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Abstract

Proponents of a basic income (BI) claim that it could bring significant reductions in financial poverty, on top of many other benefits, including greatly reduced administrative complexity and cost. Using microsimulation analysis in a comparative two-country setting, we show that the potential poverty reducing impact of BI strongly depends on exactly how and where it is implemented. Implementing a BI requires far more choices than advocates seem to realize. The level at which the BI is set matters, but its exact specification matters even more. Which parts of the existing tax-benefit system are maintained, and which parts are abolished, modified or replaced? The impact of a BI, be it a low or a high one, thus strongly depends on the characteristics of the system that it is (partially) replacing or complementing, as well as the socio-economic context in which it is introduced. Some versions of BI could potentially help to reduce poverty but always at a significant cost and with substantial sections of the population incurring significant losses, which matters for political feasibility. A partial basic income complementing existing provisions appears to make more potential sense than a full basic income replacing them. The simplicity of BI, however, tends to be vastly overstated.

Keywords: Basic income, poverty, income distribution, policy interaction, microsimulation.

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1. Introduction

As poverty persists in advanced welfare states some are advocating a radical change in approach. Long dismissed as utopian, a basic income (BI) as a potentially ironclad protection against financial poverty has gained more and more traction.

This paper examines what would happen if we introduced various versions of a BI in Belgium and the Netherlands, ranging from a modest one complementing most existing provisions to a generous one replacing many existing provisions. Could a BI reduce or even eliminate poverty in both countries? What would a BI do for the people who are financially worst off? Who would gain and who would lose?

Using sophisticated microsimulation analysis, we examine in detail a range of BI schemes and compare their potential impact in Belgium and the Netherlands, countries that share some important characteristics but also differ significantly in some other respects, notably their tax-benefit systems and labour market institutions. This analysis is relevant to basic income debates worldwide. It is also relevant for debates on the potential harmonisation of social protection across EU member states.

In contrast to common claims, it is not simply the case that the higher the BI the "better" the distributional consequences are, especially if income inequality and poverty reduction are goals. A low, "partial" BI may make more sense than a fully-fledged one that replaces most of what exists.

The exact specification of a BI matters a lot. Which parts of the existing tax-benefit system are maintained, and which parts are abolished, modified or replaced? Is a BI made taxable? Are amounts of other benefits affected by the BI? Such issues hardly feature in many BI debates but they are in fact of the uttermost importance for outcomes, as we will show.

Context matters too. The impact of a BI, be it a low or a high one, depends on the characteristics of the existing system that is (partially) replacing or complementing. Likewise, the structure and workings of the labour market matter. Whether or not many people work, and in what kind of jobs they work matters. This, again, is a point that is often overlooked in BI debates where it is often assumed that the impact would be rather similar across countries, existing systems and settings. That is not the case at all.

This paper shows that implementing a BI is far more complicated than many people, especially BI advocates, seem to realize. Moreover, its impact depends strongly on exactly how it is implemented and where.

2. The hidden part of the Basic Income Iceberg

A considerable amount of literature has emerged on BI. Previous literature has mainly discussed the normative desirability (e.g. Bidadanure, 2019; Birnbaum & De Wispelaere, 2020; Schulz, 2017; Van Parijs & Vanderborght, 2017) and political feasibility of BI (e.g. De Wispelaere, 2016; Martinelli & Pearce, 2019; Perkiö, 2020). Others used survey data to explore public opinions and attitudes towards BI and found quite substantial support levels among the population (e.g. Chrisp et al., 2020; Laenen et al., 2022; Parolin & Siöland, 2020; Rincón et al., 2022; Roosma & van Oorschot, 2020; Vlandas, 2021). At the same time, in-depth interviews reveal that people still strongly adhere to the traditional deservingness criteria of control,

need and reciprocity (Rossetti et al., 2020). Support among unions and organized labour on the contrary, remains lukewarm to say the least (Cigna, 2022; Henderson & Quiggin, 2019; Vanderborght, 2006).

There have also been several lines of empirical research on the possible impact of BI, particularly on poverty and employment. Researchers have for example looked at lottery winners to see what happens if people suddenly get free and unconditional money (e.g. Marx & Peeters, 2008; Picchio et al., 2018). A number of BI pilots have also been launched (e.g. Calnitsky & Latner, 2017; García, 2022; Kangas et al., 2021; Muffels, 2021). Still, as insightful as these experiments are, they essentially run on money falling from the sky and do not really tell us much about the question of what basic income at the scale of an entire economy could do for poverty.

Microsimulation studies have entered the debate, seeking to provide an answer to this question. Microsimulation models have a long history in ex-ante policy analysis. They can reveal in detail the possible distributional and revenue implications of current *and* alternative policies, and cast light on the best approaches to policy design. This makes them fit to explore the trade-offs that arise from a basic income, especially seeing it has not yet been implemented anywhere at the national level. Table 1 gives an overview of recent studies simulating a BI. Generally, there is some evidence that a higher BI tends to perform better in terms of poverty and inequality reduction. But overall, the research results we have at present on the possible outcomes of BI suggest a wide variety of potential outcomes.

