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Improving poverty reduction in Europe: what works (best) where?

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Table of contents

Abstract

In this paper we provide evidence of the relative cost-effectiveness of different types of policy instrument in reducing the risk of poverty (or limiting its increase). We do that by measuring the implications of increasing or reducing the size of the instrument within its national context, comparing across 7 diverse EU countries: Belgium, Bulgaria, Estonia, Greece, Hungary, Italy and the UK. We consider four types of commonly-applied policy instrument that have a direct effect on household income and hence potentially on the risk of income poverty: child benefits, minimum income components of social assistance, income tax lower thresholds and minimum wages; and one general aspect of policymaking, the regular indexation of benefit levels and tax thresholds. We focus on changing the scale of the instrument rather than its structure. Hence, in each case we take the existing policy instrument and calculate the direct effects on household income of inflating/deflating the relevant thresholds and payment levels by common proportions (5%, 20% and 90%), taking account of interactions with the rest of the tax-benefit system. To do this we make use of EUROMOD, the tax-benefit microsimulation model for the European Union, based on microdata from the European Union Statistics on Income and Living Conditions (EU-SILC). The effect on income poverty (FGT0 and FGT1) is calculated and compared across instruments and countries and is assessed relative to the budgetary effect of the policy change. The aim of this paper is not necessarily to present realistic or politically feasible policy reform scenarios but rather to compare the cost-effectiveness of some common "building blocks" of policy making, drawing on analysis of seven national policy systems and contexts.

Keywords: Poverty, Europe 2020, EU, social policy, fiscal policy, microsimulation

JEL codes: D3, D13, D30, H53, I38

1 Introduction

Poverty and income inequality remain persistently high or are rising in many EU countries and the EU2020 targets for poverty reduction seem unattainable (Eurostat, 2015). It is clear that in order to move towards the targets in a convincing way there is need for increased and differently-allocated public spending.

In the context of the recovery from the recent economic crisis (and its persistence in some countries) budgetary retrenchment remains on the agenda. Policies that reduce spending or raise taxes have implications for poverty and income inequality and the sensitivity of these important outcomes to the design of the policy is a key issue (Avram et al., 2013).[1]

The effectiveness of policy systems in reducing poverty and inequality depends on the environment in which they operate. This applies in particular to the characteristics of the population for whom they are intended and the economic conditions of the time. For instance, the extent to which policy systems are able to absorb macroeconomic shocks with regard to poverty varies (Atkinson, 2009; Nolan, 2009). The effectiveness of particular policy instruments also naturally depends on the specifics of their design and who is eligible, as well as on the way in which they interact with the rest of the tax and benefit system. For example, benefits and pensions may be liable for income tax and changes to one benefit may affect the entitlement to another. Finally, of course, effectiveness in reducing poverty depends on the scale of the policy instrument. For example, if the band of income on which no personal income tax is charged is small relative to the poverty threshold then the tax threshold may be a relevant policy instrument for improving the income situation of households in poverty. But if the tax threshold is greater than the poverty threshold then its relevance is less clear.

Furthermore, the effectiveness of policies on poverty reduction, or any other outcome measure, depends on how people react to them. For example, targeting resources on those with low incomes may appear efficient for poverty reduction but is less so if means-testing results in incomplete take-up of the benefit or if benefits reduce the financial incentive to work for the recipient or others in their households.[2] In terms of both household income and the budgetary cost, an increase in value of a means-tested benefit may be counterproductive, or at least more costly than it would seem based on first-round calculations. There may also be macro-economic consequences of changing policies beyond those due to changed supply of labour.

From the point of view of poverty reduction effectiveness, the optimal design of tax-benefit policies depends on the context in which policies operate which means that country-specific guidance is necessary. It is unlikely *a priori* that "one size fits all". In addition, such policies always need to balance poverty reduction and budgetary cost. In this paper, we aim to provide some evidence on the relative effectiveness of different types of policy instruments in reducing the risk of poverty (or limiting its increase) by measuring the implications of increasing or reducing the size of the instrument within its national context, comparing across 7 diverse EU countries. In particular we develop an indicator of cost-effectiveness, defined as the ratio of the percentage point change in poverty (headcount or gap) to the net cost to the public budget, expressed as a proportion of GDP.

[1] See EUROMOD (2016) for a distributive analysis of tax-benefit changes (or lack of them) in the periods 2013 to 2014 and 2014 to 2015.

[2] For more on these 'twin-failures' of means-testing, see Atkinson (2015), p.209-212.

We focus on the scale of the instrument rather than its design and do not aim to capture any second-order effects, although we do return to the issue of work incentives, where relevant, when discussing the results.

We explore the relationship between cost and poverty reduction for a wide range of both increases and decreases in the scale of the policy instruments in order to establish whether our indicator of poverty reduction cost-effectiveness depends on the scale of the policy: in other words, whether the relationship between poverty and cost is linear or not.

In this paper, we focus on five important instruments or "building blocks" of policy making, and estimate our indicator of poverty reduction cost-effectiveness for seven national policy systems and contexts. The seven countries are chosen for their diversity of tax-benefit systems, geographic location and economic situation. They are Belgium, Bulgaria, Estonia, Greece, Hungary, Italy and the UK.

We consider four types of policy instrument that potentially have a direct effect on household income and hence on the risk of income poverty: child benefits, minimum income components of social assistance, income tax lower thresholds and minimum wages. In each case we take the existing policy instrument and calculate the direct effects on household income of inflating (and deflating) the relevant thresholds and payment levels by common proportions (5%, 20% and 90%). In addition, we explore one more general aspect of policy-making: the regular indexation of benefit levels and tax thresholds. For our analysis, we make use of EUROMOD, the tax-benefit microsimulation model for the European Union, and micro-data from the European Union Statistics on Income and Living Conditions (EU-SILC).[3] EUROMOD, in combination with the micro-data, provides a unique opportunity to calculate with precision and cross-country comparability the income effect of the building blocks for each household in the data taking into account the complex interactions within and between the tax-benefit policies. The effect on the percentage at-risk-of-poverty and the poverty gap is calculated and compared across instruments, countries and size and direction of the change, and assessed in terms of the change in these indicators relative to the budgetary cost of the policy change.

The paper is structured as follows. Section 2 describes the rationale for choosing each of the five policy building blocks. Section 3 explains the methodology of our work. Section 4 presents our estimates on the effect of changes to each of the policy building blocks on the poverty headcount and poverty gap. Section 5 concludes by summarising the most important findings, and by reflecting on the policy implications of this work.

2 The policy "Building blocks"

The policy instruments that we focus on have been chosen based on two criteria. First, they commonly considered as components of reform strategies to reduce income poverty (or restrain its growth). The second criterion is that they already exist in most of the countries considered, and hence are suitable for consideration in comparative context. There are of course other instruments that are relevant to explore in particular national contexts and the most important omissions in this

[3] For the UK we use the Family Resources Survey (FRS).

respect include in-work benefits, tax-credits and housing benefits. However, the existence of these is patchy across countries and the diversity of design and structure of such instruments makes changes to them difficult to compare across countries.

Our aim is to explore the relative cost-effectiveness of expanding (or contracting) existing instruments, while comparing across instruments within countries and assessing differences across countries for each instrument. We also consider how cost-effectiveness itself depends on the scale of the instrument. To do this, we expand (and contract) relevant monetary levels and thresholds by common percentages: 5%, 20% and 90%. The first (5%) corresponds to a modest reform and the second (20%) to a larger scale (but still plausible) shift in policy emphasis. Reducing by 90% corresponds to a scenario that is close to abolishing the instrument.[4] In contrast, an increase of 90% corresponds to a very large change that may be infeasible as a practical policy option in circumstances where the instrument is already large in size. This extreme scenario is nevertheless relevant for our exercise, as it provides us with some outer limits for our calculations of effectiveness. However, especially if the initial value is generally considered to be low, increasing by 90% is not the upper bound on what is possible. Therefore, it is worth stressing that the results of the analysis are to an important extent driven by the current size as well as the design of the policy instruments under consideration. In order to shed more light on this, we briefly elaborate on each of the instruments.

2.1 Child benefits

We might expect increasing the size of benefits paid for children to contribute to reducing poverty, and especially child poverty. The extent of the effect depends on the design of the benefit (e.g. whether or not benefit entitlements depend on the age and number of children, and how it impacts on the particular households with children below the poverty line (Bradshaw, 2006). If the benefit is universal it may appear to be less cost effective in terms of poverty reduction than a benefit targeted on low income families, but it will have the advantages of high take-up and political support (Matsaganis et al., 2006; Levy et al., 2013).

In our analysis we focus on cash benefits specifically targeted on children. We do not include maternity and parental benefits nor any child-contingent components of adult out-of-work or in-work benefits or housing benefits, nor support for children that is channeled through the personal income tax system.[5]

Table 1 shows how the average monthly value of child benefits for recipient households compares with median equivalised household disposable income in each country and also the proportion of all households receiving these benefits. It is relatively generous and prevalent in Hungary and also Belgium. The payment is smallest in Greece, followed by Estonia and Italy, and in Bulgaria only a minority of households with children is entitled.

[4] We choose not to show the effects of abolishing instruments entirely because in some systems receipt of a particular benefit acts as a passport to entitlement to other benefits or as an alternative to receipt of other benefits. These effects would distract from our focus on the effectiveness of particular instruments.

[5] Figari et al. (2011) analyse the impact of the whole package of child contingent incomes.

TABLE 1: POLICY BUILDING BLOCKS: EXISTING GROSS LEVELS AS A PERCENTAGE OF MEDIAN EQUIVALENT HOUSEHOLD DISPOSABLE INCOME 2013

		Belgium	Bulgaria	Estonia	Greece	Italy	Hungary	UK
Child benefits	Mean for recipients %	19.2	10.7	7.9	6.0	8.6	27.5	10.3
	Recipient households as % of all	25.5	8.9	18.3	20.1	13.5	22.7	18.4
Social Assistance Benefits	Mean for recipients %	26.6	12.1	19.6	-	-	8.0	26.5
	Recipient households as % of all	1.9	7.4	2.3	-	-	13.1	6.4
Income tax threshold	Threshold level %	34.1	-	26.2	52.2	51.9	-	54.3
Minimum Wage	Monthly, for full time prime age worker %	91.4	54.1	58.2	73.4	-	95.2	70.3
Median equivalised household disposable income EUR/month		*1,707*	*293*	*550*	*798*	*1,285*	*360*	*1,450*

Source: Authors' calculations using EUROMOD and EU-SILC 2010
Notes: Household disposable income is equivalised using the modified OECD scale. Minimum wages assume (BE) full-time worker aged 20+ with at least 1 year of work experience ; (EL) single, full-time worker aged 25+ with 0-3 years of work experience; (UK)age 22+, full time worker (38 hours). Euro exchange rates: BG 1.956BGN; HU 286.0HUF; UK 0.8553GBP.

2.2 Social Assistance

One of the main purposes of minimum income social assistance benefits is to protect against poverty or at least severe poverty. They do not always succeed for a number of related reasons (Kenworthy, 1999). Levels of benefit may not be sufficient to reach even a low poverty threshold and conditions of entitlement may exclude some people by design (Figari et al., 2013; Van Mechelen and Marchal, 2013). Others may be excluded because they do not claim their entitlements due to stigma or lack of information and some entitled people may claim but still not receive benefit due to administrative errors or delays (Eurofound, 2015). In addition there may be a mismatch between the unit of income aggregation for poverty measurement (the household) and that used for the assessment of social assistance entitlement, which may be smaller (e.g. the nuclear family) or sometimes larger, taking account of incomes of non-resident family members (Figari et al., 2013).

Expanding the generosity of cash payments in social assistance schemes will be an effective way of increasing the income of existing recipients, and may also draw in more entitled people who have incomes that previously made them ineligible.[6] However there are limits to the extent to which social assistance can be increased without damaging the incentive to work. (Immervoll, 2010; Collado et al., 2016).

[6] It may also encourage take-up by previously entitled non-recipients as the benefit of claiming becomes larger.

There was no such national cash social assistance in Greece and Italy in 2013. See World Bank (2015) and Ravigli (2015), respectively, for analysis of the effects of potential schemes in these two countries. For the remaining five countries Table 1 shows how the monthly average value of cash social assistance benefits received compares with median household disposable income. The table also shows the proportion of all households in receipt of social assistance. These benefits are relatively generous in the UK and Belgium and in the latter case the prevalence is relatively low. The prevalence is highest in Hungary but the average benefit payment is the lowest among the 5 countries with any social assistance.

2.3 Income tax threshold

Raising the income level at which people become liable for income tax is a way of increasing their net income that could in principle take them out of poverty or reduce the extent to which their income is below the poverty threshold. However, this depends on the relationship between the tax and poverty thresholds. If the tax threshold is already high there may be few people in poor households who are liable for income tax (e.g. single earners in large households).

