13	-0.08	-0.17	-0.06	-0.08	0.22	-0.06	0.21	0.65	0.00	0.43	0.18	0.15	0.09	-0.38	0.23	0.95	-0.23
		Unemployment	0.50	0.13	0.03	-0.23	-0.22	-0.19	-0.26	-0.16	-0.01	-0.07	0.14	-0.20	-0.02	-0.03	0.00	-0.04	-0.12	0.08	0.25	-0.11
		Disability	0.32	0.19	0.28	0.10	0.05	-0.12	-0.11	-0.07	-0.15	0.00	0.01	-0.01	-0.04	-0.01	-0.08	0.13	0.09	0.23	0.19	-0.14
		Total	2.76	2.17	0.98	-0.35	-0.48	-0.20	-0.43	-0.49	-0.49	0.73	0.44	-1.01	-0.06	0.13	0.15	-0.16	-0.92	1.13	2.77	-0.93
	IRELAND	Administration costs						-0.03	-0.04	-0.02	-0.03	-0.01	0.02	0.51	0.04	0.02	0.03	0.04	-0.07	0.02	0.14	-0.15
		Family/Children						0.08	-0.10	-0.20	-0.02	-0.08	0.25	0.36	0.08	-0.01	-0.03	0.03	0.11	0.50	0.54	0.02
		Housing and Social exclusion n.e.c.						-0.01	-0.05	-0.05	-0.07	-0.15	0.02	0.08	0.05	-0.02	-0.03	0.00	0.01	0.15	0.08	0.01
		Old age and survivors						-0.38	-0.35	-0.24	-0.26	-0.15	0.14	0.92	0.19	0.00	-0.02	0.09	0.10	0.83	0.81	0.24
		Other expenditure						0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00
		Sickness/Health care						-0.51	-0.19	-0.25	0.07	-0.11	0.58	0.31	0.19	0.21	0.15	0.09	0.28	1.26	2.16	1.60
		Unemployment						-0.11	-0.42	-0.35	-0.31	-0.27	-0.05	0.10	0.00	0.01	-0.07	0.03	0.08	0.45	1.25	0.44
		Disability						-0.01	-0.07	-0.05	-0.03	0.00	0.04	0.04	0.03	0.05	0.04	0.02	0.06	0.18	0.19	-0.01
		Total						-0.95	-1.21	-1.16	-0.65	-0.77	0.99	2.31	0.59	0.24	0.07	0.29	0.57	3.39	5.17	2.16