*Table 1. Selection of recent microsimulation studies on BI*

Study by Browne and Immervoll (2017)	
Country	UK, France, Italy and Finland
BI	- BI amount set at level of Guaranteed Minimum Income of respective countries - Paid to individuals below statutory pension age - Budget-neutral reform, financed by abolishing majority of existing social benefits and some tax benefits, making BI taxable, and raising personal income tax rates
Outcomes	- Diverse pattern of winners and losers across countries - Decrease of poverty in Italy only; especially in UK increase in poverty levels - Potential improvement of work incentives, but only for first earners in lower-income households
Study by Boone et al. (2018)	
Country	Netherlands
BI	- Three different BI scenarios that vary in level of generosity (€415/month, €702/month or €982/month) - Scenarios follow closely the approach taken by Browne and Immervoll (2017)
Outcomes	- Number of winners and losers almost "fifty-fifty" in all scenarios, but completely different profile - Increase of poverty in low and medium amount scenarios; only modest decline of poverty and inequality in high amount scenario
Study by Pareliussen et al. (2018)	
Country	- Finland

BI	- Two possible directions of reform: uniform benefit or uniform tapering rule
	  - Taxable BI set at €573 per month before tax replacing some existing benefits
	  - Non-taxable universal credit that merges some working-age benefits into one single benefit tapered against earnings (rate of 65% on after-tax income)

Outcomes	- BI would improve incentives for many, but would also involve a drastic redistribution of income and an increase in poverty - Single tapering rule would improve work incentives for all, while also decreasing poverty

Study by Badenes Plá et al. (2019)

Country	Spain
BI	- Radical, taxable BI that eliminates entire existing monetary benefits system - BI set at €295/month (based on total amount of monetary benefits and number of people)
Outcomes	- As redistributive and almost as poverty-reducing (or more in some dimensions) as current system - Generator of greater welfare

Study by Magnani and Piccoli (2020)

Country	France
BI	- Budget-neutral BI scheme of €2038 per year coupled with flat income tax of 48% - Replacing existing minimum income benefit, several other conditional benefits and existing progressive income taxation
Outcomes	- Increase in disposable income of poor individuals - Decrease in income inequalities and poverty Overall increase in labour supply

Study by Martinelli (2020)

Country	UK

BI	- Range of BI schemes, from full to partial
	  - Modest partial scheme: existing benefit structure retained and BI incorporated into existing means-tests
	  - Moderate full scheme: amounts based on existing 'standard' benefit rates
	  - Generous full scheme: same as moderate scheme, but higher BI amounts

Outcomes	- Schemes that aim to replace means-tested benefits either lead to unacceptable household losses (including some falling deeper into poverty) or cost too much - Partial schemes can avoid such losses and be affordable at the same, but fail to achieve many of BI's broader goals

Study by Goderis and Vlekke (2022)

Country	Netherlands
BI	- BI amount is set at level of either guaranteed minimum income or of state pension - Assigned to individuals as well as households (so that couples receive about 1.5 times as much as singles) - Accompanied by simplification of tax-benefit system
Outcomes	- Decrease in poverty by respectively 45% and 60% - But involves very high income tax rates and reduction of total employment by 8%

Study by Reed et al. (2022)

Country	UK

BI	- Three different budget-neutral BI scenarios offset by increasing income taxes and national insurance contributions
	  - Modest 'lower level' scheme: child benefit and state pension abolished, part of BI disregarded in existing means-tests
	  - Intermediate scheme: BI amounts are higher
	  - Highest scheme: BI amount set at level that ensures all families Minimum Income Standard, most means-tested benefits eliminated and income tax allowances abolished

Outcomes	- Reduction in poverty and inequality for all schemes
	- More redistribution in higher schemes, with more winners and fewer losers (even with significant increases in marginal income tax rates)

We argue that the lack of consistency in expected outcomes can be ascribed to the multidimensionality of the 'basic income' concept. First, a BI can take many faces (De Wispelaere & Stirton, 2004). Every study about BI seems to assume a different BI scheme, making the comparability of the results hard. For that reason, universal BI should be rather understood as a myriad of schemes that differ substantially along a range of policy dimensions than as one uniform policy. Key design dimensions include coverage, adequacy, uniformity, financing, integration and accumulation. These dimensions interact in complex ways. Every choice matters, down to the very last policy detail. Second, BI schemes that *are* similar in level and design can still produce divergent outcomes depending on the country-specific context, especially the interplay with the tax-benefit system in place.

Figure 1. The Basic Income Iceberg metaphor
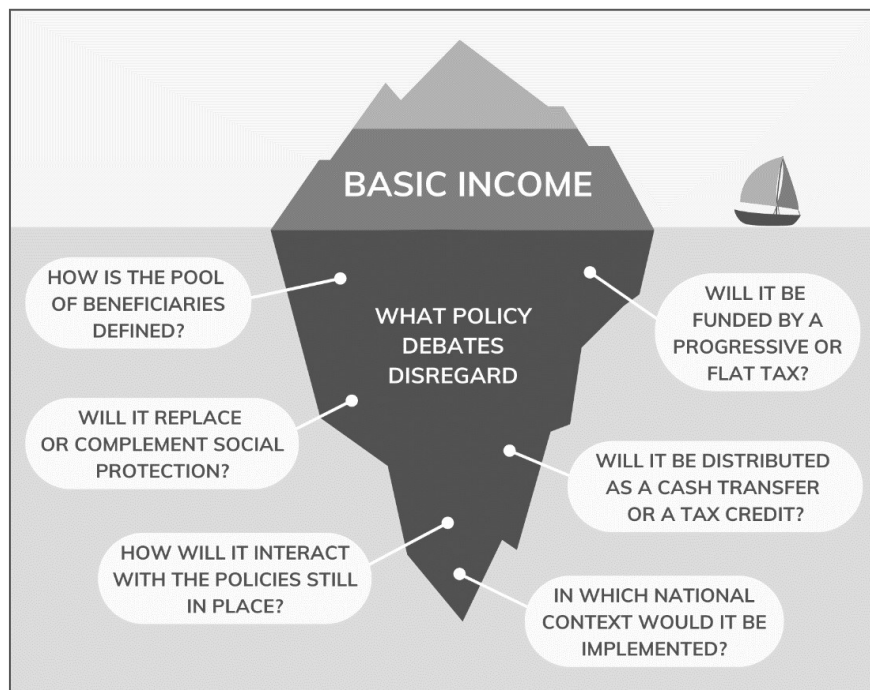
BI debates tend to focus on a limited set of issues. Who is entitled? How high is the BI? But these issues merely constitute the proverbial tip of the iceberg, giving the illusion of a disarmingly simple idea. There is much more hidden under the sea line, notably all the policy choices that must be made. Those choices go beyond the mere size of the benefit amount. Unless one is advocating the elimination of the entire existing tax-benefit system, it is especially important to consider which parts of the system remain, *and* how the BI will then interact with the set of policies remaining in place. Here, we specifically explore how a BI can be designed to reduce poverty. Obviously, this is only one of many goals motivating a BI (i.e. promotion of freedom and empowerment, simplification of the system, etc).