In Bulgaria and Hungary there is a flat tax without an income exemption limit. These countries are not included in this part of the analysis. For the remaining countries Table 1 shows how the monthly value of the zero tax band compared with median household disposable income. Note that in Greece in 2013 there was no zero rate band or equivalent but the system of 2012 included this component and the figure for Greece reflects that system. Measured in this way the threshold in Estonia is half the size of that in Greece, Italy and the UK.

2.4 Minimum wage

Increasing the minimum wage might be viewed as a very effective way to increase the incomes of those already in paid work, especially since work on the minimum wage is my no means a guarantee of income above the poverty threshold (Marchal and Marx, 2015). However the extent of the effect of increasing the level of the minimum wage on poverty depends on two factors. First of all, the low paid are not necessarily located in households with income below the poverty threshold; they may benefit but there is no effect on poverty. Secondly, the gain from an increase in wages may be mitigated by needing to pay income tax and social contributions on the extra income, and in countries where they exist (Belgium and the UK), by reductions in entitlements to in-work benefits. So the extent to which minimum wage increases do directly benefit people in poor households is an empirical question depending on both the policy system and the characteristics of households – and one that we address.

Since in this analysis we do not attempt to capture changes in behavior by individuals, employers or institutions, it is assumed that there are no effects on the earnings distribution for those earning just above the new minimum levels, on hours worked, job-seeking and job acceptance behavior, or the supply of relatively low paid jobs. This may be realistic for small changes in the level of the minimum wage, but is not plausible for higher increases, especially where the level starts relatively high. As emphasized above, this exercise is not intended to lead directly to practical policy proposals. Rather, the point is to illustrate the potential or otherwise of reforms to particular policy instruments. If, for

example, our analysis were to show that almost doubling the minimum wage had a dramatic effect on income poverty then this would clearly point to the need for a strategy – of some kind – to increase pay for those at the bottom of the income distribution. This would not necessarily rely solely on legislating for an increase in the minimum rate of pay. It may also have bearing on policy related to hours in paid work and training and skills.

There is no minimum wage in Italy and so this country is not included in this part of the analysis. For the remaining countries Table 1 shows how the monthly minimum wage for prime-age full-time workers compares with median household disposable income. Measured in this way it is largest in Hungary and Belgium and smallest in Bulgaria.

2.5 Indexation policy

This aspect of policy design and practice is rather different than the other four building blocks that we have considered so far. It is included because of its importance in maintaining policy effectiveness in poverty reduction over time and is particularly critical in times of earnings growth. (Hills et al., 2014). "Indexation" refers to the uprating of monetary levels and thresholds in the tax-benefit system, typically to keep pace with inflation or the growth in the economy. If this happens regularly and across all tax-benefit instruments then the system will maintain its effectiveness in terms of keeping living standards constant, in the case of indexation for inflation. Alternatively indexing by the growth in market incomes will eliminate fiscal drag and the erosion of benefit levels relative to incomes as a whole and will tend to minimize effects on inequality. Hills et al. (2014) show how indexation practice in the seven countries considered here varied considerably over the decade 2001-11 and how not keeping pace with the trends in the economy has distributional implications. Failing to index implies higher poverty unless there are structural reforms to compensate on a regular basis.

Indexation policy varies across the countries we consider, ranging from a near-comprehensive regime in the UK, with all elements of the tax benefit system indexed in a statutory or customary way (De Agostini et al., 2015; Appendix 3) to systems in which regular indexation only applies to pensions such as in Bulgaria (Boshnakov et al, 2015). However, even in cases where an indexation regime is established, it may be suspended in times of crisis or for political reasons, as has happened in recent years in the UK (De Agostini et al, 2015) and in Italy (Figari and Fiorio, 2015). And in addition, even when in operation, an established regime may not fully ensure against fiscal drag and the erosion of benefit levels. Indexing for inflation will not be sufficient on its own to prevent growth in poverty as those reliant on benefits see their incomes falling behind those at the median of the income distribution, if real market income are rising.

Sutherland et al (2008) showed that in the UK fiscal drag and benefit erosion have clear distributional implications when left unchecked and without compensating interventions. They reduce the relative incomes of the poor. The importance of the effect may not be the same in other policy systems as it depends on the salience of monetary levels, amounts and thresholds in the tax-benefit system and where in the income distribution these thresholds apply. The final policy "building block" that we examine is the relevance of indexation in maintaining the poverty-reducing effectiveness of the tax-benefit systems in the seven countries.

3 Methodology and data

3.1 EUROMOD and data

To estimate the effect of changes to the five building block policies on poverty, we make use of a tax-benefit microsimulation model and representative samples of households. This allows us to take account of the important and complex interactions within and between tax-benefit policies, and the distribution of household characteristics. The tax-benefit model EUROMOD enables us to do this in a comparable manner for each of the EU Member States. The model uses micro-data on gross incomes, labour market status and other characteristics of the individuals and households, which it then applies to the country-specific tax and benefit rules for the year of interest in order to simulate direct taxes, social insurance contributions and entitlements to cash benefits. Information on the components of the tax-benefit system that cannot be calculated is taken directly from the micro-data (as reported by the individual/household).[7] EUROMOD has been validated both at the micro and macro level and has been tested in many applications. For a comprehensive overview, see Sutherland and Figari (2013).

The underlying micro-data are drawn from the 2010 European Union Statistics on Income and Living Conditions (EU-SILC) data (i.e. 2009 incomes) for Belgium, Bulgaria, Estonia, Greece, Italy and Hungary, and for the UK, from the 2009/10 Family Resources Survey (FRS). The tax-benefit calculations are carried out on the basis of the tax-benefit rules in place on June 30th 2013. The monetary variables in the micro-data, including market incomes and the tax-benefit components that are not simulated, such as most pensions, are updated to 2013 levels using appropriate indexes for each income source.[8] No other adjustments have been made for economic or demographic changes in the period 2009-13 which have been considerable in some of the countries that we analyse. Hence, the analysis is intended to measure the effects of hypothetical variations, not to predict the current situation.

As explained in the introduction, the calculations do not take account of behavioural changes that might occur as the result of the policy changes simulated, nor of any macro-economic effects. This would be a complex exercise if it were to account for all possible behavioural reactions as well as macroeconomic effects. Changing labour supply behaviour is of particular concern and maintaining work incentives for the low paid part of the population while reducing poverty using social assistance-style policies necessarily involves spending more on in-work income maintenance policies (Collado et al., 2016). While explicit account of changes in work (or other) incentives is beyond the scope of this paper, the implications of some of the policy changes for behaviour are considered in the discussion of the results, below.

Non take-up of means-tested benefits is an important phenomenon to account for in evaluating their distributional properties. In the case of the social assistance building block particularly, but also child

[7] These are usually contributory pensions, contributory maternity benefits or disability benefits. The reason why EUROMOD cannot calculate them is insufficient or complete lack of information in the household micro-data to identify eligibility or size of entitlement.

[8] See EUROMOD Country Reports for information on the indexes used for updating. These Reports also provide details of the tax-benefit simulations carried out by EUROMOD and their validation against external sources. https://www.iser.essex.ac.uk/euromod/using-euromod/country-reports/.

benefits where they are means-tested, we would over-estimate their effect on poverty if we assumed full take-up and in fact some of those entitled did not receive. In EUROMOD we make adjustments for non-take-up in the case of benefits where there is evidence of non take-up on which to base such adjustments. In this analysis this applies in the case of social assistance benefits in Belgium and Estonia (known as income support and subsistence benefit respectively) and to all means-tested benefits and tax credits in the UK. See Leventi and Vujackov (2016) for more information. We assume no change in take-up behaviour or probability in the case of the reforms that we simulate in this analysis.

Finally, the policy scenarios are not revenue-neutral, by design, because the point is to measure the budgetary cost. Any financing mechanism would itself have distributional, behavioural and macroeconomic effects.

3.2 Defining the building blocks

The intention is to apply common changes to equivalent policy instruments across the seven countries and to explore the relative effect on income poverty. Given the diversity of the design policy systems across countries this is not always straightforward. In this section we describe how each of the policy "building blocks" is constructed in each country.

3.2.1 Child benefits

Both universal and means-tested child benefits are included in the building block and per-child and per-family amounts are adjusted. The specific benefits included in this building block are listed in Annex 1. In the case of child benefits that are mean-tested income thresholds are not changed. Hence the number of beneficiaries does not change in any of the countries. Increasing (decreasing) child benefit amounts may result in other benefit entitlements decreasing (increasing) or tax liabilities increasing (decreasing) if the benefits are taxable (as is the case in Hungary) and our analysis captures these interactions and hence the net effect. Furthermore, if there are maximum limits on benefits that are payable, as with the "benefit cap" in the UK, these also take effect and in some circumstances may limit the gain from any increase in child benefit.

3.2.2 Social Assistance

We consider only the cash components of each national social assistance scheme. The specific benefits that are included for the five countries with national cash social assistance schemes are listed in Annex 1. In each case the maximum levels of benefit or subsistence thresholds applying to working aged people and dependent children are inflated or deflated by 5%, 20% and 90%. No changes are made to assistance levels for elderly people unless there is a single rate for all adults.

In some systems receipt of social assistance cash benefits act as a passport to other forms of assistance such as housing benefit (in the UK). The net effect of these is also included, where simulated, but the levels of these supplementary or complementary benefits are not inflated. As with the child benefit simulation, if there are maximum limits on the total amount of benefit that can be received, as in the UK, these are taken account of in our calculation of the net effect.

3.2.3 Income tax threshold

In the policy systems with a zero rate band in the income tax schedule or a personal income tax allowance, this is increased (decreased) by the same 5%, 20% and 90% proportions. This change is straightforward to apply in Belgium, Estonia and the UK. In Italy, where tax credits operate instead of income exemptions, the amounts of these tax credits are increased (decreased) instead. In Greece in 2013 there was no zero rate band or equivalent but the system of 2012 included this component and so we re-introduce that and then explore the effect of amending it as in the other countries. In this case, for Greece the baseline scenario is somewhat different than that employed for the previous two building block policies. Bulgaria and Hungary are not included in this part of the analysis because their tax systems have no income exemption limit or zero-rate band.

3.2.4 Minimum wage

In this part of the analysis EUROMOD assumes that there is full compliance with minimum wage legislation or collective bargaining agreements and also that information on monthly earnings and weekly hours taken from the EU-SILC is consistent and measured without error such that hourly (or weekly or monthly) wages can be calculated and compared with the official minimum. If they are lower, the wage is increased to the level necessary to comply with the national minimum wage arrangements in 2013.[9] For the analysis, the minimum level is then increased as for benefits and tax thresholds. This is done for each member of the household with earnings below the new minimum level. If higher earnings result in higher liabilities for income taxes and social contributions and lower income-tested benefit entitlements, this taken into account by EUROMOD and the net effect on household disposable income is analysed.

In the analysis of the other building blocks there is no simulation of existing minimum wage policy; earnings are as reported in the data for 2009 (updated to 2013 levels). The starting point, or baseline, in the analysis of the minimum wage building block is therefore somewhat different from the baseline in the other scenarios.

In the case of the minimum wage we do not explore the effect of lowering it by the standard proportions. To do this we would need to make the extreme assumption that all those earning between the existing minimum wage and the reduced level would see their earnings fall to the reduced level. In practice it is likely that a proportion would face a lower reduction and would end up with earnings above the new minimum level.[10]

3.2.5 Indexation policy

Since, as explained above, indexation policy can vary in practice year-to-year, we do not attempt to predict and simulate what might happen. Instead we compare the effect of not indexing at all (i.e.

[9] This treatment is consistent with an assumption that wages that are observed in the data as lower than the prevailing minimum wage are due to under-reporting of weekly or monthly earnings. Other causes could be over-reporting of hours of work or working in the grey economy for non-compliant employers.

[10] This does not mean that minimum wage reductions do not occur in practice. In Greece, for instance, the government imposed a 22% cut on the standard minimum wage in March 2012. For those under the age of 25 the reduction was even larger and reached 32%.

keeping them nominally the same) on the one hand or indexing all tax-benefit policy monetary parameters for inflation on the other hand, with what would happen if they were indexed according to the growth in average earnings. We explore the cumulative effect on poverty over an illustrative seven-year period (2013-20) using forecast values for the harmonized consumer price index (CPI) and growth in average earnings. We are then able to assess the relative vulnerability of the seven tax benefit systems to fiscal drag and benefit erosion reducing their effectiveness at protecting against poverty. The projected price and earnings indexes shown in Table 2 indicate how these vary considerably across countries. In order to factor out these differences we also show the implications for poverty of not indexing at all for seven years compared with indexing to a common rate of earnings growth of 3% per year. This allows us to isolate the tax-benefit design effects on the sensitivity of poverty to failure to index benefits and tax thresholds to keep up with economic growth.