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			1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Western continental Member States	AUSTRIA	Administration costs	0.00	0.05	0.01	0.00	0.00	-0.01	-0.01	-0.01	0.01	0.00	-0.02	0.00	0.01	-0.01	0.00	-0.01	-0.01	0.02	0.01	-0.01
		Family/Children	-0.01	0.25	0.20	0.35	-0.26	-0.10	-0.17	-0.17	0.11	0.13	-0.02	0.05	0.13	-0.06	-0.07	-0.12	-0.12	0.10	0.23	0.01
		Housing and Social exclusion n.e.c.	0.00	0.06	0.02	-0.01	-0.09	0.07	0.01	0.03	0.08	-0.26	0.06	0.01	0.00	0.01	0.00	0.02	0.00	0.02	0.01	-0.02
		Old age and survivors	0.07	0.07	0.52	0.28	0.02	0.12	0.04	-0.09	0.13	0.03	0.19	0.12	0.16	-0.15	-0.13	-0.05	-0.11	0.36	1.05	0.02
		Other expenditure	0.00	-0.02	0.00	0.08	-0.04	-0.02	0.07	-0.04	-0.03	0.05	0.02	0.00	0.02	-0.02	0.06	-0.08	0.02	0.00	0.00	-0.03
		Sickness/Health care	0.03	0.21	0.16	0.07	0.10	-0.15	0.09	0.03	0.23	-0.35	0.08	0.07	-0.03	-0.04	-0.02	-0.15	0.03	0.25	0.37	-0.16
		Unemployment	0.14	0.01	0.24	0.01	0.03	0.06	-0.12	-0.08	0.00	-0.14	0.03	0.16	0.17	0.00	-0.08	-0.02	-0.17	-0.06	0.35	-0.04
		Disability	0.01	0.02	0.07	0.08	0.03	0.05	-0.09	0.00	-0.03	0.04	-0.04	-0.05	-0.01	-0.07	-0.10	-0.12	-0.12	-0.03	0.14	-0.02
		Total	0.25	0.64	1.22	0.85	-0.22	0.01	-0.19	-0.33	0.49	-0.50	0.30	0.37	0.46	-0.34	-0.34	-0.52	-0.47	0.67	2.17	-0.25
	BELGIUM	Administration costs						-0.07	-0.03	0.02	0.00	-0.13	0.20	-0.11	0.01	-0.02	-0.01	0.00	-0.03	0.02	0.05	-0.02
		Family/Children						0.03	0.11	-0.08	-0.06	-0.14	-0.03	-0.02	0.01	-0.05	-0.01	-0.01	0.05	-0.01	0.16	-0.04
		Housing and Social exclusion n.e.c.						0.00	-0.28	-0.01	-0.01	0.06	0.00	0.07	-0.01	-0.01	0.01	0.08	0.29	0.07	0.08	0.01
		Old age and survivors						0.09	-0.28	-0.08	-0.16	-0.33	0.31	0.11	0.01	-0.15	-0.06	-0.01	-0.38	0.59	0.82	-0.38
		Other expenditure						0.09	0.16	-0.28	0.00	0.01	0.15	-0.21	-0.03	0.06	-0.02	0.06	0.07	0.23	-0.14	0.01
		Sickness/Health care						0.36	-0.41	0.01	0.08	-0.20	0.16	0.06	1.13	0.23	-0.05	-0.28	0.03	0.24	0.63	-0.09
		Unemployment						0.03	-0.05	-0.11	-0.14	-0.17	0.02	0.25	0.24	0.02	-0.01	-0.04	-0.15	0.04	0.53	-0.04
		Disability						0.02	-0.06	0.00	0.10	0.00	0.05	0.20	-0.63	-0.05	0.05	-0.07	-0.06	0.10	0.16	0.03
		Total						0.55	-0.83	-0.53	-0.19	-0.90	0.87	0.35	0.73	0.02	-0.10	-0.27	-0.18	1.29	2.28	-0.52
	GERMANY	Administration costs		0.06	0.04	-0.01	0.02	0.03	-0.05	0.00	0.01	-0.01	0.01	0.03	0.02	-0.02	0.05	-0.03	-0.04	0.01	0.17	-0.03
		Family/Children		0.07	0.02	-0.12	-0.02	0.64	0.14	-0.02	0.15	0.12	-0.10	0.18	0.00	-0.06	-0.16	-0.24	-0.10	0.05	0.33	0.04
		Housing and Social exclusion n.e.c.		0.07	0.01	0.08	0.01	0.01	-0.01	-0.01	-0.03	0.00	-0.03	0.02	0.05	0.03	0.24	0.03	-0.04	-0.04	0.08	-0.02
		Old age and survivors		0.30	0.32	0.14	0.25	0.24	0.15	0.14	0.09	0.14	0.11	0.19	0.18	-0.12	-0.04	-0.39	-0.46	-0.01	0.78	-0.36
		Other expenditure		0.00	0.01	0.01	0.00	0.00	-0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	-0.01	0.02	0.01	-0.01
		Sickness/Health care		0.53	-0.22	0.07	0.20	0.10	-0.27	-0.06	0.15	0.07	0.07	0.08	0.03	-0.40	0.05	-0.15	-0.07	0.23	1.44	-0.21
		Unemployment		0.40	0.32	-0.31	-0.19	0.12	-0.19	-0.02	0.05	-0.14	-0.03	0.14	0.07	-0.07	-0.16	-0.25	-0.30	-0.11	0.45	-0.20
		Disability		-0.02	0.15	0.04	0.15	0.05	-0.13	-0.02	0.02	-0.01	0.00	0.03	0.04	-0.04	-0.03	-0.10	-0.10	0.05	0.17	-0.03
		Total		1.41	0.65	-0.10	0.42	1.20	-0.37	0.00	0.45	0.18	0.03	0.67	0.39	-0.67	-0.04	-1.13	-1.12	0.21	3.42	-0.81
	FRANCE	Administration costs	0.02	0.02	0.07	0.01	-0.03	0.02	-0.01	-0.01	-0.01	0.06	-0.01	-0.01	0.03	0.00	0.03	0.03	-0.05	-0.02	0.17	0.04
		Family/Children	0.00	0.00	0.18	-0.01	0.04	0.01	0.05	-0.11	-0.01	-0.27	-0.04	0.00	-0.01	0.01	0.03	0.11	-0.05	0.00	0.14	-0.06
		Housing and Social exclusion n.e.c.	0.04	0.07	0.11	0.07	0.03	0.01	0.01	0.01	0.01	-0.01	-0.03	0.03	-0.02	0.01	-0.02	0.10	-0.03	0.03	0.21	0.01
		Old age and survivors	0.27	0.36	0.51	0.12	0.14	0.22	-0.01	-0.13	-0.01	-0.25	0.04	0.21	0.16	0.13	0.18	-0.06	0.09	0.33	0.91	0.11
		Other expenditure	0.02	0.06	0.08	-0.02	0.06	-0.14	0.01	0.03	-0.01	0.19	0.04	0.07	0.00	0.03	-0.06	-0.26	0.01	0.01	-0.05	-0.04
		Sickness/Health care	0.16	0.26	0.33	-0.03	0.06	0.09	-0.11	-0.02	-0.08	-0.02	0.12	0.30	0.27	0.17	0.01	-0.14	-0.12	0.06	0.56	0.03
		Unemployment	0.10	0.07	0.21	-0.22	-0.16	0.07	-0.07	-0.09	-0.07	-0.09	-0.02	0.18	0.15	-0.03	-0.06	-0.17	-0.14	-0.06	0.29	0.05
		Disability	-0.01	-0.02	0.04	0.01	-0.01	0.05	-0.02	-0.02	-0.02	-0.03	0.01	0.08	0.00	0.01	0.03	0.12	-0.03	0.01	0.10	0.02
		Total	0.60	0.83	1.53	-0.07	0.14	0.31	-0.15	-0.35	-0.19	-0.43	0.12	0.85	0.57	0.33	0.14	-0.27	-0.32	0.35	2.33	0.15
	LUXEMBOURG	Administration costs	-0.02	0.02	0.00	0.02	-0.07	-0.01	0.00	-0.03	-0.08	-0.02	-0.12	0.00	0.01	-0.02	0.01	-0.03	-0.01	0.03	0.02	-0.01
		Family/Children	0.04	0.08	0.38	0.20	-0.30	0.04	0.02	0.27	0.14	0.04	0.13	0.27	0.29	-0.04	-0.19	-0.21	-0.24	1.01	0.04	-0.23
		Housing and Social exclusion n.e.c.	0.00	0.00	0.01	0.00	-0.03	0.00	0.04	0.00	-0.07	0.07	0.38	-0.02	-0.02	0.02	-0.05	0.00	-0.04	0.06	0.24	-0.05
		Old age and survivors	0.48	0.09	-0.10	-0.04	-1.02	-0.11	0.17	-0.26	-0.85	-0.46	0.11	0.26	0.17	-0.09	-0.17	-0.45	-0.28	0.50	0.98	-0.48
		Other expenditure	-0.04	0.01	-0.01	0.00	-0.02	0.10	-0.01	0.01	-0.06	0.11	-0.20	0.01	-0.02	0.00	0.02	0.05	-0.07	0.00	0.01	0.00
		Sickness/Health care	0.02	0.32	0.46	-0.60	-0.48	0.34	-0.04	-0.15	-0.02	-0.32	0.46	0.17	0.02	0.11	-0.08	-0.39	-0.14	0.34	0.71	-0.31
		Unemployment	-0.01	-0.01	0.08	0.05	-0.06	0.07	0.04	-0.04	-0.09	0.01	0.13	0.02	0.15	0.11	0.04	-0.08	-0.06	0.03	0.36	-0.07
		Disability	0.14	-0.05	0.00	0.03	-0.23	0.06	0.09	-0.14	0.30	-0.32	0.41	0.00	-0.04	0.06	-0.17	-0.14	-0.31	0.09	0.26	-0.14
		Total	0.61	0.45	0.81	-0.34	-2.21	0.49	0.33	-0.35	-0.73	-0.88	1.29	0.71	0.56	0.16	-0.60	-1.26	-1.14	2.06	2.62	-1.28