As such, our work offers two primary contributions. We bring our analysis to the level of fine-grained design and implementation; and we apply a cross-national comparative perspective. This allows us to

validate how level, design and context all matter for the poverty outcomes of a BI, a complexity that has been largely ignored in previous studies. Our paper thus connects the basic income literature with the social policy literature that highlights the important distinction between level and design of benefits when it comes to gauging their poverty reduction effectiveness (Avram & Militaru, 2016; Popova, 2016; Salanauskaite & Verbist, 2013). And we demonstrate that this literature has a broader relevance than that of family policies on which it has focused until now.

3. Modelling basic income

We use tax-benefit microsimulation modelling to explore the costs and outcomes of introducing a BI in the Netherlands and Belgium. Essentially, this type of modelling combines data on household incomes and characteristics across the population with the tax-benefit policy rules and can be used to answer what-if questions (e.g. in the case of a BI).

In this paper, we utilise the tax-benefit microsimulation EUROMOD. EUROMOD calculates for all EU member states, in a comparable manner, the effect of cash benefits, direct taxes and social insurance contributions on household incomes in line with national tax-benefit rules in place (Sutherland & Figari, 2013). Accordingly, we can compare net disposable incomes of households across the different policy scenarios with and without a BI in place. The baseline scenario corresponds to prevailing policies in 2019 (i.e. status quo), and the hypothetical BI scenarios are described in more detail in the next section.

We make use of both model family and empirical microsimulation modelling. While most studies either focus on one approach or the other, we rather choose to combine the strengths of both approaches. To be able to carry out distributional analyses and draw conclusions about the population as a whole, we make use of representative household survey data. We use the EU-SILC (i.e. European Union Statistics on Income and Living Conditions) from the year 2019 for Belgium and 2018 for the Netherlands, which were the most recent available datasets at the time of the analysis. In order to compare the pure institutional architecture of tax-benefit systems across countries and illustrate how policies interact with each other, we use hypothetical household data. The HHoT tool of EUROMOD allows us to simulate how the tax-benefit system works for a selection of well-defined households with specific characteristics, while having full control over the characteristics of interest (Hufkens et al., 2019).

EUROMOD is a static microsimulation model, in the sense that it assumes that the characteristics of individual decision units do not change over time. This makes the model mainly useful for the analysis of so-called first-order effects, which capture the estimated direct (or day-after) impact of a policy reform on, for example, poverty and inequality levels. Policy reforms can, however, also influence an individual's behaviour: these are called second-order effects. The latter have a rather indirect character and play an important role in the basic income debate (See also Browne & Immervoll, 2017; Jacobs et al., 2006; Reed & Lansley, 2016). Such second-order estimations are not included in EUROMOD. Behavioural models in the context of such a wide-ranging reform as a BI should be handled with caution anyway, as estimates of labour supply responses are in the first place intended to deal with marginal policy changes. In addition, existing empirical evidence about the relationship between BI and labour supply, points to very little change in people's labour market behaviour (see de Paz-Báñez et al., 2020).

Non-take-up of public provisions is a serious problem in contemporary welfare states (see e.g. Bargain et al., 2012; Janssens & Van Mechelen, 2022), to which a BI could provide an answer. EUROMOD however does not (sufficiently) account for non-take-up. So instead, we have to assume full take-up of benefits and allowances.

4. Hypothetical basic income scenarios

We simulate six counterfactual BI scenarios in Belgium and the Netherlands. The scenarios not only differ in terms of generosity, but also in terms of design/funding mechanism. The scope of our exercise is limited to non-elderly individuals. The provisions of benefits for those above the statutory retirement age are assumed to remain in place unchanged such that their incomes will not be directly affected by the BI reforms.

The most typical BI proposals intend to replace all social programs, including their multitude of benefit types and eligibility rules, with a basic income – pursuing the objective of simplifying the system. In that case, the amount granted should be generous enough to satisfy an individual's basic needs. In recent years, others have also made the case for a partial as opposed to a full BI scheme, as it might be more practical and politically feasible. When it is a complement to rather than a substitute for existing social assistance and other social benefits, a lower BI could act as a solid foundation underpinning the income distribution. However, a partial BI would not address the problems of a means-tested system (i.e. complexity, administrative burden, lack of knowledge, stigma, insecurity).

4.1 Three levels of generosity

We consider three benefit levels, ranging from a modest partial to a generous full BI, to capture the effect of generosity. Table 2 provides an overview of the different amounts per scenario.

To make the scenarios comparable across countries, we fix the BI amount as a percentage of median income. The monthly median incomes in Belgium and the Netherlands are close to each other, being €2,048 and €2,059 respectively, resulting in similar BI levels. For the lowest level of generosity, we simulate a BI equal to 10% of median income for adults (below the applicable retirement age), i.e. €205 per month in both countries. Inspired by the OECD equivalence scale, we grant every child (below 18 years old) a BI equal to 30% of the adult amount, which is 60 euros per month. For the medium amount, we raise the BI to 30% of median income, which corresponds to €615, resp. €618 for all Belgian, resp. Dutch adults, and €185 per month for each child. For the most generous BI, we further increase the amount until the level of the poverty line, i.e. 60% of median income. This adds up to an amount of €1,230, resp. €1,235 per month in Belgium, resp. in the Netherlands. Every child in its turn receives a BI of €370 per month.