TABLE 2: ANNUAL AVERAGE PERCENTAGE GROWTH IN CPI AND EARNINGS 2013-2020

	CPI	Earnings
Belgium	0.85	0.21
Bulgaria	0.44	2.33
Estonia	1.27	5.12
Greece	0.27	1.00
Hungary	2.13	3.25
Italy	1.02	0.62
United Kingdom	1.50	2.24

Source: The annual macro-economic database (AMECO) of the European Commission's Directorate General for Economic and Financial Affairs (DG ECFIN). Earnings growth is based on growth in the nominal compensation per employee for the total economy (indicator: HWCDW). CPI growth is based on the Harmonised Consumer Price Index (indicator: ZCPIH). Projections up to 2016 with 2015-16 growth replicated up to 2020.

3.3 Evaluating the results

We measure effectiveness of the policy building blocks according to their impact on income poverty measured using a threshold of 60% of national median household disposable income, equivalised using the modified OECD scale. Even though some of the policy instruments affect median incomes when varied in scale, we use a fixed poverty threshold measured based on the 2013 net income distribution. This is for reasons of transparency.

We use two poverty indicators, the poverty headcount (FGT0) and the normalised poverty gap ratio (FGT1) equal to the average poverty gap expressed as a ratio (in %) of the poverty line (Foster et al., 1984). While the main aim is to reduce the number of people with household income below the poverty threshold, the extent to which they reduce the poverty gap for those remaining below the threshold is also an important indicator for this analysis.

We evaluate the change in poverty in relation to the change in net budgetary cost to the public finances. We use as an indicator of cost-effectiveness the ratio of the percentage point change in

poverty (headcount or gap) to the change in net budgetary cost (spending on cash benefits less revenue from personal income tax and social contributions), expressed as a proportion of GDP. This provides a metric that can be compared across most of the policy building blocks and across countries. It is appropriate in the case of changes to tax-benefit instruments but not in the case of the minimum wage where the first round cost of an increase falls on employers rather than on the public budget.11 Generally an increase in minimum wage implies a budgetary gain to the public finances because of the increased revenue from income tax and social contributions, and in some policy systems, reduced benefit entitlements.[12] But since the costs of an increase in the minimum wage need to be factored in somehow, here we report the percentage of GDP that the gross increase in earnings represents, and assess the relative contribution of increases/decreases in minimum wage on poverty against this indication of the size of the intervention.

The implications for poverty, of indexation or lack of it, can be related to the fiscal cost or benefit of the indexation regime. If benefits are not fully indexed their cost falls as a proportion of GDP. If tax thresholds do not keep pace with taxable income, tax revenues rise in real terms. The poverty effect can be expressed as a ratio of the effect on the public budget in the same way as for the common proportional changes to the specific policy instruments described above.

4 Results

The effect of changes to each of the first four policy building blocks on the poverty headcount (FGT0) and poverty gap (FGT1) are shown in Tables 3 and 4 respectively. These are discussed in this section policy-by-policy and in relation to their budgetary implications, followed by a presentation of the indexation policy building block results. The section concludes with a discussion of the results country-by-country.

4.1 Child benefits

As shown in Table 3, increasing child benefits by 20% has a modest effect on the poverty headcount, lowering it by 1.1 percentage points in Hungary and 0.9 percentage points in Belgium, the countries with the largest child benefit systems (Table 1) but much less in the other countries. An increase of 90% would, unsurprisingly have a bigger effect in all countries, making large inroads into the poverty rate in Hungary (4.7 ppts) and Belgium (3.3 ppts) and at least a 1 percentage point reduction in the other countries. The size of the effect on poverty is mainly driven by the absolute size of the change in benefits, which depends on the scale of child benefits in the actual 2013 system. Figure 1a shows that in all countries the effect on the poverty headcount is broadly proportional to the scale of the change in spending on it (measured in terms of percent of GDP), both for increases and decreases: the lines are straight. Looking across countries a key difference is in the gradient of the effect. The poverty rate falls (rises) faster for a given increase (decrease) in spending on child benefits in

[11] The extent to which these are public sector employers will have a direct impact on the public finance implications. This is not possible to analyse with the EU-SILC data and so is beyond the scope of this analysis.

[12] Since the budgetary gain from a higher minimum wage is also of interest the clawback is reported in terms of the effective tax rate on the increase in earnings. See Annex 2.

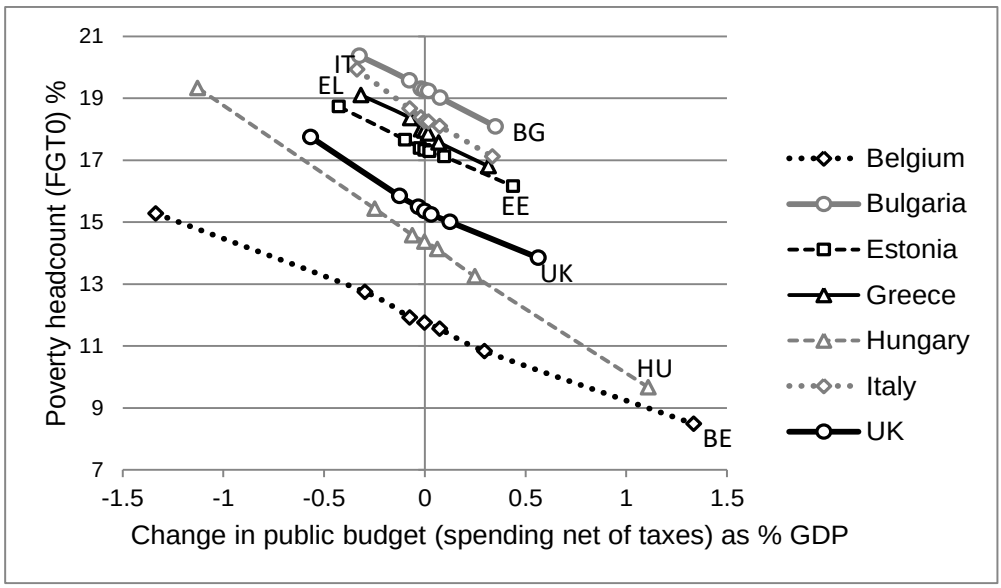
Hungary and Greece than it does in the other five countries. Child benefits have a higher poverty-reducing cost-effectiveness in these two countries, which does not depend on their existing level.

TABLE 3: CHANGE IN POVERTY HEADCOUNT RATIO USING A FIXED POVERTY THRESHOLD

Country	2013 baseline (%)	change between 2013 and policy scenario (in percentage points)					
		decrease by …			increase by ...		
		90%	20%	5%	5%	20%	90%
Child benefits							
BE	11.8	3.5 ***	1.0 ***	0.2 **	-0.2 ***	-0.9 ***	-3.3 ***
BG	19.3	1.1 ***	0.3 **	0.0	0.0	-0.2 ***	-1.2 ***
EE	17.3	1.4 ***	0.3 ***	0.1	0.0	-0.2 ***	-1.2 ***
EL	18.0	1.1 ***	0.4 **	0.0 *	-0.1	-0.4 ***	-1.2 ***
HU	14.4	5.0 ***	1.1 ***	0.2 ***	-0.2 ***	-1.1 ***	-4.7 ***
IT	18.3	1.7 ***	0.4 ***	0.1 ***	0.0	-0.2 ***	-1.1 ***
UK	15.4	2.4 ***	0.5 ***	0.1 ***	-0.1 ***	-0.4 ***	-1.5 ***
Social Assistance							
BE	11.8	0.5 ***	0.4 ***	0.2 ***	-0.1 **	-0.7 ***	-3.4 ***
BG	19.3	0.5 ***	0.2 **	0.1	-0.1	-0.2 **	-1.5 ***
EE	17.3	0.0 ***	0.0 ***	0.0 ***	0.0 ***	0.0 ***	-0.2 **
EL	18.0						
HU	14.4	0.6 ***	0.0 **	0.0	0.0	-0.1 **	-0.5 ***
IT	18.3						
UK	15.4	4.1 ***	1.1 ***	0.3 ***	-0.3 ***	-1.1 ***	-4.1 ***
Income tax threshold							
BE	11.8	3.2 ***	0.7 ***	0.2 ***	-0.1 **	-0.3 ***	-0.5 ***
BG	19.3						
EE	17.3	7.4 ***	1.9 ***	0.4 ***	-0.1 **	-0.5 ***	-1.4 ***
EL	18.0	1.5 ***	-0.4 **	-0.5 ***	-0.5 ***	-0.6 ***	-0.8 ***
HU	14.4						
IT	18.3	3.6 ***	0.6 ***	0.2 ***	-0.1 ***	-0.5 ***	-1.3 ***
UK	15.4	3.6 ***	0.4 ***	0.0 ***	-0.1 ***	-0.2 ***	-0.5 ***
Minimum wage							
BE	11.8				0.0	-0.1 **	-1.4 ***
BG	19.1				0.0	-0.1 **	-2.7 ***
EE	17.4				0.0	-0.2 ***	-2.4 ***
EL	17.6				-0.2 *	-0.5 ***	-3.8 ***
HU	14.4				0.0 ***	0.0	-3.9 ***
IT	18.3						
UK	15.3				0.0 **	-0.3 ***	-1.8 ***

Source: Authors' calculations using EUROMOD and EU-SILC 2010
Notes: The anchored poverty line is the 2013 60% of the median poverty line.
*Significance levels indicated as * p<0.1, ** p<0.05, *** p<0.01*

FIGURE 1A: POVERTY HEADCOUNT (FGT0) WITH LEVELS OF CHILD BENEFITS



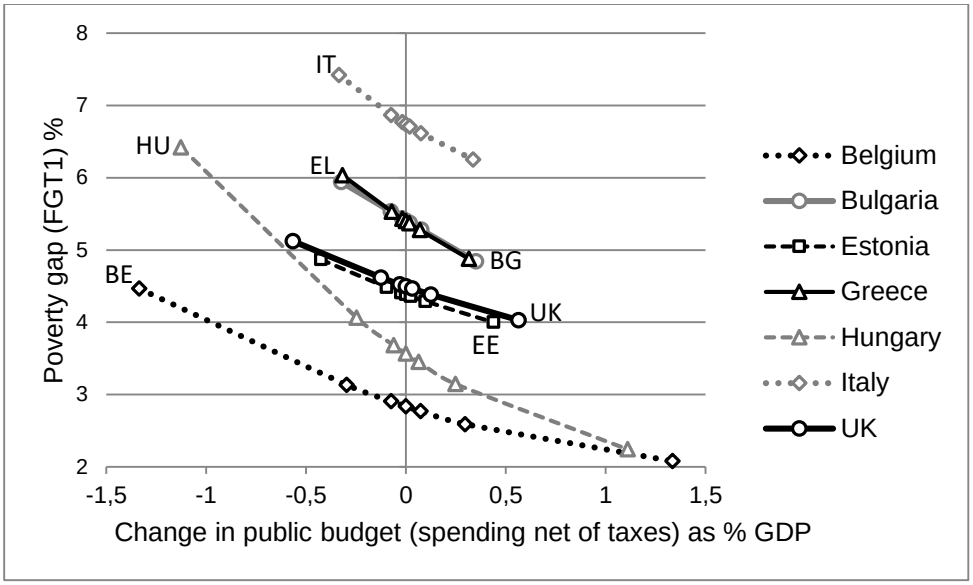
Source: Authors' calculations using EUROMOD and EU-SILC 2010

Notes: Reading from left to right, child benefits are decreased by 90%, 20% 5% and increased by 5%, 20% and 90%. Poverty is measured using a fixed threshold, 60% of median equivalised household disposable income under the 2013 baseline policy system. The change in the public budget (spending net of taxes) is the direct effect of changing child benefits net of any interactions with the rest of the tax-benefit system, as a percentage of 2013 GDP.

Table 4 (below) shows the effects of policy changes on the poverty gap and Figure 1b shows the relationship between spending on child benefits and the poverty gap, which is less clearly linear and with more variation in the relative effectiveness on poverty of changes to child benefits across countries, than is the effect on the poverty headcount.

The gradient is relatively steep, with larger effects on poverty for a given change in spending for both positive and negative changes in Greece, Bulgaria and Italy as well as in Hungary for reductions in benefit. In the first three countries this suggests that the relatively small benefits play an important role in reducing the poverty gap, but even the 90% increase does not succeed in lifting many household incomes above the poverty threshold. In Hungary, where the benefit is large, its reduction by 90% implies a very large increase in the poverty gap (almost a doubling) whereas increasing by 90% only reduces the gap by about a third. In Belgium too (and to some extent in all the countries) the reduction in the poverty gap from an increase in benefit is less than the increase in poverty gap for a corresponding decrease in benefit. This can be explained by large benefits lifting households above the poverty threshold, where they no longer contribute to the poverty gap.