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			1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Baltic Member States and South-Eastern Europe	ESTONIA	Administration costs										-0.02	-0.01	-0.02	-0.01	0.00	0.00	-0.02	-0.02	0.03	0.04	-0.02
		Family/Children										-0.02	-0.16	-0.05	-0.19	0.39	-0.12	-0.05	-0.07	0.39	0.50	0.00
		Housing and Social exclusion n.e.c.										-0.08	-0.01	-0.04	-0.05	-0.09	-0.04	-0.03	-0.02	0.00	0.05	0.05
		Old age and survivors										-0.69	-0.53	-0.06	-0.05	0.06	-0.15	-0.03	-0.17	1.12	1.76	-0.21
		Other expenditure										0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		Sickness/Health care										-0.36	-0.30	-0.20	0.06	0.09	-0.08	-0.21	0.26	0.78	0.63	-0.62
		Unemployment										-0.02	0.00	-0.04	0.09	-0.02	-0.04	-0.06	0.03	0.16	0.93	-0.47
		Disability										-0.34	0.15	0.06	0.04	0.02	-0.01	-0.03	-0.02	0.34	0.44	0.05
		Total										-1.53	-0.86	-0.34	-0.12	0.46	-0.44	-0.43	-0.02	2.83	4.37	-1.22
	LITHUANIA	Administration costs							0.03	0.06			-0.02	0.02	0.04	0.00	-0.03	0.02	-0.02	0.06	0.06	-0.07
		Family/Children							0.09	0.28			-0.16	-0.07	-0.08	0.10	0.01	-0.05	0.07	0.67	0.95	-0.59
		Housing and Social exclusion n.e.c.							0.06	-0.11			-0.05	0.01	-0.03	-0.11	-0.12	-0.01	-0.03	0.01	0.19	0.34
		Old age and survivors							0.34	0.49			-0.52	-0.33	-0.24	-0.12	-0.18	-0.19	0.81	0.42	2.08	-0.96
		Other expenditure							0.00	0.01			-0.02	-0.04	-0.01	-0.02	0.00	0.02	-0.03	0.00	0.10	0.24
		Sickness/Health care							0.32	0.59			-0.26	-0.21	-0.19	-0.14	0.12	0.27	0.19	0.32	0.82	-0.74
		Unemployment							-0.02	0.02			0.04	-0.03	0.00	0.07	0.03	0.02	-0.01	0.01	0.50	-0.09
		Disability							-0.19	0.08			-0.02	-0.02	0.01	0.07	0.01	0.02	0.09	0.18	0.46	-0.25
		Total							0.64	1.41			-1.01	-0.69	-0.51	-0.13	-0.16	0.10	1.07	1.67	5.15	-2.12
	LATVIA	Administration costs								0.01	0.04	0.01	-0.05	-0.01	0.01	-0.04	0.00	-0.04	-0.03	0.03	-0.02	0.02
		Family/Children								0.03	0.07	-0.10	-0.06	-0.08	0.02	-0.11	0.02	-0.10	-0.04	0.22	0.34	-0.24
		Housing and Social exclusion n.e.c.								-0.02	-0.01	-0.02	-0.02	0.00	0.01	0.05	-0.03	0.00	0.01	0.05	-0.01	0.11
		Old age and survivors								0.48	0.79	-1.02	-0.88	-0.30	-0.73	-0.70	-0.42	-0.19	-0.75	0.66	2.19	1.54
		Other expenditure								0.00	0.02	0.03	0.03	0.09	0.20	-0.01	-0.11	-0.16	0.00	-0.09	0.00	0.00
		Sickness/Health care								-0.11	0.23	-0.11	0.24	-0.12	0.33	0.03	0.19	0.40	-0.38	0.29	0.24	-0.27
		Unemployment								0.09	0.30	-0.11	-0.13	-0.03	0.00	-0.02	0.03	0.00	-0.10	0.10	1.08	-0.28
		Disability								0.00	0.03	-0.14	-0.06	-0.04	-0.09	-0.02	-0.08	-0.02	-0.13	0.17	0.38	0.05
		Total								0.48	1.47	-1.46	-0.94	-0.49	-0.25	-0.81	-0.39	-0.11	-1.42	1.43	4.21	0.93
	BULGARIA	Administration costs																-0.03	0.01	0.03	0.03	-0.03
		Family/Children																0.03	0.16	0.12	0.69	0.01
		Housing and Social exclusion n.e.c.																-0.05	0.00	0.00	-0.14	0.05
		Old age and survivors																-0.20	-0.21	0.36	1.22	0.41
		Other expenditure																-0.05	0.02	0.02	0.00	-0.02
		Sickness/Health care																-0.64	0.11	0.71	-0.49	0.32
		Unemployment																0.03	-0.03	0.07	0.18	0.08
		Disability																0.03	-0.13	0.02	0.23	0.02
		Total																-0.89	-0.06	1.34	1.73	0.84
	ROMANIA	Administration costs											-0.06	-0.01	0.04	0.04	-0.06	0.14	-0.01	-0.17	0.01	-0.02
		Family/Children											0.00	0.17	-0.23	0.12	0.28	-0.08	-0.08	-0.18	0.21	-0.02
		Housing and Social exclusion n.e.c.											-0.01	0.23	-0.08	0.00	0.08	-0.01	0.14	-0.11	-0.10	0.07
		Old age and survivors											0.09	0.46	-0.63	0.16	-0.08	-0.08	0.29	1.11	1.66	0.04
		Other expenditure											0.00	0.00	-0.01	-0.03	-0.01	-0.01	-0.01	0.00	0.01	0.00
		Sickness/Health care											0.09	0.02	0.16	-0.30	0.48	-0.50	0.28	0.01	0.61	0.29
		Unemployment											-0.41	-0.08	0.10	-0.05	-0.12	-0.08	-0.06	-0.07	0.20	0.16
		Disability											0.04	-0.01	0.15	-0.18	0.03	0.00	0.18	0.12	0.24	-0.03
		Total											-0.26	0.79	-0.50	-0.24	0.62	-0.62	0.73	0.70	2.82	0.50