4.2 Variation by design

The exact form such a partial or full BI should take, is generally ignored and/or overlooked. There are many design features to take into consideration, at least if the goal is to have a (quasi) budget-neutral reform – which is a necessity given the considerable total cost of BI. First, one has to decide which existing measures will be abolished in order to maintain budget neutrality. As the level of generosity increases, more existing benefits have to be abolished. We start with abolishing benefits that most closely align with the basic income philosophy. With increasing generosity, additional design choices have to be made. We focus on three crucial design features and develop two alternative scenarios for each of these features that can be considered as two opposed options. At the lowest level of generosity, we explore the choice between including the BI in the means-test or not. At the medium level, we investigate the effect of the funding source by varying between abolishing tax advantages or social benefits. At the highest level of generosity, we explore the impact of the accompanying tax system, either progressive or flat. We now describe the design features of the different scenarios in more detail.

Design choice I: are other benefit amounts affected by the basic income?

The lowest BI amount can be financed by abolishing and/or reducing some of the existing tax benefits for individuals of active working age. We abolish the tax-free base allowance in Belgium and the general tax credit in the Netherlands, which already come close to the idea of a BI. Additionally, in Belgium we also remove the so-called marital quotient such that spouses are assessed fully independent, in line with the individual nature of a BI. Finally, the tax deduction of professional expenses in Belgium and the work tax credits in the Netherlands – both comprehensive tax advantages for employees/self-employed of which a large share of the population benefits – are capped. The social protection system, on the other hand, is fully maintained. This implies one has to decide how the newly introduced BI is going to interact with the set of policies still in place: will the amounts of other, especially means-tested, benefits be affected by a BI? Hence, in the *first scenario* (further called "NMT") we do not take BI into account in the social assistance means-test, while in the *second scenario* (called "MT") we do include it in the means-test.

Design choice II: which parts of the existing tax-benefit system are (not) maintained?

At the medium level of generosity, we identify two broad options: cutting in either tax expenditures or social expenditures. In the *third scenario* (further called "TAX"), we abolish all existing tax benefits for households below pension age, building on the 'low generosity' MT scenario. In the *fourth scenario* (called "SOC"), we alternatively abolish all child-related benefits and a selection of social benefits (social assistance, unemployment benefits, survivor benefits and early retirement benefits). Disability benefits and housing benefits are left unaffected, as these are intended to compensate for specific needs or circumstances. Within the tax relief scheme, now only the tax-free allowance or equivalent zero-rate tax band is removed, all other tax advantages remain in place. Finally, in both alternative scenarios, we need to make the BI taxable in order to be budget neutral. This can have two implications for government revenues. First of all,

revenue from personal income taxes will increase due to higher taxable incomes. Second, if social insurance contributions are also calculated on taxable incomes, these revenues will increase as well.

Design choice III: accompanied by a flat or progressive tax?

For the most generous amount, we build further on the previous steps. We abolish the existing tax benefits, child-related benefits and social benefits, as well as make BI taxable. In order to compensate for the remaining deficit, we also have to raise personal income taxes. Again, there are several possibilities. We could simply increase the progressive tax rates already in place, which will be the case in the *fifth scenario* (further called "PROG"). As such, personal income taxes would have to be raised by 15% in Belgium and 25% in the Netherlands. This means that the highest tax bracket would increase from 50% to 58% in Belgium and from 52% to 65% in the Netherlands (see appendix for full tax schedule). Or, following the proposal by Atkinson (1995), we couple a BI with a flat tax in the *last scenario* (called "FLAT"). That way, excessive labour supply inefficiencies could be avoided. If we would fully replace the existing income taxation scheme, this BI reform in Belgium would require a flat tax of 46%. In the Netherlands, a flat tax of 27% would suffice. Table 2 provides a step-by-step overview of the different levers we pull to achieve budget-neutrality.

Table 2. Overview of different BI scenarios: (1) amounts and (2) budgetary resources to achieve budget-neutrality (in billion euros)

BI scenario	Belgium						Netherlands					
	Low		Medium		High		Low		Medium		High	
	NMT	MT	TAX	SOC	PROG	FLAT	NMT	MT	TAX	SOC	PROG	FLAT
(1) BI amounts												
Working-age adults	€205		€615		€1230		€205		€618		€1235	
Children under 18y	€60		€185		€370		€60		€185		€370	
(2) Additional revenue												
Abolish tax benefits	18.5	17.1	32.8	15.8	32.8	32.8	28.5	27.4	49.8	33.0	49.8	49.8
Include BI in means-test	-	1.3	3.8	0	0	0	-	1.2	3.1	0	0	0
Make BI taxable	-	-	21.1	20.6	42.8	42.8	-	-	33.2	35.1	71.2	71.2
Abolish child benefits	-	-	-	7.0	6.9	6.9	-	-	-	6.4	3.0	3.0
Abolish social benefits	-	-	-	11.0	11.0	11.0	-	-	-	10.4	10.4	10.4
Increase PIT	-	-	-	-	17.9	18.3	-	-	-	-	37.7	37.7
Total *as % of GDP*	**18.5** *= 4%*		**55.8** *= 12%*		**111.5** *= 23%*		**28.5** *= 4%*		**86.1** *= 11%*		**172.1** *= 21%*	

Note: Budgetary savings are not always identical to the reported budgets in the appendix because interaction effects are taken into account and the elderly are still eligible for all previously existing benefits. *Source:* Own calculations based on EUROMOD and micro-data from EU-SILC

5. Impact on income, poverty and inequality

We now turn to the simulated outcomes of the various BI scenarios. First, we present the aggregate effects on poverty and inequality for the entire population using microdata, our main outcome of interest. We also document the pattern of winners and losers, as this might provide an indication of the political feasibility of the proposed reforms.