FIGURE 1B: POVERTY GAP (FGT1) WITH LEVELS OF CHILD BENEFITS



Source: Authors' calculations using EUROMOD and EU-SILC 2010

Notes: Reading from left to right, child benefits are decreased by 90%, 20% 5% and increased by 5%, 20% and 90%. Poverty is measured using a fixed threshold, 60% of median equivalised household disposable income under the 2013 baseline policy system. The change in the public budget is the direct effect of changing child benefits net of any interactions with the rest of the tax-benefit system, as a percentage of 2013 GDP.

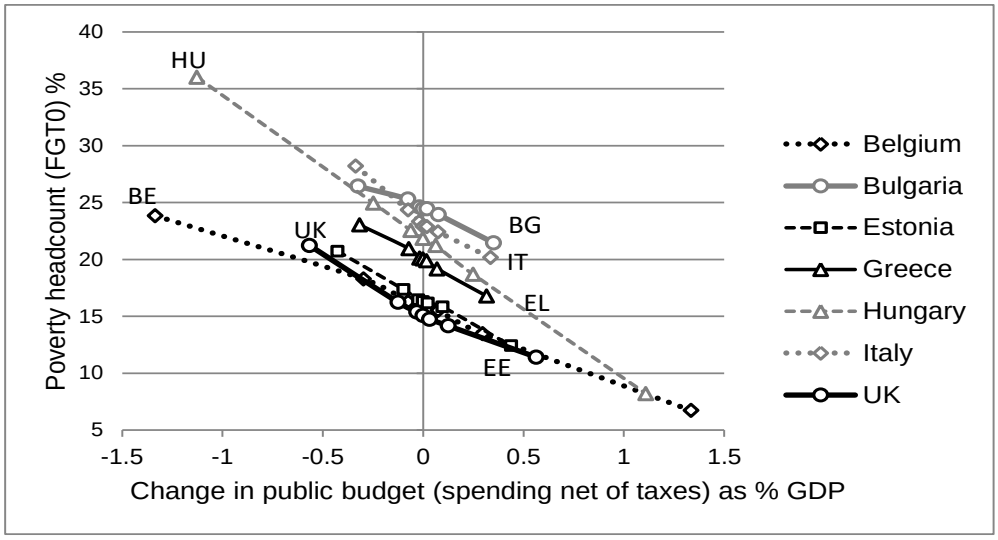
Of course, child benefit is likely to have a stronger effect on child poverty than on overall poverty. This is confirmed by Figures 1c and 1d which plot child poverty against the change in spending on child benefits. The gradients are naturally much steeper. They show that increasing child benefits in Belgium by 90% could more than halve to child poverty headcount (from 16% to 7% according to our calculations with EUROMOD) and the reduction would be even stronger in Hungary (14 percentage points from 22% to 8%). The child poverty gap falls to below 2% in both countries (Figure 1d). Of course, this would cost more than 1% of GDP (1.3% in Belgium and 1.1% in Hungary). Spending 1% of GDP in each country (and interpolating or extrapolating linearly from the 90% increase) could result in a reduction of the child poverty headcount of between 12 percentage points in Hungary and 6 percentage points in the UK.[13]

In a similar way, cutting child benefits would have a very negative effect on child poverty. A 90% cut (close to abolition) would increase the child poverty rate to 36% in Hungary (a 14 percentage point increase), while reducing net public spending by the equivalent of 1.1% of GDP. In Belgium it would save 1.3% of GDP but increase child poverty by 8 percentage points. In the other countries, with smaller child benefits, the poverty effect of near-abolition is also smaller but nevertheless ranges from 6 percentage points in the UK to 2 percentage points in Bulgaria.[14]

[13] The figures for the remaining countries are Greece, 10ppts, Bulgaria and Estonia, 9 ppts; Italy, 8ppts; Belgium 7ppts.

[14] The figures for the remaining countries are Estonia, 4ppts; Greece, 3 ppts; Italy, 5ppts.

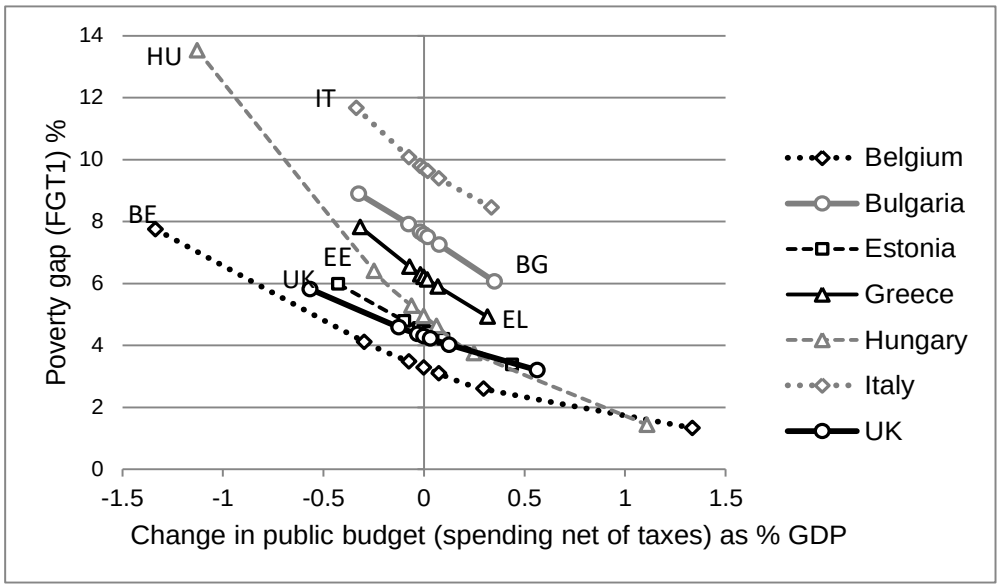
FIGURE 1C: CHILD POVERTY HEADCOUNT (FGT0) WITH LEVELS OF CHILD BENEFITS



Source: Authors' calculations using EUROMOD and EU-SILC 2010

Notes: Reading from left to right, child benefits are decreased by 90%, 20% 5% and increased by 5%, 20% and 90%. Poverty is measured using a fixed threshold, 60% of median equivalised household disposable income under the 2013 baseline policy system. The change in the public budget is the direct effect of changing child benefits net of any interactions with the rest of the tax-benefit system, as a percentage of 2013 GDP.

FIGURE 1D: CHILD POVERTY GAP (FGT1) WITH LEVELS OF CHILD BENEFITS



Source: Authors' calculations using EUROMOD and EU-SILC 2010

Notes: Reading from left to right, child benefits are decreased by 90%, 20% 5% and increased by 5%, 20% and 90%. Poverty is measured using a fixed threshold, 60% of median equivalised household disposable income under the 2013 baseline policy system. The change in the public budget is the direct effect of changing child benefits net of any interactions with the rest of the tax-benefit system, as a percentage of 2013 GDP.

TABLE 4: CHANGE IN POVERTY GAP USING A FIXED POVERTY THRESHOLD

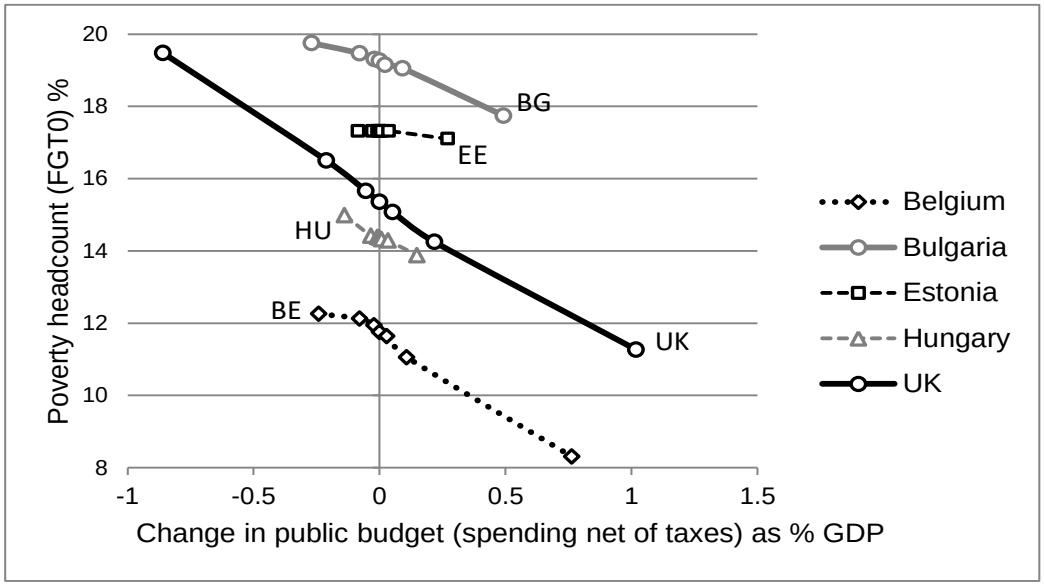
Country	2013 baseline (%)	change between 2013 and policy scenario (in percentage points)					
		decrease by …			increase by ...		
		90%	20%	5%	5%	20%	90%
Child benefits							
BE	2.8	1.6 ***	0.3 ***	0.1 ***	-0.1 ***	-0.2 ***	-0.8 ***
BG	5.4	0.5 ***	0.1 ***	0.0 ***	0.0 ***	-0.1 ***	-0.6 ***
EE	4.4	0.5 ***	0.1 ***	0.0 ***	0.0 ***	-0.1 ***	-0.4 ***
EL	5.4	0.6 ***	0.1 ***	0.0 ***	0.0 ***	-0.1 ***	-0.5 ***
HU	3.6	2.9 ***	0.5 ***	0.1 ***	-0.1 ***	-0.4 ***	-1.3 ***
IT	6.7	0.7 ***	0.1 ***	0.0 ***	0.0 ***	-0.1 ***	-0.5 ***
UK	4.5	0.6 ***	0.1 ***	0.0 ***	0.0 ***	-0.1 ***	-0.5 ***
Social Assistance							
BE	2.8	0.6 ***	0.2 ***	0.1 ***	-0.1 ***	-0.2 ***	-0.6 ***
BG	5.4	0.8 ***	0.2 ***	0.1 ***	-0.1 ***	-0.3 ***	-1.3 ***
EE	4.4	0.4 ***	0.1 ***	0.0 ***	0.0 ***	-0.2 ***	-1.5 ***
EL	5.4						
HU	3.6	0.2 ***	0.0 ***	0.0 ***	0.0 ***	0.0 ***	-0.2 ***
IT	6.7						
UK	4.5	2.1 ***	0.4 ***	0.1 ***	-0.1 ***	-0.3 ***	-0.9 ***
Income tax threshold							
BE	2.8	0.6 ***	0.1 ***	0.0 ***	0.0 ***	0.0 ***	-0.1 ***
BG	5.4						
EE	4.4	2.3 ***	0.2 ***	0.0 ***	0.0 ***	-0.1 ***	-0.3 ***
EL	5.4	0.6 ***	0.0 ***	0.0 ***	0.0 ***	0.0 ***	-0.1 ***
HU	3.6						
IT	6.7	0.9 ***	0.1 ***	0.0 ***	0.0 ***	-0.1 ***	-0.2 ***
UK	4.5	0.9 ***	0.1 ***	0.0 ***	0.0 ***	-0.1 ***	-0.1 ***
Minimum wage							
BE	2.8				0.0	0.0 ***	-0.2 ***
BG	5.4				0.0 ***	-0.1 ***	-0.7 ***
EE	4.4				0.0 ***	-0.1 ***	-0.5 ***
EL	5.3				0.0 ***	-0.2 ***	-0.9 ***
HU	3.6				0.0 ***	0.0 ***	-0.9 ***
IT	6.7						
UK	4.5				0.0 ***	-0.1 ***	-0.4 ***

Source: Authors' calculations using EUROMOD and EU-SILC 2010
Notes: The anchored poverty line is the 2013 60% of the median poverty line.
*Significance levels indicated as * p<0.1, ** p<0.05, *** p<0.01*

4.2 Social Assistance

Figures 2a and 2b show equivalent results for changing the levels of social assistance benefits. There are some aspects that are in marked contrast to the effects of changing child benefits. First, the scale of the existing systems and hence the effects of proportional expansion or contraction on budgetary cost varies differently across countries. In contrast with its large child benefits system Hungary has a very small social assistance. The largest social assistance systems are in the UK followed by Belgium and then Bulgaria.