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			1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Eastern continental Member States	CYPRUS	Administration costs											0.01	0.02	0.08	-0.03	0.00	-0.03	-0.02	0.00	0.02	-0.02
		Family/Children											0.29	0.07	0.68	0.10	0.05	-0.18	-0.01	0.14	0.12	-0.07
		Housing and Social exclusion n.e.c.											0.10	0.13	0.17	-0.24	0.00	0.12	0.24	0.36	0.59	0.13
		Old age and survivors											-0.23	0.98	0.57	0.12	-0.16	0.00	-0.07	0.13	0.86	0.49
		Other expenditure											0.00	0.06	0.01	0.00	0.00	0.00	0.00	0.54	-0.54	0.00
		Sickness/Health care											-0.07	0.13	0.65	-0.47	0.28	0.10	-0.13	-0.04	0.60	-0.08
		Unemployment											-0.06	-0.12	-0.03	0.13	0.11	0.13	-0.31	0.13	-0.04	0.06
		Disability											0.06	0.07	0.05	0.08	-0.08	0.03	-0.05	0.01	0.08	-0.01
		Total											0.08	1.35	2.17	-0.30	0.21	0.18	-0.36	1.28	1.70	0.50
	CZECH REPUBLIC	Administration costs						-0.01	0.02	0.00	0.02	0.00	0.00	0.00	0.04	0.00	-0.02	-0.01	-0.02	-0.02	0.07	0.01
		Family/Children						-0.14	-0.06	-0.15	0.00	-0.04	-0.05	0.02	-0.08	0.08	-0.17	-0.03	0.29	-0.21	0.04	-0.10
		Housing and Social exclusion n.e.c.						-0.01	0.07	0.13	0.13	0.07	-0.02	0.02	0.04	-0.05	-0.04	-0.01	-0.29	-0.04	0.09	0.03
		Old age and survivors						0.16	0.84	0.22	0.20	0.06	-0.13	0.20	-0.24	-0.31	0.15	-0.05	0.15	0.35	0.99	0.18
		Other expenditure						0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		Sickness/Health care						0.01	-0.02	-0.16	0.14	0.17	0.08	0.37	0.08	-0.33	-0.07	-0.30	-0.08	-0.09	0.58	-0.07
		Unemployment						0.05	0.08	0.03	0.14	-0.04	-0.04	0.05	0.13	-0.06	-0.08	-0.08	0.05	0.01	0.43	-0.23
		Disability						0.07	0.10	0.02	0.04	-0.02	0.03	0.02	0.05	-0.10	-0.03	0.10	-0.05	-0.01	0.10	0.00
		Total						0.14	1.04	0.10	0.66	0.21	-0.14	0.69	0.03	-0.78	-0.26	-0.37	0.05	-0.01	2.29	-0.18
	HUNGARY	Administration costs										-0.03	-0.01	0.02	0.03	-0.03	0.02	0.03	-0.05	0.01	0.01	0.08
		Family/Children										-0.09	-0.11	0.04	0.21	-0.25	0.06	0.30	0.01	0.02	0.16	-0.10
		Housing and Social exclusion n.e.c.										-0.05	-0.09	0.00	-0.05	-0.07	0.12	0.01	0.38	-0.20	-0.03	-0.18
		Old age and survivors										-0.21	-0.01	0.55	-0.02	0.02	0.46	0.19	0.47	0.42	0.26	0.02
		Other expenditure																				
		Sickness/Health care										-0.09	-0.19	0.33	0.62	-0.19	0.40	-0.06	-0.68	-0.06	0.06	0.01
		Unemployment										-0.14	-0.14	-0.05	0.00	0.00	0.02	0.06	0.09	0.06	0.14	-0.06
		Disability										-0.08	0.08	0.07	0.12	-0.05	0.03	0.04	-0.02	-0.04	-0.02	-0.17
		Total										-0.70	-0.47	0.96	0.90	-0.55	1.12	0.57	0.22	0.20	0.59	-0.40
	MALTA	Administration costs						0.05	0.00	-0.02	0.00	0.00	0.02	-0.01	-0.02	0.00	-0.01	-0.01	0.00	0.01	0.04	-0.02
		Family/Children						-0.01	-0.08	-0.08	-0.13	-0.21	-0.16	-0.04	-0.08	0.00	-0.08	-0.04	-0.06	0.15	0.04	-0.03
		Housing and Social exclusion n.e.c.						0.23	0.03	0.02	-0.11	-0.16	-0.06	0.09	0.07	0.06	-0.11	0.06	0.10	-0.01	-0.04	-0.07
		Old age and survivors						0.70	0.04	0.08	0.12	-0.64	0.81	-0.21	0.05	0.23	0.21	0.14	-0.16	0.16	0.80	0.46
		Other expenditure						0.00	-0.02	-0.01	0.00	0.00	0.00	-0.01	-0.01	-0.01	0.00	0.00	0.00	0.00	0.00	0.00
		Sickness/Health care						-0.51	1.23	-0.12	-0.07	-0.12	0.21	-0.15	0.35	0.35	-0.12	-0.18	-0.04	0.24	0.64	-0.38
		Unemployment						0.06	0.03	-0.01	0.04	-0.06	0.02	0.42	-0.16	-0.04	-0.04	-0.01	-0.11	0.00	0.09	-0.05
		Disability						0.17	-0.18	0.23	0.03	-0.03	0.04	0.02	0.12	0.09	-0.03	-0.05	-0.06	-0.09	-0.05	-0.07
		Total						0.68	1.05	0.11	-0.12	-1.23	0.89	0.10	0.32	0.68	-0.16	-0.10	-0.33	0.46	1.51	-0.16