5.1 A higher basic income does not necessarily yield more poverty reduction

Table 3 summarizes the poverty and inequality levels in the different BI scenarios. To assess the effect of a BI on poverty, we make use of two relative poverty indicators based on the 60% poverty line. The poverty risk refers to the share of individuals with an equivalised disposable household income below the poverty line (i.e. incidence), while the poverty gap presents the ratio by which the incomes of the poor fall below the poverty line (i.e. intensity). In the baseline scenario, 11% of the Belgian population is at-risk-of-poverty, and their incomes fall on average 16.7% short of the poverty line. In the Netherlands, 11.6% lives in poverty, and the poverty gap amounts to 22.6% on average. Note that the baseline EUROMOD results slightly differ from Eurostat statistics calculated directly from the EU-SILC. This underestimation is due to the assumption of full tax compliance and take-up of benefits (Maier et al., 2022). The estimates can thus also be interpreted as the "de jure" effects.

A first observation is that a more generous BI does not necessarily yield more poverty reduction, especially in comparison to the size of the reform. This holds for both countries. A BI equal to the poverty line would reduce the share of the population below the poverty line in Belgium by less than a third at best. In the Netherlands, less than a quarter of the population would escape poverty. Those left in poverty would find themselves further away from the poverty line, as is shown by the poverty gap. Whereas the fiscal cost of such a BI reform would equal almost 90% of the total government tax revenue or a quarter of GDP. As such, it is doubtful whether a full BI scheme is the most cost-efficient way of addressing poverty and inequality. A lower, partial BI seems to make more sense than a fully-fledged one.

Apart from the level of payment, the design specifics and the nature of the funding mechanism also appear to be a major determinant of the effect on poverty and inequality. Not including BI in the calculation of other benefits (*NMT*) ensures a significant reduction. When it is a means-test applies (*MT*), a BI could still alleviate poverty, but to a lesser extent. There is a marked difference by the funding mechanism used. We see that a BI funded by replacing existing social protection arrangements (*SOC*), would increase poverty without exception. Replacing tax benefits with a BI (*TAX*) would enhance redistribution and structurally lower poverty rates. Also, the tax structure matters. In Belgium, a BI accompanied by a flat tax (*FLAT*) would for example be overall somewhat less redistributive compared to a progressive tax (*PROG*). In the Netherlands, the combination of a BI and a flat tax would have dramatic consequences. Poverty would rise sharply from 11.6% to 17.9%. The antipoverty effect of a BI will thus also be highly dependent on the choices made by policymakers.

A second observation is that a similar BI scheme would have a larger poverty-reducing effect in Belgium compared to the Netherlands, and this consistently for each scenario. On average, the Netherlands can only reach two third of the poverty reduction achieved in Belgium. But if poverty were to increase, as is the case

in scenarios 4 and 6, the rise would be larger in the Netherlands than in Belgium. In the Netherlands, a BI – or at least the schemes simulated here – thus seems to have a lower potential for reducing poverty, but a higher potential for increasing poverty. It clearly shows that the context in which a BI would be implemented can significantly alter the effectiveness of a BI.

A last interesting observation is that the patterns of both overty indicators do not always coincide. In Belgium, for example, the poverty risk declines most strongly in the third scenario. This scenario nevertheless does not secure the lowest poverty gap. Similarly, in the Netherlands the scenarios with the biggest impact on the poverty risk and on the poverty gap are not the same. Even more remarkable, the high amount scenarios in Belgium would drive the poverty risk and the poverty gap in different directions: they decrease the poverty risk but increase the poverty gap. The indicator of interest thus also matters, because certain BI reforms could reduce the proportion of people living in poverty, while at the same time push the most vulnerable households deeper into poverty.

Table 3. Poverty and inequality levels in the different BI scenarios
Panel A. Belgium

BE	Baseline	Low		Medium		High	
		1) NMT	2) MT	3) TAX	4) SOC	5) PROG	6) FLAT
Inequality							
Population	0.2178	0.2089*	0.2139*	0.2017*	0.2310*	0.1920*	0.2218*
Poverty risk							
Population	11.0%	8.8%*	10.1%*	7.0%*	12.3%*	7.5%*	10.3%*
Children	12.3%	9.0%*	11.4%*	3.7%*	16.5%*	6.7%*	9.4%*
Working age	9.5%	7.1%*	8.3%*	6.0%*	10.3%*	5.4%*	8.1%*
Elderly	14.6%	14.1%*	14.5%	14.0%*	14.5%	15.2%	18.7%*
Poverty gap							
Population	16.7%	11.9*%	13.9%*	14.1%*	29.4%*	18.3%*	20.5%*
Children	14.0%	8.7%*	10.7%*	8.4%*	28.1%*	12.9%	17.4%*
Working age	17.0%	9.6%*	13.1%*	12.3%*	34.2%*	21.4%*	25.6%*
Elderly	19.1%	19.2%	18.8%	19.3%	19.2%	17.7%	14.9%*