FIGURE 2A: POVERTY HEADCOUNT (FGT0) WITH LEVELS OF SOCIAL ASSISTANCE

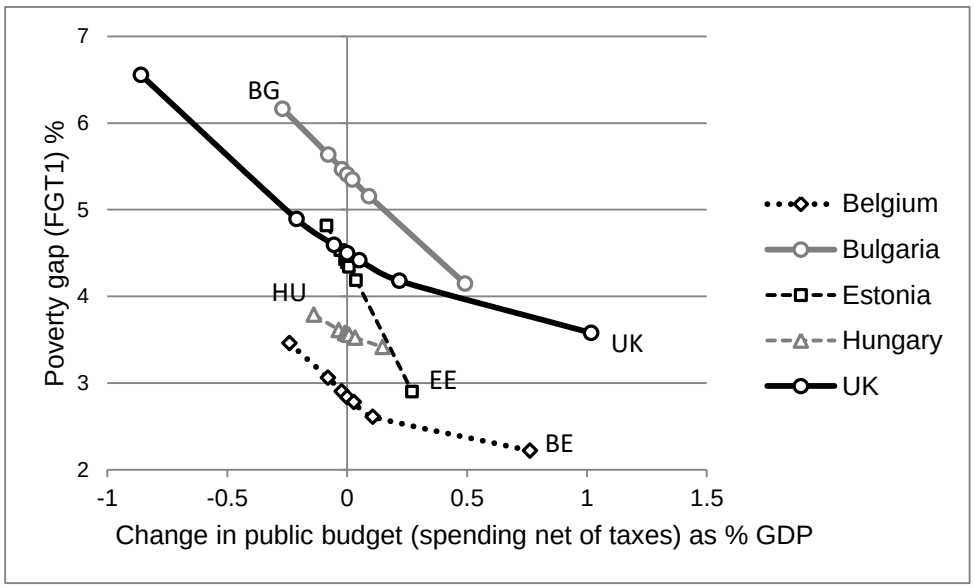


Source: Authors' calculations using EUROMOD and EU-SILC 2010

Notes: Reading from left to right levels of social assistance benefits are decreased 90%, 20%, 5% and increased by 5%, 20% and 90%. Poverty is measured using a fixed threshold, 60% of median equivalised household disposable income under the 2013 baseline policy system. The change in the public budget is the direct effect of changing social assistance benefits net of any interactions with the rest of the tax-benefit system, as a percentage of 2013 GDP. There is no national social assistance benefit in Greece and Italy.

Secondly, the relationship between the poverty effects of decreases and increases in benefits is different. Typically, increasing social assistance benefit levels not only increases the income of current recipients but extends entitlement to those with higher income. Depending on the composition of the relevant sections of the income distribution, this can result in the cost of increases being much more than the savings from the equivalent decreases. Figures 2a and 2b indicate that this applies in all five systems considered and is strongly the case for Estonia and Belgium. In Belgium and also Bulgaria the effect on the poverty headcount of reducing social assistance is small, whereas the reduction in poverty gap is relatively large, consistent with the finding of Tasseva (2016) that in Bulgaria most social assistance recipients are already among those with incomes far below the poverty threshold. In contrast, in the UK reducing social assistance does have a substantial effect on the poverty headcount (cutting by 90% results in a 5 percentage point increase), which is consistent with the finding that some existing social assistance recipients have incomes above the poverty threshold.

FIGURE 2B: POVERTY GAP (FGT1) WITH LEVELS OF SOCIAL ASSISTANCE



Source: Authors' calculations using EUROMOD and EU-SILC 2010

Notes: Reading from left to right levels of social assistance benefits are decreased 90%, 20%, 5% and increased by 5%, 20% and 90%. Poverty is measured using a fixed threshold, 60% of median equivalised household disposable income under the 2013 baseline policy system. The change in the public budget is the direct effect of changing social assistance benefits net of any interactions with the rest of the tax-benefit system, as a percentage of 2013 GDP. There is no national social assistance benefit in Greece and Italy.

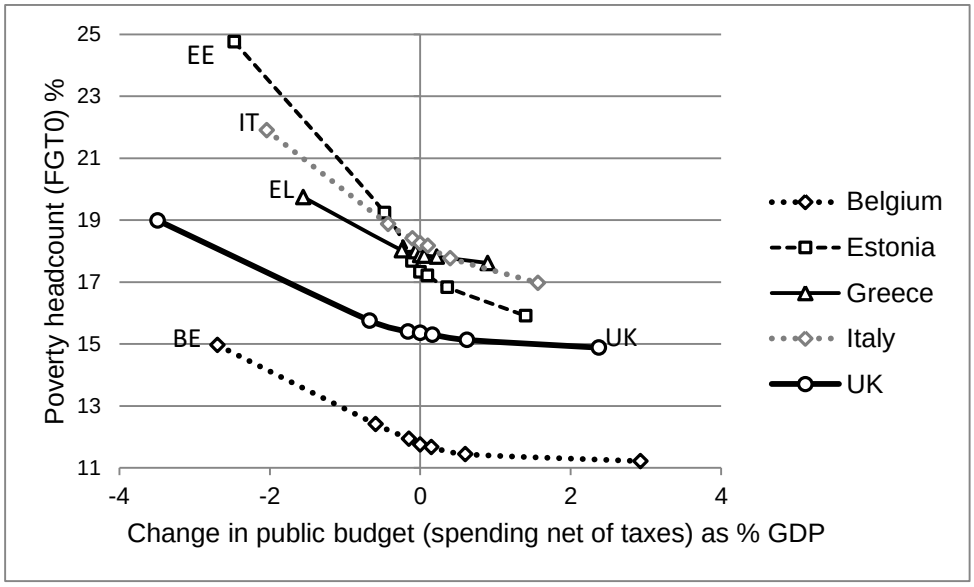
In Estonia the effect on the poverty headcount of expanding and contracting social assistance is very small and indeed there is no effect except for a 90% expansion (see Table 3).However, the effect on the poverty gap is dramatic, for a relatively small increase in GDP. This is consistent with the Estonian social assistance payments being very low relative to the poverty threshold. Even almost doubling them reduces the poverty gap by 1.5 percentage points: more than in any of the other four countries and at much lower cost (see the gradient in Figure 2b). Otherwise the poverty headcount gradients across countries are rather similar to each other but the poverty gap gradients vary more across countries with the effects being largest in Bulgaria (after Estonia) and smallest in Hungary .

Reducing social assistance risks causing a sharp increase in either the poverty gap or headcount, or both, in all countries (though to a lesser extent in Hungary). Increasing levels of social assistance payment risks damaging incentives to work if this is done on a large scale (and increasing by 90% is probably unrealistic in any of the countries, for this reason). Nevertheless it is clear that in Estonia, because of its cost effectiveness, this approach is worth considering as part of a poverty reduction package, as long as negative effects on work incentive effects remain sufficiently small, perhaps due to complementary policy measures.

4.3 Income tax threshold

Table 1 shows that the income tax threshold (or zero rate band) is largest (relative to median household disposable income) in the UK, followed closely by Greece and Italy and with Estonia having a threshold half the size measured in this way. The effects of increasing the threshold on either poverty measure (see Figures 3a and 3b) are very small although the budgetary cost is large.

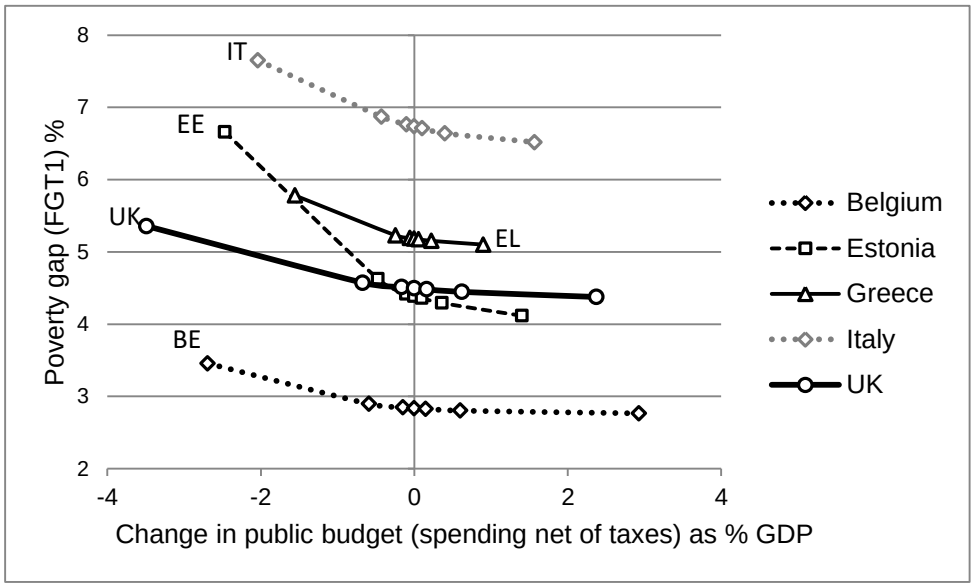
FIGURE 3A: POVERTY HEADCOUNT (FGT0) WITH CHANGED INCOME TAX THRESHOLDS



Source: Authors' calculations using EUROMOD and EU-SILC 2010

Notes: Reading from left to right income tax thresholds/zero rate bands are decreased 90%, 20%, 5% and increased by 5%, 20% and 90%. Poverty is measured using a fixed threshold, 60% of median equivalised household disposable income under the 2013 baseline policy system. The change in the public budget is the direct effect of changing the income tax threshold net of any interactions with the rest of the tax-benefit system, as a percentage of 2013 GDP.

FIGURE 3B: POVERTY GAP (FGT1) WITH CHANGED INCOME TAX THRESHOLDS



Source: Authors' calculations using EUROMOD and EU-SILC 2010

Notes: Reading from left to right income tax thresholds/zero rate bands are decreased 90%, 20%, 5% and increased by 5%, 20% and 90%. Poverty is measured using a fixed threshold, 60% of median equivalised household disposable income under the 2013 baseline policy system. The change in the public budget is the direct effect of changing the income tax threshold net of any interactions with the rest of the tax-benefit system, as a percentage of 2013 GDP.

For example, spending 1% of GDP in this way (and interpolating linearly where relevant) would reduce the poverty headcount by less than 1 percentage point in all countries except Estonia (where the reduction is a little more) and by less than 0.5 percentage points in Belgium and the UK. Most people paying income tax, benefiting from this policy change, are in households that are above the poverty threshold. However, the effects are not linear and the gradients are higher for smaller increases in tax threshold, suggesting that there is some scope for modest increases in thresholds to reduce poverty (but at high cost relative to other strategies). There is a similar picture for the poverty gap.

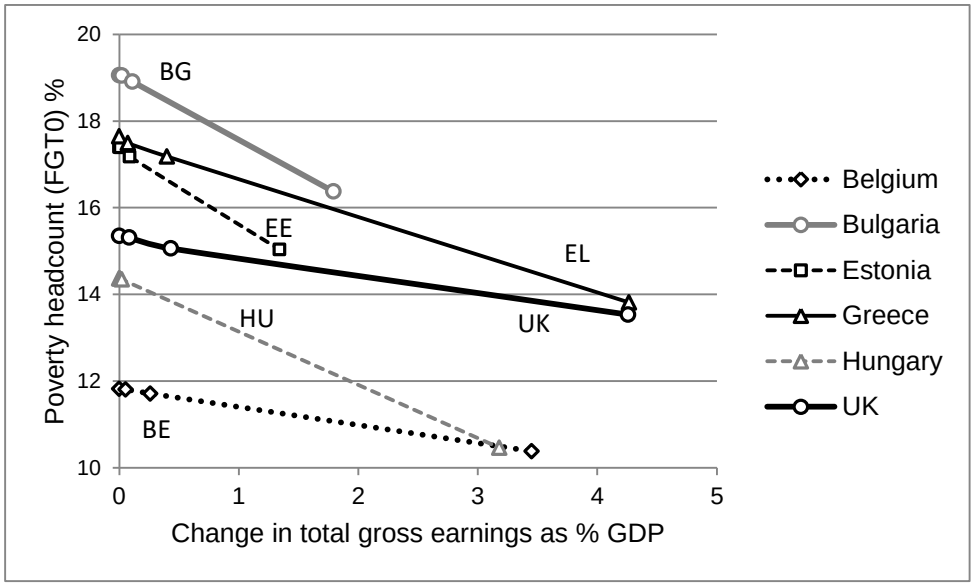
The situation is quite different when looking at reduction in the tax threshold. This does have an effect on increasing poverty. The extra tax paid increases the numbers below the poverty threshold and the size of the poverty gap, with the gradient being relatively steep in Estonia. Reducing the tax free income allowance by 90% would increase the poverty headcount by 7 percentage points. This near-abolition scenario would increase the poverty rate in the remaining countries by between 2 (Greece) and 4 percentage points (Italy and UK).