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			1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Eastern continental Member States	POLAND	Administration costs											-0.02	-0.04	-0.14	0.10	0.07	-0.06	-0.04	-0.01	-0.01	-0.01
		Family/Children											0.03	-0.01	-0.08	0.00	-0.05	-0.02	-0.03	-0.06	0.02	0.03
		Housing and Social exclusion n.e.c.											0.05	-0.17	0.18	-0.04	0.18	-0.15	-0.08	-0.04	-0.01	-0.01
		Old age and survivors											0.96	0.25	0.20	-0.25	-0.32	0.10	-0.75	0.16	0.50	-0.09
		Other expenditure											-0.02	0.01	0.00	0.01	0.00	-0.01	-0.01	-0.01	0.01	0.00
		Sickness/Health care											0.19	0.27	-0.08	-0.32	-0.01	0.04	0.09	0.52	0.27	-0.21
		Unemployment											0.01	0.00	-0.08	-0.14	-0.04	-0.06	-0.17	-0.04	0.04	0.02
		Disability											0.13	-0.15	-0.12	-0.28	-0.20	-0.17	-0.24	-0.11	-0.20	0.05
		Total											1.31	0.16	-0.11	-0.93	-0.38	-0.33	-1.23	0.41	0.61	-0.22
	SLOVENIA	Administration costs							-0.03	-0.01	0.03	0.10	0.00	-0.01	-0.04	0.00	0.00	0.02	-0.05	-0.02	0.02	0.01
		Family/Children							0.05	-0.06	0.12	0.13	-0.04	-0.09	-0.04	-0.02	-0.03	-0.04	-0.17	0.05	0.31	0.07
		Housing and Social exclusion n.e.c.							0.02	-0.03	-0.02	0.00	0.03	0.05	0.14	0.03	0.01	-0.10	-0.06	-0.06	0.10	0.05
		Old age and survivors							0.06	0.10	-0.12	0.08	0.19	0.23	-0.65	-0.16	-0.25	0.11	-0.37	-0.12	1.28	0.35
		Other expenditure							0.00	0.03	0.05	-0.06	-0.02	-0.01	0.00	-0.02	-0.02	0.01	0.06	-0.02	-0.01	0.00
		Sickness/Health care							0.11	0.12	-0.07	0.03	0.26	-0.03	0.06	-0.16	-0.05	-0.17	-0.45	0.36	0.75	0.08
		Unemployment							0.17	0.11	-0.13	-0.13	-0.13	-0.13	-0.04	0.00	0.03	-0.12	-0.19	-0.05	0.21	0.08
		Disability							0.03	0.01	0.09	0.05	-0.05	-0.04	-0.12	-0.05	0.06	-0.04	-0.19	-0.05	0.11	0.00
		Total							0.40	0.28	-0.05	0.21	0.24	-0.04	-0.68	-0.38	-0.25	-0.32	-1.42	0.09	2.78	0.65
	SLOVAKIA	Administration costs						0.16	0.20	-0.10	-0.11	-0.12	-0.04	0.07	-0.03	0.00	-0.01	0.01	0.04	-0.11	-0.01	0.02
		Family/Children						-0.20	-0.17	-0.02	-0.21	-0.22	-0.17	-0.03	-0.04	0.28	-0.05	-0.02	-0.10	-0.07	0.23	0.04
		Housing and Social exclusion n.e.c.						-0.09	-0.04	0.19	0.29	0.04	0.02	-0.07	-0.30	-0.33						
		Old age and survivors						-0.02	0.04	0.11	0.12	-0.09	0.04	0.07	0.09	-0.17	0.07	-0.18	-0.16	-0.15	1.16	-0.01
		Other expenditure						0.05	0.00	-0.02	0.00	-0.02	0.00	0.00	-0.01	0.02	0.00	0.00	-0.03	0.00	0.02	0.01
		Sickness/Health care						1.08	-0.05	-0.04	-0.31	-0.06	-0.12	-0.11	-0.57	-0.76	-0.23	0.00	0.00	0.33	0.68	-0.20
		Unemployment						0.02	0.28	0.11	0.28	-0.41	-0.24	0.09	0.24	0.03	-0.48	-0.02	0.03	0.04	0.44	-0.12
		Disability						-0.03	0.06	0.00	0.06	0.12	0.06	0.14	-0.07	-0.25	0.00	0.03	-0.02	0.09	0.15	0.02
		Total						0.97	0.33	0.23	0.13	-0.77	-0.45	0.15	-0.70	-1.19	-0.69	-0.18	-0.24	0.13	2.67	-0.24