Panel B. Netherlands

NL	Baseline	Low		Medium		High	
		1) NMT	2) MT	3) TAX	4) SOC	5) PROG	6) FLAT
Inequality							
Population	0.2593	0.2559*	0.2587*	0.2441*	0.2773*	0.2212*	0.3117*
Poverty risk							
Population	11.6%	9.7%*	10.9%*	9.9%*	14.2%*	9.0%*	17.9%*
Children	13.5%	10.9%*	11.5%*	9.9%*	15.4%*	9.6%*	16.1%*
Working age	12.9%	10.7%*	12.5%*	11.3%*	16.3%*	10.0%*	18.0%*
Elderly	5.3%	5.1%*	5.2%	5.1%	5.7%*	4.9%	19.1%*
Poverty gap							
Population	22.6%	19.3%*	19.4%*	16.4%*	29.9%*	22.5%	25.2%*
Children	19.1%	15.2%*	16.2%*	15.4%*	27.6%*	22.0%*	26.9%*
Working age	25.8%	22.2%*	21.9%*	18.0%*	32.7%*	24.5%	30.9%*
Elderly	12.3%	11.8%	11.9%	10.4%	15.7%*	11.4%	12.0%

Note: (1) The poverty line of the baseline is used to calculate poverty levels under the reform scenarios. (2) * are significant differences ($p<0.05$). *Source*: Own calculations based on EUROMOD and micro-data from EU-SILC.

5.2 A considerable share of the population would still lose out financially from a basic income

Next, we turn to the pattern of winners and losers. Winners (losers) are defined as those that experience a gain (loss) in their household net disposable income as a result of introducing a BI. We find different patterns of winners and losers across scenarios and countries (see Figure 2). Overall, there seem to be more winners when the benefit amount is higher. However, we also see that the pattern of winners and losers becomes more polarised in the higher BI scenarios: the more generous a BI, the higher the share of the population that will substantially benefit from such a reform, but also the higher the share that will heavily lose out financially. Considering that people weigh losses more heavily than gains (Kahneman & Tversky, 1979; Pierson, 2000), this calls into question the political feasibility of this type of reform. Comparing between countries, we see that in Belgium all but one scenario would result in more people losing out from a BI than gaining. Even in the highest BI scenario, still slightly over half of the persons of working age would see their incomes go down. While for the Netherlands we find the opposite trend: four out of six scenarios would benefit the greater part of the population. This indicates that in Belgium the introduction of a BI will have a stronger effect on poverty, but at the expense of a larger share of the population losing out.

Figure 2. Winners and losers expressed as % from active working-age population
Panel A. Belgium
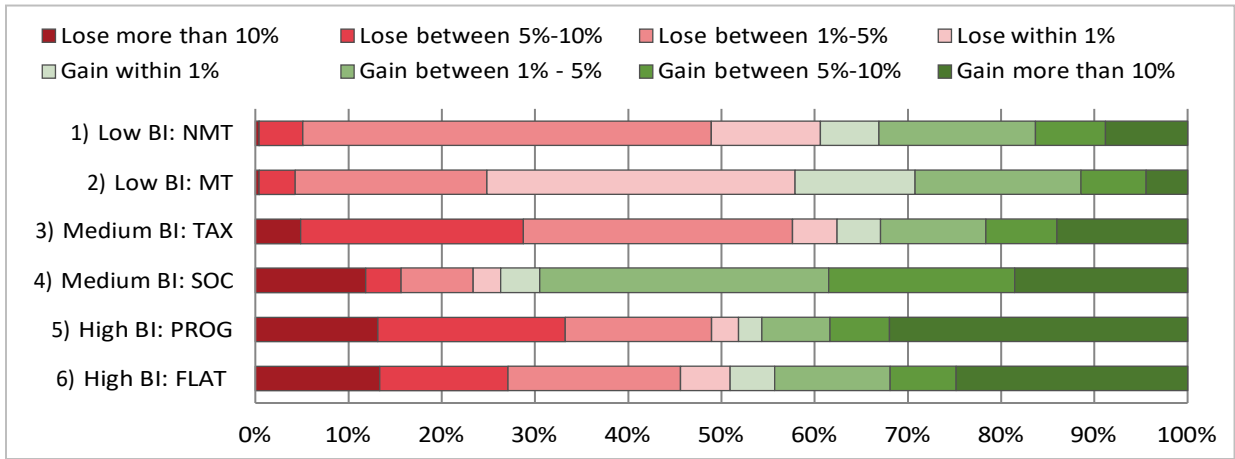
Panel B. Netherlands
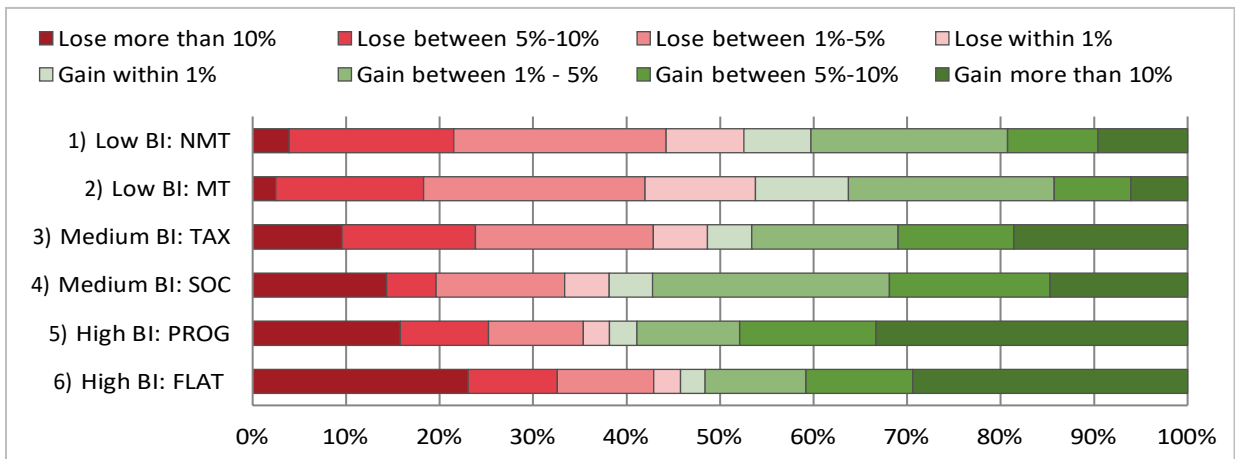
Source: Own calculations based on EUROMOD and micro-data from EU-SILC.