4.4 Minimum wage

Table 3 shows that increasing the minimum wage by a small amount (5%) has almost no effect on the poverty headcount and increasing it by 20% only has an effect as much as 0.5 percentage points in Greece. Increasing by 90%, or almost doubling, does start to make a difference: lowering poverty headcounts by 4 percentage points in Greece and Hungary and by at least 1 percentage point in the other 4 countries. However, as mentioned above this scale of change to the level of minimum wage – which would approach the level of the median wage in some countries – is probably unrealistic because of its likely adverse effects on the labour market. The scale of the change in total earnings implied by the policy is indicated in Figures 4a and 4b as a percentage of GDP. It is over 4% in the UK and Greece, over 3% in Belgium and Hungary and between 1% and 2% in Bulgaria and Estonia. The rather minor effect on poverty given this scale of resource is due to the fact that many minimum wage earners or people with earnings a little above that level are not in households with income below the poverty threshold, according to EU-SILC and FRS data

While it seems clear that increases in minimum wages are not well-targeted on people in households below the poverty threshold and are therefore not a suitable policy approach to achieving poverty reduction on their own, they do have a role to play as a building block in underpinning other reforms. They reduce the need for in-work benefits and help to make work pay (Immervoll and Pearson, 2009). This has two positive consequences. First, if increasing social assistance levels seems to be an effective measure to reduce poverty, but for the negative effects on incentives to work, then increasing minimum wages as part of a combined package would help to mitigate that adverse effect.

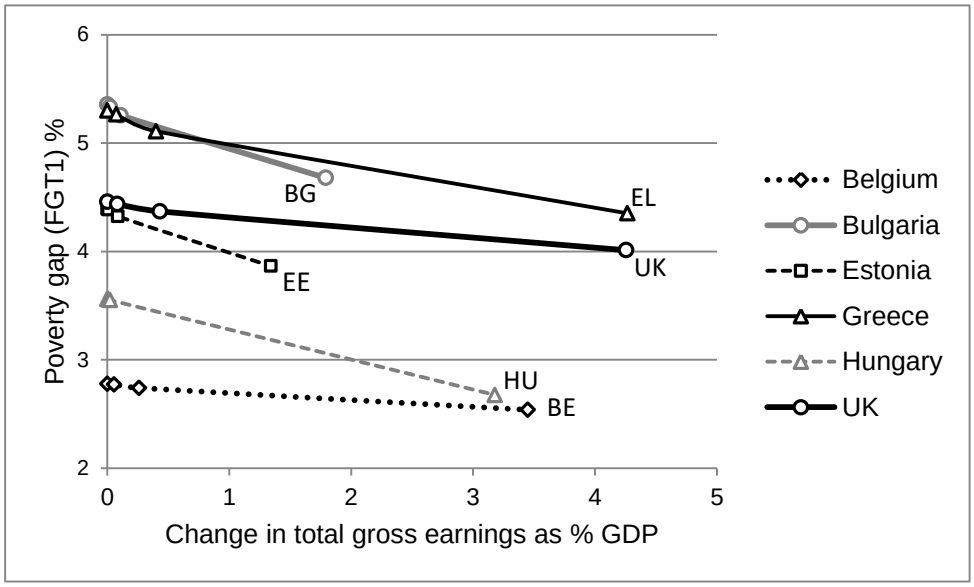
FIGURE 4A: POVERTY HEADCOUNT (FGT0) WITH INCREASED LEVELS OF MINIMUM WAGE



Source: Authors' calculations using EUROMOD and EU-SILC 2010

Notes: Minimum wages are increased by 5%, 20% and 90%. Poverty is measured using a fixed threshold, 60% of median equivalised household disposable income under the 2013 baseline policy system. The change in aggregate gross minimum wage is shown as a percentage of 2013 GDP.

FIGURE 4B: POVERTY GAP (FGT1) WITH INCREASED LEVELS OF MINIMUM WAGE



Source: Authors' calculations using EUROMOD and EU-SILC 2010

Notes: Minimum wages are increased by 5%, 20% and 90%. Poverty is measured using a fixed threshold, 60% of median equivalised household disposable income under the 2013 baseline policy system. The change in aggregate gross minimum wage is shown as a percentage of 2013 GDP.

Secondly, increases to minimum wages reduce the burden on the public budget if included in strategies to reduce poverty not only through improving work incentives but also in a direct way, by increasing the revenue from personal income taxes and social contributions. Based on our EUROMOD simulations, the effective tax rate on household income due to increases in minimum wages ranges from around 0.50 in Belgium to around 0.15 in Bulgaria, on average across beneficiaries.[15] In principle this additional revenue (including the effect of reductions in in-work or other means-tested benefit entitlements in all countries but non-negligible in size only in the UK) could be used to finance some increases in the other building blocks of the poverty-reduction policy package.[16]

4.5 Indexation policy

As explained above, indexation policy is rather different from the other building blocks, which refer to individual policy instruments. Our results for indexation policy show the effects of expanding or contracting the whole tax-benefit systems relative to movements in the economy. The top panel of Table 5 shows the effect on the poverty headcount (using a fixed threshold) of two alternative, illustrative indexation strategies over the seven-year period 2013-20, compared with what would happen if the levels of benefits and tax thresholds keep pace with the growth in earnings. The first column shows the effect of indexing the policy systems with CPI and the effects on poverty are due to the difference between movements in CPI and nominal earnings over the period (shown as annual average percentage growth rates in Table 2) as well as the sensitivity of the tax-benefit system to indexation. This depends on the importance of thresholds and levels of payment in the design of the system (e.g. a pure flat tax is not affected at all) and where in the income distribution they apply.

Generally, we observe that indexation in line with CPI – if it lags behind growth in earnings – or the complete lack of indexation of policy parameters results in an increase in poverty. Households would see their benefit entitlements reduced while their tax liabilities would increase (both relative to growth in earnings) due to bracket creep. As a result, household net incomes would fall, increasing the number of people with household income below the poverty threshold.

On the budget side, when all policy parameters are kept constant in nominal terms, public expenditures would fall (relative to growth in earnings) while personal income taxes and social contributions would increase as a result of earnings growing faster than the relevant thresholds. As a result, the total 'cost' of the tax-benefit system as a percentage of GDP would typically decrease. In all countries, the effect is obviously smaller if policy parameters were indexed in line with inflation. It is even negative in Belgium and Italy where earnings are projected to grow more slowly than prices (Table 2).

[15] Calculated for the 20% increase in minimum wage. The effective tax rates for the remaining countries are Estonia: 0.23, Greece: 0.19, Hungary: 0.34 and UK: 0.37. See Annex 2.

[16] On the other hand, to the extent that minimum wage recipients are public sector workers, the gross cost of increasing the minimum wage falls partly on the public budget. Whether the net public budgetary cost of increasing the minimum wage is positive or negative depends on the relative size of the two effects which will vary across countries (and is not possible to assess using EU-SILC data). Atkinson (2015; 250-252) discusses the other potential positive effects of increased wages in general and increased minimum wage levels in terms of higher productivity, decreased shirking, lower probability of leaving etc.

TABLE 5: CHANGE IN POVERTY UNDER DIFFERENT POLICY INDEXATION AND EARNINGS GROWTH ASSUMPTIONS 2013- 2020 (PERCENTAGE POINTS) WITH A FIXED POVERTY THRESHOLD

Earnings growth assumption:	**National projection 2013-20**		**3% per year 2013-20**
Indexation:	**CPI**	**No indexation**	
Poverty headcount (FGT0)			
Belgium	-1.2 ***	0.6 ***	7.5 ***
Bulgaria	2.6 ***	3.3 ***	4.1 ***
Estonia	8.1 ***	10.9 ***	6.3 ***
Greece	1.1 ***	1.3 ***	3.3 ***
Hungary	1.3 ***	4.8 ***	4.5 ***
Italy	-0.6 ***	1.1 ***	6.0 ***
UK	1.8 ***	5.5 ***	7.8 ***
Poverty gap (FGT1)			
Belgium	-0.3 ***	0.1 ***	1.9 ***
Bulgaria	1.1 ***	1.4 ***	1.8 ***
Estonia	2.8 ***	4.0 ***	2.2 ***
Greece	0.2 ***	0.3 ***	1.0 ***
Hungary	0.4 ***	1.5 ***	1.4 ***
Italy	-0.2 ***	0.3 ***	1.7 ***
UK	0.4 ***	1.4 ***	2.0 ***

Source: Authors' calculations using EUROMOD and EU-SILC 2010

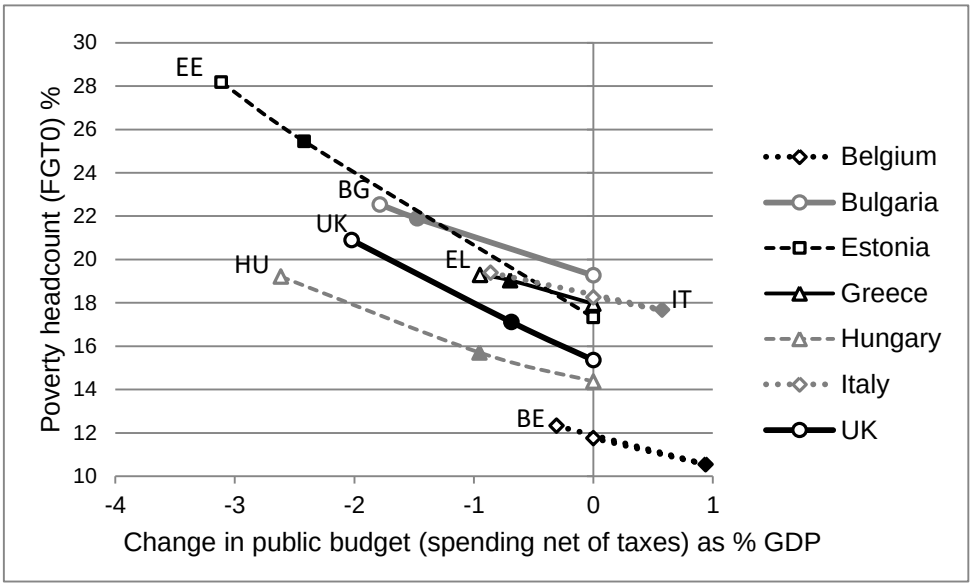
*Notes: Benefit, pension and tax threshold amounts are indexed up to 2020 either by country-specific CPI (column 1: see Table 2) or are kept nominally the same (columns 2 and 3: i.e. indexed by 1). These scenarios are compared with one in which policies are indexed by country-specific growth in earnings (columns 1 and 2: see Table 2) or a common rate of 3% per annum (column 3). Poverty is measured using a threshold of 60% of median equivalised household disposable income fixed under the baseline system. Significance levels indicated as * p<0.1, ** p<0.05, *** p<0.01*

The first column in Table 5 shows that in all countries, apart from Belgium and Italy, poverty rises as earnings are predicted to grow faster than prices; particularly in Estonia where an increase in the headcount of 8 percentage points is due to predicted high real earnings growth. In contrast, in Belgium and Italy the poverty headcount falls because CPI exceeds growth in earnings and so, the price-indexed tax-benefit system would result in bigger income gains than an earnings-indexed system.

The second column illustrates the implications of not indexing at all over the seven year period (i.e. keeping the tax-benefit amounts nominally constant). The main driver is now the predicted earnings growth. The increase in poverty headcount is now as much as 11 percentage points in Estonia and 5 in UK and Hungary. Governments are unlikely to let this situation arise not least because failure to index comprehensively has a significant positive effect on the public budget, as shown in Figure 5a, which plots the poverty headcount against the change in public budget expressed as a percentage of GDP. Even if governments do not choose to use these resources to index fully and comprehensively, they are likely to make specific increases to particular instruments in order to target particular groups of people or policy objectives, limiting the rise in poverty being among them. At the same

time, since failure to index reduces the pressure on the public budget, this I likely to be an attractive option for governments. One way or another, indexation policy is among the building blocks for an effective poverty reduction package.

FIGURE 5A: POVERTY HEADCOUNT (FGT0) WITH DIFFERENT INDEXATION OF MONETARY TAX-BENEFIT POLICY PARAMETERS 2013-2020

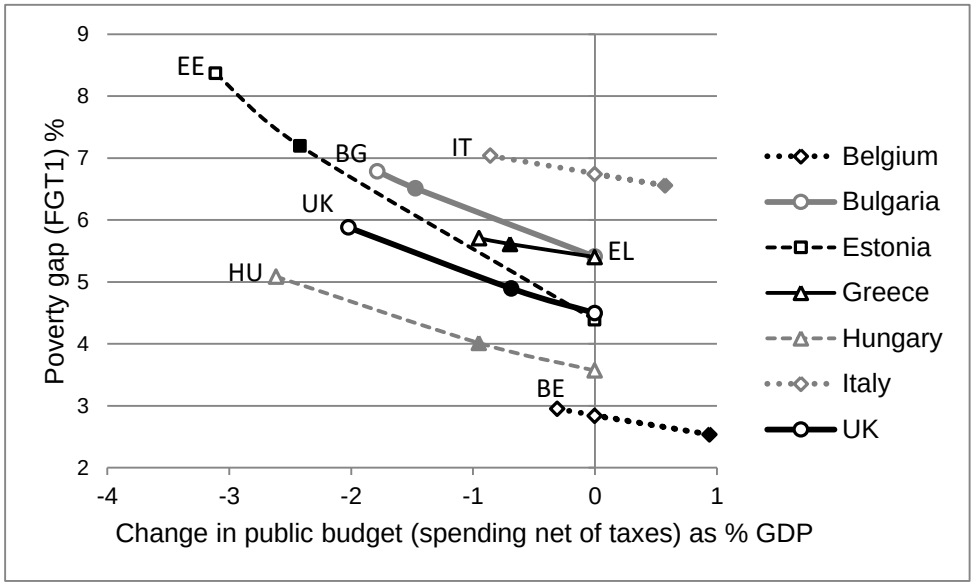


Source: Authors' calculations using EUROMOD and EU-SILC 2010.