Source: ESSPROS.

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Table 10: Regression output for population aged 0-64

Fixed-effects, using 178 observations
Included 27 cross-sectional units
Time-series length: minimum 4, maximum 8
Dependent variable: Poverty reduction (0-64)
Robust (HAC) standard errors

	Coefficient	Std. Error	t-ratio	p-value	
Constant	0.143	0.050	2.830	0.005	***
Family/children benefits	0.068	0.022	3.080	0.003	***
Health care/ sickness	0.061	0.021	2.870	0.005	***
Disability	0.025	0.025	0.985	0.327	
Unemployment benefits	0.050	0.009	5.459	0.000	***
Social exclusion and housing	0.049	0.026	1.874	0.063	*
dt_2	-0.007	0.019	-0.374	0.709	
dt_3	-0.005	0.022	-0.222	0.824	
dt_4	0.003	0.023	0.148	0.882	
dt_5	0.011	0.024	0.461	0.646	
dt_6	0.020	0.025	0.828	0.409	
dt_7	0.009	0.025	0.349	0.728	
dt_8	-0.019	0.023	-0.807	0.421	

Mean dependent variable	0.409	S.D. dependent variable	0.146
Sum squared residual	0.129	S.E. of regression	0.030
R-squared	0.966	Adjusted R-squared	0.956
F(38, 139)	103.344	P-value(F)	0.000
Log-likelihood	390.777	Akaike criterion	-703.554
Schwarz criterion	-579.464	Hannan-Quinn	-653.232
rho	0.157	Durbin-Watson	1.328