6. Understanding the results

The previous graphs and tables revealed relatively diverging patterns. What we are trying to understand next is what exactly various BI scenario's mean for household incomes. Model family type simulations can help us understand in more depth how a BI would affect a low-income household. We show a selection of illustrative graphs depicting the impact on a hypothetical couple with two children, the most common family type. The other model family types can be found in the appendix. Figure 3 and following decompose the net disposable income of a couple with two children, aged 7 and 14. The labour market status of the breadwinner ranges from jobless to full-time employed at the minimum wage, while the partner is always assumed to be inactive. The black line represents the total monthly income that corresponds to x hours of work. We also include the poverty line, defined as 60 % of the national median disposable income, to assess income adequacy.

6.1 No uniform effects across countries: context matters

In section 5 we observed that the effects of BI, even if the scheme is similar in terms of generosity and design, seem to vary substantially across countries. BI thus strongly interacts with the national context, which makes sense seeing that it would not exist in a vacuum. A different context will therefore result in a different impact. Context relates to several dimensions, such as the socio-economic characteristics of the population and the underlying tax-benefit system. A glance at the baseline model already gives important insights about the latter.

Figure 3. Net disposable income of a low-income couple with two children under the current system
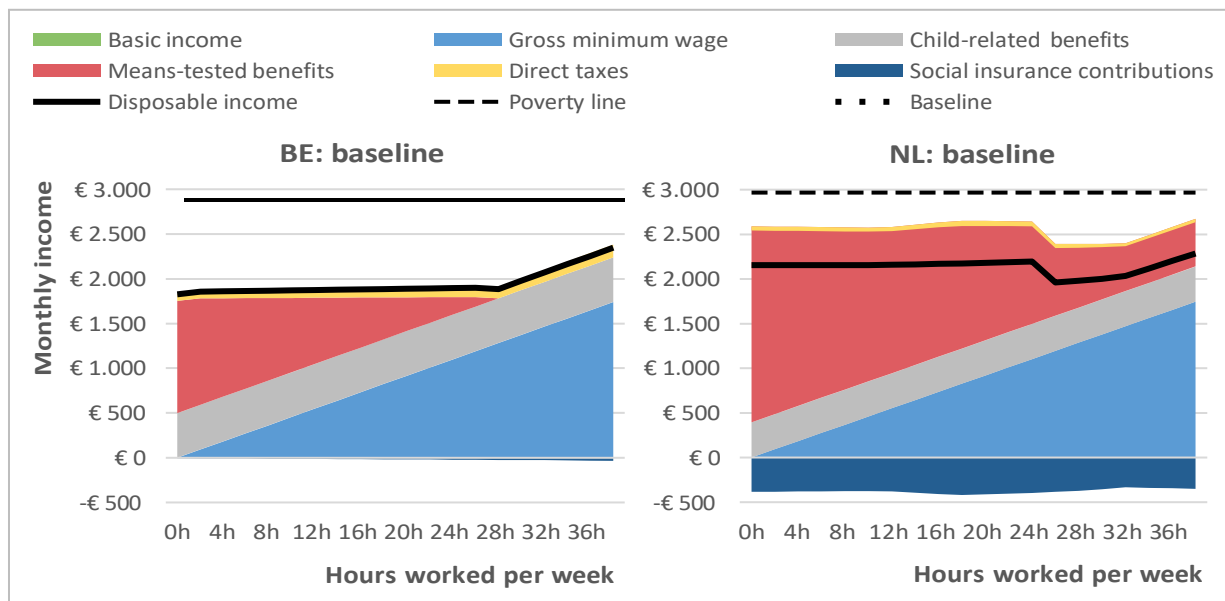
Note: Decomposition of net disposable income of a couple with two children, aged 7 and 14, by working hours. The breadwinner's labour market status ranges from jobless to full-time employed at the minimum wage, while the partner is always assumed to be inactive. *Source:* Own calculations based on EUROMOD using hypothetical household data.

The baseline models in Figure 3 (and appendix, Figures A2-A4) show that in Belgium a jobless household, that has no other sources of income to revert to, will inevitably be at-risk-of-poverty. Even a minimum wage job does not lift this household above the poverty line. In the Netherlands also, this household is below the poverty line, though the gap is much smaller because of higher minimum income protection levels in the form of substantially higher means-tested benefits. For single persons the Netherlands is able to lift working and non-working people above the poverty line (see appendix, Figure A2). This illustrates that the Netherlands is one of the few countries providing at least parts of its population an income above the poverty threshold. Social assistance is more generous than in Belgium, housing benefits play a more important role in supplementing incomes and a care allowance helps low-income households to cover their private health insurance premium.

Other elements of the tax-benefit system also differ considerably between Belgium and the Netherlands and explain different outcomes. For example, substantially more social insurance contributions are levied in the Netherlands. Besides the common employee contributions to unemployment insurance, all income taxpayers in the Netherlands, including benefit recipients, contribute to national insurances. They are calculated based on taxable income. Making a BI taxable in the Netherlands will not only increase incomes taxes for households, but also their social insurance contributions (see next section), which will dampen the effect of a BI on their incomes.