Notes: The marker at 0 per cent on the X-axis represents the baseline scenario (that is, the situation in 2013). The two other markers represent a scenario with earnings growth equal to ECFIN forecasts for 2020 (see Table 2). Benefit, pension and tax threshold amounts are indexed up to 2020 either by CPI (markers with solid fill) or are kept nominally the same (i.e. indexed by 1).; non-filled markers). Poverty is measured using a fixed threshold, 60% of median equivalised household disposable income under the 2013 baseline policy system. The change in the public budget is the direct effect of changing the policy parameters net of any further interactions with the rest of the tax-benefit system, as a percentage of 2013 GDP.

The gradients shown in Figure 5a indicate that, for a given budgetary gain from indexation less than earnings growth there is a larger increase in poverty headcount in Estonia and the UK and the effects are smallest in Greece and Italy. The picture shown for the poverty gap in Figure 5b (and the second panel of Table 5) is similar with very small effects (shallow gradients) in Belgium as well as Greece and Italy.

FIGURE 5B: POVERTY GAP (FGT1) WITH DIFFERENT INDEXATION OF MONETARY TAX-BENEFIT POLICY PARAMETERS 2013-2020



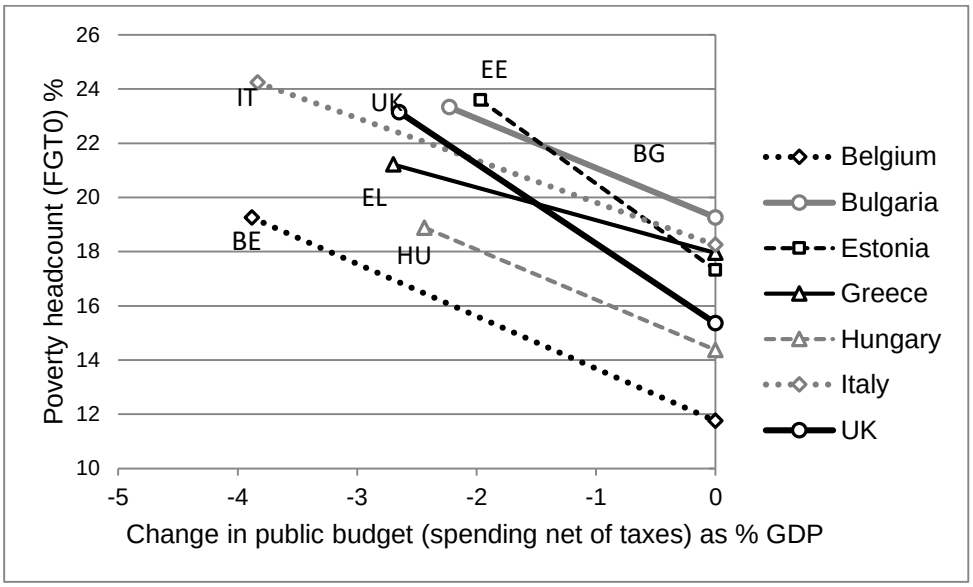
Source: Authors' calculations using EUROMOD and EU-SILC 2010.

Notes: Benefit, pension and tax threshold amounts are indexed up to 2020 either by CPI (see Table 2) or are kept nominally the same (i.e. indexed by 1). CPI indexation is shown by markers with solid fill. The counterfactual indexation is growth in earnings (see Table 2). Poverty is measured using a fixed threshold, 60% of median equivalised household disposable income under the 2013 baseline policy system. The change in the public budget is the direct effect of changing the policy parameters net of any further interactions with the rest of the tax-benefit system, as a percentage of 2013 GDP.

The third column of Table 5, and Figures 5c and 5d show the effects of a third scenario which factors out the differences in projected economic performance across countries and allows us to focus on the responsiveness of the tax-benefit system design to indexation and hence on its overall vulnerability to fiscal drag and benefit erosion causing poverty to rise.[17] The effect of not indexing policy for seven years in a situation of a 3% annual growth in earnings is shown. (One could also interpret the results as showing the effect of 3% real earnings growth combined with CPI indexation.) It is notable that the cost in terms of GDP of this common scenario is not the same across countries, reflecting both differences in overall size of the systems (taxes paid and benefits and pensions received) and the importance of monetary levels and thresholds in the system. Lack of indexation reduces household incomes (and improves the public finances) by most in Belgium and Italy (due at least in part to the large pension systems) and by least in Estonia. The gradients also differ across countries with the largest poverty increase per unit of budgetary gain from low indexation in Estonia and the UK and the smallest in Greece.

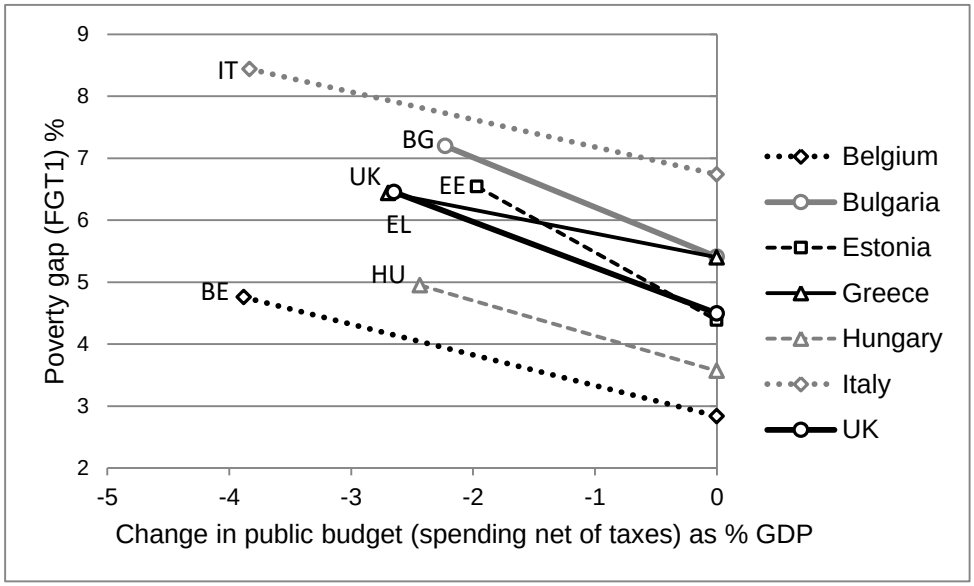
[17] Still conditional on the underlying population characteristics and distribution of market incomes in each country.

FIGURE 5C: POVERTY HEADCOUNT (FGT0) WITH NO INDEXATION OF MONETARY TAX-BENEFIT POLICY PARAMETERS AND A COMMON EARNINGS GROWTH ASSUMPTION 2013-2020



Source: Authors' calculations using EUROMOD and EU-SILC 2010. Notes: Benefit, pension and tax threshold amounts are kept nominally the same (i.e. indexed by 1) up to 2020. Earnings are assumed to grow at a common rate of 3% per annum. Poverty is measured using a fixed threshold, 60% of median equivalised household disposable income under the 2013 baseline policy system. The change in the public budget is the direct effect of changing the policy parameters net of any further interactions with the rest of the tax-benefit system, as a percentage of 2013 GDP.

FIGURE 5D: POVERTY GAP (FGT1) WITH NO INDEXATION OF MONETARY TAX-BENEFIT POLICY PARAMETERS AND A COMMON EARNINGS GROWTH ASSUMPTION 2013-2020



Source: Authors' calculations using EUROMOD and EU-SILC 2010. Notes: Benefit, pension and tax threshold amounts are kept nominally the same (i.e. indexed by 1) up to 2020. Earnings are assumed to grow at a common rate of 3% per annum. Poverty is measured using a fixed threshold, 60% of median equivalised household disposable income under the 2013 baseline policy system. The change in the public budget is the direct effect of changing the policy parameters net of any further interactions with the rest of the tax-benefit system, as a percentage of 2013 GDP.

Leaving aside the budgetary differences in effect, the implications for the poverty headcount of failing to index in general are shown in the final column of Table 5. The countries most vulnerable in the poverty effects of their policies to comprehensive under-indexation are UK and Belgium. The least vulnerable are Greece and Bulgaria. The effect in Greece is less than half of that in the UK. This variation in vulnerability seems to be related on the one hand to the degree of development of the tax-benefit system: the larger the system the larger the effect of not indexing it; and on the other to the prevalence of thresholds and monetary amounts. A proportional policy instrument (such as a simple flat tax) dos not need to be indexed. The extent to which low income households are more subject to monetary thresholds than other households (through means-testing, for example) will play a role in their particular vulnerability to lack of indexation.

4.6 Country by country discussion

In this section we summarise our results and consider the differential effects of the building blocks on a country-by country basis. Table 6 reports summary indicators for the poverty-to-cost ratio for each of the five building blocks. In the case of the minimum wage, shown in the final column, the "cost" is measured differently and comparisons should not be made between the final column and any of the others. The indicators are shown based on the gradients for the 20% increase in the policy instrument from Figures 1 to 4 and hence show poverty reduction effects. For the indexation indicator the scenario using 3% real earnings growth across all countries is used (corresponding to a similar percentage change – but in a different direction – in amounts and thresholds when cumulated across 7 years: 23%) as in Figure 5.

Looking across countries and at the top panel focusing on the poverty headcount, increasing social assistance is the most cost-effective option of the four considered in only two countries (Belgium and the UK), which is perhaps surprising, given its targeted nature. Child benefits perform better in the three (relatively) new member states, Bulgaria, Estonia and Hungary with, perhaps, smaller social assistance income support schemes and more targeting in their child benefits. Income tax threshold increases are not a cost effective option in any of the countries and even less so than comprehensive indexation of the tax-benefit system.

4.6.1 Belgium

Increasing social assistance is the most cost-effective option of the four, before taking account of work incentive issues. Increasing the minimum wage at the same time could be one option even if this does not, itself, contribute much to poverty reduction. Another option would be to explore the differentials in levels of social assistance payment by family characteristics to establish whether increases in selected payments could be even more effective than increasing payments across the board.

TABLE 6: POVERTY-COST RATIO BY POLICY BUILDING BLOCK

	Child benefit	Social Assistance	Income tax threshold	Tax-benefit system indexation	Minimum wage**
	Poverty headcount (FGT0)				
Belgium	3.12	6.48	0.53	1.93	0.43
Bulgaria	3.25	2.28	n/a	1.83	1.36
Estonia	2.09	0.00	1.37	3.19	2.54
Greece	5.44	n/a	0.25	1.21	1.16
Hungary	4.52	2.54	n/a	1.85	1.06
Italy	2.12	n/a	1.21	1.56	n/a
UK	2.83	5.09	0.37	2.94	0.67
	Poverty gap (FGT1)				
Belgium	0.83	2.10	0.06	0.49	0.14
Bulgaria	1.64	2.74	n/a	0.80	0.92
Estonia	0.98	5.33	0.26	1.10	0.79
Greece	1.76	n/a	0.13	0.38	0.48
Hungary	1.70	1.28	n/a	0.57	0.52
Italy	1.62	n/a	0.24	0.44	n/a
UK	0.91	1.46	0.08	0.74	0.21

*Source: Authors' calculations using EUROMOD and EU-SILC 2010. Notes: The poverty--cost indicator is calculated as the ratio of the change in poverty headcount or gap (using a fixed poverty threshold) to the change in public budget measured as a % of GDP, using the +20% change in policy for child benefit, social assistance and income tax (the gradient of the curves in Figures 1, 2 and 3). The indicator for the whole-system indexation uses the scenario of common 3% earnings growth and no policy indexation (which is equivalent to close to a 20% change in level over 7 years 2013-20), taken from Figure 5. ** The final column shows the ratio of the change in poverty to the change in total gross earnings measured as a % of GDP taken from Figure 4. The indicator in this column is not comparable with the indicators in the other 4 columns.*

Reading note: The indicator can be interpreted as showing the change in poverty headcount that would directly result from a change in the relevant building block costing 1% of GDP. For example, 1% of Belgian GDP would buy a 3.12 percentage point reduction in the poverty headcount if spent on increasing child benefit levels, but only a 0.53 percentage point reduction if spent on raising the personal income tax threshold. Note that the gradient at the 20% increase in each building block is used assuming linear interpolation or extrapolation to the 1% GDP cost v level.