Test for differing group intercepts -
Null hypothesis: The groups have a common intercept
Test statistic: F(26, 139) = 38.859
with p-value = P(F(26, 139) > 38.859) = 2.89e-051

Wald test for joint significance of time dummies
Asymptotic test statistic: Chi-square(7) = 18.599
with p-value = 0.0095

Random-effects (GLS), using 178 observations
Included 27 cross-sectional units
Time-series length: minimum 4, maximum 8
Dependent variable: Poverty reduction (0-65)

	Coefficient	Std. Error	t-ratio	p-value	
Constant	0.100	0.034	2.937	0.004	***
Family/children benefits	0.073	0.015	4.998	0.000	***
Health care/ sickness	0.063	0.020	3.106	0.002	***
Disability	0.047	0.016	3.029	0.003	***
Unemployment benefits	0.043	0.011	4.035	0.000	***
Social exclusion and housing	0.067	0.025	2.666	0.008	***
dt_2	-0.007	0.016	-0.460	0.646	
dt_3	-0.004	0.015	-0.271	0.787	
dt_4	0.005	0.015	0.331	0.741	
dt_5	0.013	0.015	0.893	0.373	
dt_6	0.023	0.015	1.546	0.124	
dt_7	0.010	0.015	0.668	0.505	
dt_8	-0.020	0.015	-1.304	0.194	

Mean dependent variable	0.409	S.D. dependent variable	0.146
Sum squared residual	1.335	S.E. of regression	0.090
Log-likelihood	182.905	Akaike criterion	-339.810
Schwarz criterion	-298.447	Hannan-Quinn	-323.036

'Within' variance = 0.000929077
'Between' variance = 0.00609981

Breusch-Pagan test -
Null hypothesis: Variance of the unit-specific error = 0
Asymptotic test statistic: Chi-square(1) = 345.046
with p-value = 5.08203e-077

Hausman test -
Null hypothesis: GLS estimates are consistent
Asymptotic test statistic: Chi-square(12) = 17.2004
with p-value = 0.142215

Source: DG EMPL calculations.

Note: The random-effects model provides more coefficients being statistically significant than the fixed-effects model. However, given the length of the time series which is not very high, the test indicating whether the GLS estimation should be used (the Hausman test) has limitations.

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Table 11: Regression output for population aged 0-17

Fixed-effects, using 178 observations
Included 27 cross-sectional units
Time-series length: minimum 4, maximum 8
Dependent variable: Poverty reduction (0-17)
Robust (HAC) standard errors

	Coefficient	Std. Error	t-ratio	p-value	
Constant	0.114	0.049	2.317	0.022	**
Family/children benefits	0.115	0.022	5.171	0.000	***
Health care/ sickness	0.074	0.026	2.863	0.005	***
Disability	0.013	0.033	0.401	0.689	
Unemployment benefits	0.031	0.011	2.819	0.006	***
Social exclusion and housing	0.053	0.038	1.393	0.166	
dt_2	-0.021	0.020	-1.048	0.296	
dt_3	-0.021	0.023	-0.918	0.360	
dt_4	-0.013	0.024	-0.546	0.586	
dt_5	-0.003	0.024	-0.116	0.908	
dt_6	0.005	0.024	0.220	0.826	
dt_7	-0.013	0.026	-0.498	0.619	
dt_8	-0.036	0.025	-1.434	0.154	

Mean dependent variable	0.409	S.D. dependent variable	0.161
Sum squared residual	0.172	S.E. of regression	0.035
R-squared	0.962	Adjusted R-squared	0.952
F(38, 139)	93.652	P-value(F)	0.000
Log-likelihood	365.507	Akaike criterion	-653.015
Schwarz criterion	-528.925	Hannan-Quinn	-602.693
rho	0.000	Durbin-Watson	1.630

Test for differing group intercepts -
Null hypothesis: The groups have a common intercept
Test statistic: F(26, 139) = 35.452
with p-value = P(F(26, 139) > 35.4515) = 6.65e-049

Wald test for joint significance of time dummies
Asymptotic test statistic: Chi-square(7) = 19.847
with p-value = 0.006

Random-effects (GLS), using 178 observations
Included 27 cross-sectional units
Time-series length: minimum 4, maximum 8
Dependent variable: Poverty reduction (0-17)

	Coefficient	Std. Error	t-ratio	p-value	
Constant	0.062358	0.03806	1.638	0.1032	
Family/children benefits	0.11404	0.016343	6.978	6.93E-11	***
Health care/ sickness	0.07793	0.022715	3.431	0.0008	***
Disability	0.044595	0.0174	2.563	0.0113	**
Unemployment benefits	0.025882	0.011957	2.165	0.0319	**
Social exclusion and housing	0.071789	0.028424	2.526	0.0125	**
dt_2	-0.0213432	0.01822	-1.171	0.2431	
dt_3	-0.019623	0.017102	-1.147	0.2529	
dt_4	-0.0109644	0.017019	-0.6442	0.5203	
dt_5	0.000211	0.016984	0.01244	0.9901	
dt_6	0.009163	0.017026	0.5382	0.5912	
dt_7	-0.00980458	0.017073	-0.5743	0.5666	
dt_8	-0.0366297	0.017495	-2.094	0.0378	**