4.6.2 Bulgaria

Although the main non-contributory child benefits in Bulgaria are income-tested, the income threshold is fairly high, so that households – well below but also around the poverty threshold – are entitled to them. Thus, increasing child benefits is the most cost-effective option in terms of moving people above the poverty line and thus, reducing the headcount. On the other hand, the most-cost effective way of reducing the poverty gap is by increasing social assistance benefits targeted at households from the poorest, first income decile groups. Since there are a number of different social assistance benefits further exploration could reveal whether any of the components would be more cost effective to increase than the others. Furthermore, Bulgaria has a flat income tax schedule and

further analysis could explore the cost-effectiveness and redistributive capacities of different progressive income tax schedules.

4.6.3 Estonia

Increasing social assistance (by 20%) has no effect on the poverty headcount because levels of payment are still too low to enable household incomes to reach the poverty threshold. However, as shown in the lower panel of Table 6, this has a dramatic effect on the poverty gap. It would seem that increasing social assistance would be an effective part of a poverty-reducing package, especially if accompanied by an increase in the minimum wage to minimize any deterioration in work incentives. Estonia is the country among the seven considered in which indexation has the most effect on poverty. The indicator in Table 6 suggests that increases in monetary tax-benefit parameters across the board would be more cost effective than an increase in child benefit alone (and only slightly less when indexation is assessed using a moving poverty threshold). Estonia is also the country for which increasing the tax threshold and the minimum wage are the most cost-effective, due at least in part to their relatively low values. This further suggests that a general shift upwards of all tax-benefit thresholds and amounts (or a selection of the most salient ones) would be an approach to test further in Estonia.

4.6.4 Greece

There is no social assistance minimum income benefit in Greece and in the absence of that increasing child benefits would be the most cost-effective of the options, by a long way. Introducing a minimum income scheme would of course be highly effective in reducing the poverty gap but would be very expensive – although perhaps still cost-effective – to introduce at a level high enough to have a direct impact on the poverty headcount. A study for the World Bank showed that a Guaranteed Minimum Income (GMI) programme costing 0.54% of GDP would reach 11% of population and reduce the standard poverty gap by 2.3 percentage points (World Bank, 2015). In terms of the cost-effectiveness indicators shown in the bottom panel of Table 6 this would correspond (approximately) to a ratio of 4.3, making the proposed Greek GMI second only to the Estonian social assistance in a ranking of cost-effectiveness for poverty gap reduction. Effectiveness in reducing the poverty headcount would be much lower because the relatively low level of the GMI scheme considered. In the absence of a social assistance minimum income, increasing child benefits is the most cost-effective approach of those considered here for Greece.

4.6.5 Hungary

Increasing child benefits, which are already sizeable in Hungary, is by far the most cost effective approach of the four considered. As In Bulgaria, there are a number of different benefits and further exploration could reveal whether any of the components would be more cost effective to increase than the others. However, it is important to note that child benefits are means-tested in Hungary and therefore an argument similar to that for social assistance applies. If the benefit levels are increased then parents' incentives to work will be reduced. A reform package that included a substantial increase in the existing child benefits would need to be accompanied by other measures to (continue to) make work pay.

4.6.6 Italy

There is no national social assistance scheme in Italy and this may contribute to the relatively large estimated poverty gap: 6.7% compared with between 2.8% and 5.4 % for the other six countries. As with Greece, it is likely that a minimum income scheme could reduce the poverty gap and, with a large enough scheme, the poverty rate, in a cost-effective way (e.g. Ravagli, 2015). But, unlike in Greece, increasing child benefit is not particularly cost effective (relative to other countries). About half of the cash support to Italian children is channeled as non-refundable credits in the income tax system and cannot reach children in households with the lowest incomes. This suggests that consideration should be given to re-designing the structure of support for children in Italy.

4.6.7 United Kingdom

Increasing social assistance would be the most cost-effective of the four approaches. As with Belgium this could be combined with an increase in the minimum wage to reduce the negative impact on work incentives (and in fact in the United Kingdom the minimum wage is in the process of being increased in real terms from its 2013 level). The UK is also a country, like Estonia, where poverty is relatively sensitive to indexation of benefits and tax thresholds across the board (this is similar in cost-effectiveness to increasing child benefits alone). But given the very low cost effectiveness of increasing the tax threshold in the UK, due at least in part to its relatively large size, one could be selective and use fiscal drag (a reduction in the threshold in real terms) to help pay for benefit increases. It is worth noting that this is in the opposite direction of recent UK policy: with increases in the tax threshold (with almost no effect on poverty) being partly paid for by reductions in the real value of benefits (increasing both the poverty headcount and the poverty gap); see De Agostini et al (2015).

5 Conclusions

In this paper we provide some evidence on the relative effectiveness of different types of policy instrument in reducing the risk of poverty (or limiting its increase) by measuring the implications of increasing or reducing the size of the instrument within its national context. We compare across 7 EU countries chosen for their diversity of tax-benefit system, geographic location and economic situation. We consider four types of policy instrument that potentially have a direct effect on household income and hence on the risk of income poverty: child benefits, minimum income components of social assistance, income tax lower thresholds and minimum wages, as well as one more general aspect of policy-making: the regular indexation of benefit levels and tax thresholds.

We make use of an indicator of cost-effectiveness defined as the ratio of the percentage point change in poverty (headcount or gap) to the net cost to the public budget (or employers in the case of the minimum wage), expressed as a proportion of GDP. We focus on changing the scale of the instrument rather than its design and do not aim to capture any behavioural or macroeconomic responses.

We find that there is no “one size fits all”. The most cost effective instrument of the five considered is different across the 7 countries and the assessment depends on whether the poverty headcount or poverty gap is used as the outcome indicator. Based on the poverty headcount, increasing social

assistance appears to be the most cost-effective approach in Belgium and the UK. However, this would require balancing increases in the minimum wage (or similar) to ensure that that financial incentives to work are not compromised. Collado et al. (2016) estimate that the cost of raising social assistance to the level needed to bring people out of poverty while maintaining work incentives would be roughly double the cost required without considering financial work incentives. As a rough adjustment to take account of the work incentive issue we can apply this factor to the estimates of social assistance cost-effectiveness for headcount reduction in Table 6. This brings the indicator values to similar levels as for child benefit in these two countries. Thus, we can conclude that increasing child benefit is also a relatively cost effective option in these cases (assuming its design does not have implications for work incentives). In addition, we have shown that child benefit increases are particularly effective at reducing child poverty, especially in Hungary, but also in Greece, Italy and Bulgaria. But in the Hungarian case, where child benefits are means-tested, some adjustment for negative work incentive effects might also be needed. The minimum wage is particularly effective in Estonia (relative to the other countries). Increasing the income tax threshold scores badly in terms of value-for money in the UK, Greece and Belgium.

It is important to look at the poverty gap as well as the poverty headcount in evaluating cost effectiveness. The effect of the social assistance building block in Estonia provides a good illustration. It makes no difference to the headcount unless it is scaled up to be almost double its current value but scores very highly in cost effectiveness terms when the effect on the poverty gap is measured. This is because the existing level of social assistance is very low relative to the poverty threshold. Thus the starting point matters. Another illustration is the lack of effectiveness on either poverty measure of increasing the income tax threshold, especially in Belgium, Greece and the UK. This is because, in these countries, the income tax threshold is already high enough for poor households to contain few tax-liable individuals who could benefit. But one would not want to rule out increasing the tax threshold as part of a poverty reduction package in countries like Estonia where the threshold is relatively low.

The starting point also matters in another way. In countries without one of the building blocks as part of its system, the relative effectiveness of the remaining building blocks may be inflated. For example, if Greece had a minimum income social assistance scheme in place then its child benefits might look less effective than they do in its absence and from our results.

The effects are not always linear nor are they always symmetrical for increases and decreases in the building blocks. For example, increasing income tax thresholds has little effect on poverty using either indicator in most countries, Estonia being the main exception. But lowering tax thresholds would have a clear negative effect (increasing both headcount and gap) in most and especially in Estonia. The poverty gap would increase by more if child benefits were reduced than it would be reduced if child benefits were increased by the same amount, especially in Belgium and Hungary.

Countries also vary in their vulnerability to increased poverty if their tax benefit systems are not comprehensively indexed (adjusted for inflation or growth in market incomes). The most vulnerable are UK and Belgium and the least vulnerable are Greece and Bulgaria. This variation seems to be related on the one hand to the degree of development of the tax-benefit system: the larger the system the larger the effect of not indexing it; and on the other to the prevalence of thresholds and monetary amounts, particularly affecting low income households (through means-testing, for example).

Our manipulation of policy building blocks is not necessarily intended to result in realistic or politically feasible policy reform scenarios. Rather, our results should be seen as providing evidence of the lack of a "one-size-fits-all" solution to poverty reduction while at the same time showing how particular approaches may be more effective in some countries than in others. We have also indicated how some of the building blocks might be combined as components of reform packages.

Limitations of our approach include first, that not all the policy blocks that we examine are present in all countries; and this would become more problematic if we attempted to extend the analysis to cover additional types of policy such as in-work benefits or housing benefits. It is always possible that a new policy block or a structural reform might be more effective than any of the existing policies. Secondly, focusing on the first round effects (and not taking account of relevant behavioural reactions such as labour supply behavior or the decision to take-up means-tested benefits) as well as not including the effect on poverty of any financing mechanism needs to be borne in mind when interpreting the results. Thirdly, we make use of one micro dataset of representative households from a particular point in time for each country. Future work might usefully test the robustness of our findings by basing the analysis on microdata from a different period or using a different policy year as a starting point. Nevertheless, using EUROMOD we have been able to take account of the national diversity in existing policy systems, population characteristics and economic circumstances at a common time period to analyse the differential effects across countries of policies with similar goals. We have also been able to explore the relationship between the budgetary cost of policy measures and their effectiveness in poverty reduction and shown that it is not necessarily linear and far from similar across countries.

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Annex 1: Policy instruments included in building blocks

	Belgium	Bulgaria	Estonia	Greece	Italy	Hungary	UK
Child benefits	child allowance	non-means tested benefit for twins	means-tested family benefit	child benefit	family allowance for lone parents	regular child protection benefit	child benefit
	birth allowance	non-contributory benefit for raising a child under the age of 1	childcare allowance	large family benefit	family allowance for two parents and children	maternity grant	
		non-means tested child benefit for mothers in tertiary education			family allowance for families with at least 3 children	child raising support	
		child benefit for education				child care allowance	
		birth grant				family allowance	
		means-tested child benefit					
Social assistance benefits	income support	guaranteed minimum income	subsistence benefit	n/a	n/a	social assistance	income support
							income-based jobseeker's allowance

Notes: For more information about each of these benefits and how they are simulated, see the EUROMOD Country Reports: https://www.euromod.ac.uk/using-euromod/country-reports/.

Annex 2: The mean effective tax rate on household income following increases to minimum wages

	Increased by		
	5%	20%	90%
Belgium	0.48	0.50	0.54
Bulgaria	0.15	0.15	0.18
Estonia	0.22	0.23	0.23
Greece	0.16	0.19	0.31
Hungary	0.34	0.34	0.35
Italy	n/a	n/a	n/a
UK	0.36	0.37	0.37

Source: Authors' calculations using EUROMOD and EU-SILC 2010

Reading note: For example, in Belgium if minimum wages are increased by 20% then 50% of the extra income is taxed away or withdrawn as reduced benefit entitlements. In Bulgaria the corresponding figure is 15%

ImPRovE: Poverty Reduction in Europe. Social Policy and Innovation

Poverty Reduction in Europe: Social Policy and Innovation (ImPRovE) is an international research project that brings together ten outstanding research institutes and a broad network of researchers in a concerted effort to study poverty, social policy and social innovation in Europe. The ImPRovE project aims to improve the basis for evidence-based policy making in Europe, both in the short and in the long term. In the short term, this is done by carrying out research that is directly relevant for policymakers. At the same time however, ImPRovE invests in improving the long-term capacity for evidence-based policy making by upgrading the available research infrastructure, by combining both applied and fundamental research, and by optimising the information flow of research results to relevant policy makers and the civil society at large.

The two central questions driving the ImPRovE project are:

> How can social cohesion be achieved in Europe?
>
> How can social innovation complement, reinforce and modify macro-level policies and vice versa?

The project runs from March 2012 till February 2016 and receives EU research support to the amount of Euro 2.7 million under the 7th Framework Programme. The output of ImPRovE will include over 55 research papers, about 16 policy briefs and at least 3 scientific books. The ImPRovE Consortium will organise two international conferences (Spring 2014 and Winter 2015). In addition, ImPRovE will develop a new database of local projects of social innovation in Europe, cross-national comparable reference budgets for 6 countries (Belgium, Finland, Greece, Hungary, Italy and Spain) and will strongly expand the available policy scenarios in the European microsimulation model EUROMOD.

More detailed information is available on the website http://improve-research.eu.

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