Mean dependent variable	0.409	S.D. dependent variable	0.161
Sum squared residual	1.557	S.E. of regression	0.097
Log-likelihood	169.205	Akaike criterion	-312.409
Schwarz criterion	-271.046	Hannan-Quinn	-295.635

'Within' variance = 0.00123413
'Between' variance = 0.00660158

Wald test for joint significance of time dummies
Asymptotic test statistic: Chi-square(7) = 20.6654
with p-value = 0.00429829

Breusch-Pagan test -
Null hypothesis: Variance of the unit-specific error = 0
Asymptotic test statistic: Chi-square(1) = 371.981
with p-value = 6.93314e-083

Hausman test -
Null hypothesis: GLS estimates are consistent
Asymptotic test statistic: Chi-square(12) = 18.3742
with p-value = 0.104791

Source: DG EMPL calculations

Note: The random-effects model provides more coefficients being statistically significant than the fixed-effects model. However, given the length of the time series which is not very high, the test indicating whether the GLS estimation should be used (the Hausman test) has limitations.

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Table 12: Structural Indicators on financial incentives to work, 2010

	Low-wage trap				Inactivity trap				Unemployment trap			
67% of AW	Single		One earner couple with 2 children		Single		One earner couple with 2 children		Single		One earner couple with 2 children	
	2010	Change 2001-2010	2010	Change 2001-2010	2010	Change 2001-2010	2010	Change 2001-2010	2010	Change 2001-2010	2010	Change 2001-2010
BE	0.55	1.25	0.48	1.50	0.67	1.14	0.67	0.35	0.93	7.09	0.79	5.83
DK	0.41	-8.19	0.99	-1.85	0.87	-3.01	0.96	-2.28	0.89	-2.14	0.94	-1.71
DE	0.47	-4.41	0.73	3.97	0.66	-0.39	0.78	3.03	0.75	-0.40	0.78	-4.12
GR	0.16	0.10	0.16	0.10	0.06	3.52	0.04	6.19	0.61	-1.39	0.75	-1.16
ES	0.29	-4.32	0.06	0.00	0.45	2.08	0.48	-8.82	0.83	3.26	0.77	-1.34
FR	0.32	-2.18	0.53	3.81	0.61	-2.85	0.68	-12.61	0.77	-4.03	0.73	-11.30
IE	0.26	0.00	0.62	36.40	0.79	12.84	0.92	6.13	0.78	12.50	0.92	6.13
IT	0.39	6.87	0.54	22.01	0.24	3.82	0.00	4.71	0.78	17.69	0.73	17.55
LU	0.32	-3.05	1.07	95.49	0.70	1.95	0.86	-0.76	0.86	-1.01	1.00	5.90
NL	0.52	7.13	0.85	40.05	0.82	1.92	0.82	-4.75	0.84	4.25	0.85	-1.96
AT	0.44	3.36	0.44	3.43	0.65	-1.70	0.83	-0.45	0.67	-0.11	0.83	-0.45
PT	0.35	10.08	0.11	0.00	0.36	-0.15	0.71	-2.29	0.79	-1.96	0.78	-0.04
FI	0.42	1.37	0.95	32.94	0.69	-9.06	0.93	-4.73	0.72	-7.78	0.93	-4.73
SE	0.29	-9.01	0.61	-19.56	0.70	-10.07	0.88	-9.89	0.75	-12.74	0.88	-9.89
UK	0.31	-1.00	0.90	0.21	0.50	-2.22	0.52	20.05	0.50	-2.22	0.52	20.05
CZ	0.52	26.15	0.29	16.04	0.62	-0.69	0.77	-12.68	0.80	12.72	0.77	-12.68
EE	0.23	:	0.23	:	0.46	:	0.57	:	0.63	:	0.57	:
HU	0.39	-1.91	0.39	-1.91	0.50	-0.26	0.48	-8.89	0.82	11.22	0.82	18.42
LT	0.27	:	0.93	:	0.44	:	0.92	:	0.70	:	0.97	:
LV	0.33	:	0.33	:	0.59	:	0.90	:	0.90	:	0.90	:
MT	0.23	:	0.34	:	0.59	:	0.67	:	0.59	:	0.66	:
PL	0.30	-3.83	0.33	-12.68	0.51	-10.74	0.57	-11.15	0.82	-0.41	0.72	-0.19
SK	0.30	6.59	0.13	-106.60	0.40	-41.18	0.58	-66.74	0.68	-5.97	0.58	-52.24
SI	0.35	:	0.22	:	0.60	:	0.82	:	0.83	:	0.82	:
BG	0.21	:	0.21	:	0.38	:	0.58	:	0.81	:	0.81	:
RO	0.30	:	0.38	:	0.37	:	0.43	:	0.71	:	0.67	:

Source: OECD/EC Tax and Benefits database.

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