Overall, the Dutch approach can be summarized as "targeting within universalism": relatively generous universal benefits and services are supplemented by a range of income and household conditional supplements. Consequently, half of the Dutch social spending goes to the bottom three deciles (see appendix, Figure A1). The Belgian tax-benefit system, in contrast, is less targeted at low incomes. Tax benefits there are more middle-class biased, in part compensating for high marginal tax rates kicking in at relatively low earned incomes (see appendix, Table A4). Ultimately, moving from a more targeted tax-benefit system – as the Dutch one – to a universal program, the income gains from BI are thus likely to be insufficiently widespread among low-income households to substantially decrease poverty. The non-negligible interaction with national context adds a layer of complexity to any international discussion of basic income.

6.2 The same level of basic income but an alternative design will have a different impact

We also observed that, apart from the level of payment, the design specifics and the nature of the funding mechanism strongly determine the impact a BI can have on poverty and inequality. To better grasp the significance of design, we now illustrate in Figure 4 to 6 how the different BI schemes would impact on the income position of the same model family.

Figure 4. Income effect of including a BI in the means-test or not (low BI scenario)

Legend:
- Basic Income
- Means-tested benefits
- Disposable income
- Gross minimum wage
- Social insurance contributions
- Poverty line
- Child-related benefits
- Direct taxes
- Baseline

BE: not included in means-test

BE: included in means-test

NL: not included in means-test

NL: included in means-test

Hours worked per week
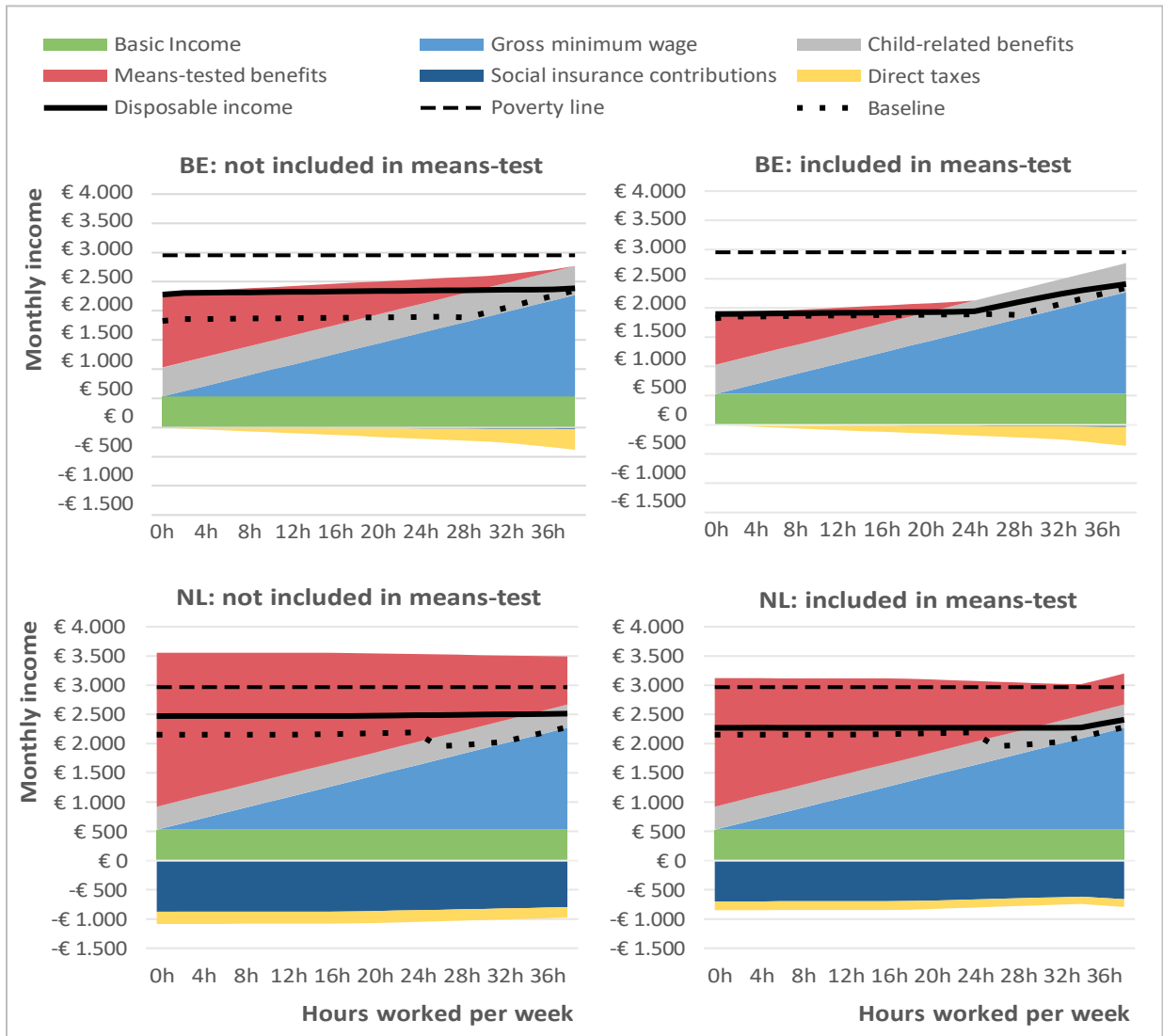
Source: Own calculations based on EUROMOD using hypothetical household data.

Figure 4 clearly illustrates why the impact on poverty is larger when BI is not included in the means-test as compared to inclusion in the means-test, and also why the poverty reduction in Table 3 was larger for Belgium as compared to the Netherlands. When not included in the means-test, social assistance recipients receive a BI fully on top of their original benefits, entailing a stronger increase for low incomes than would be the case when BI is part of the means-test for allocating other benefits. This design choice necessitates a lower budget allocated towards means-tested benefits, but also means that many welfare recipients would see their incomes rather unaffected. It is also noteworthy that in Belgium means-tested benefits are tapered away at a much lower income level compared to the Netherlands.

Figure 5. Income effect of the funding source for a BI (medium BI scenario)
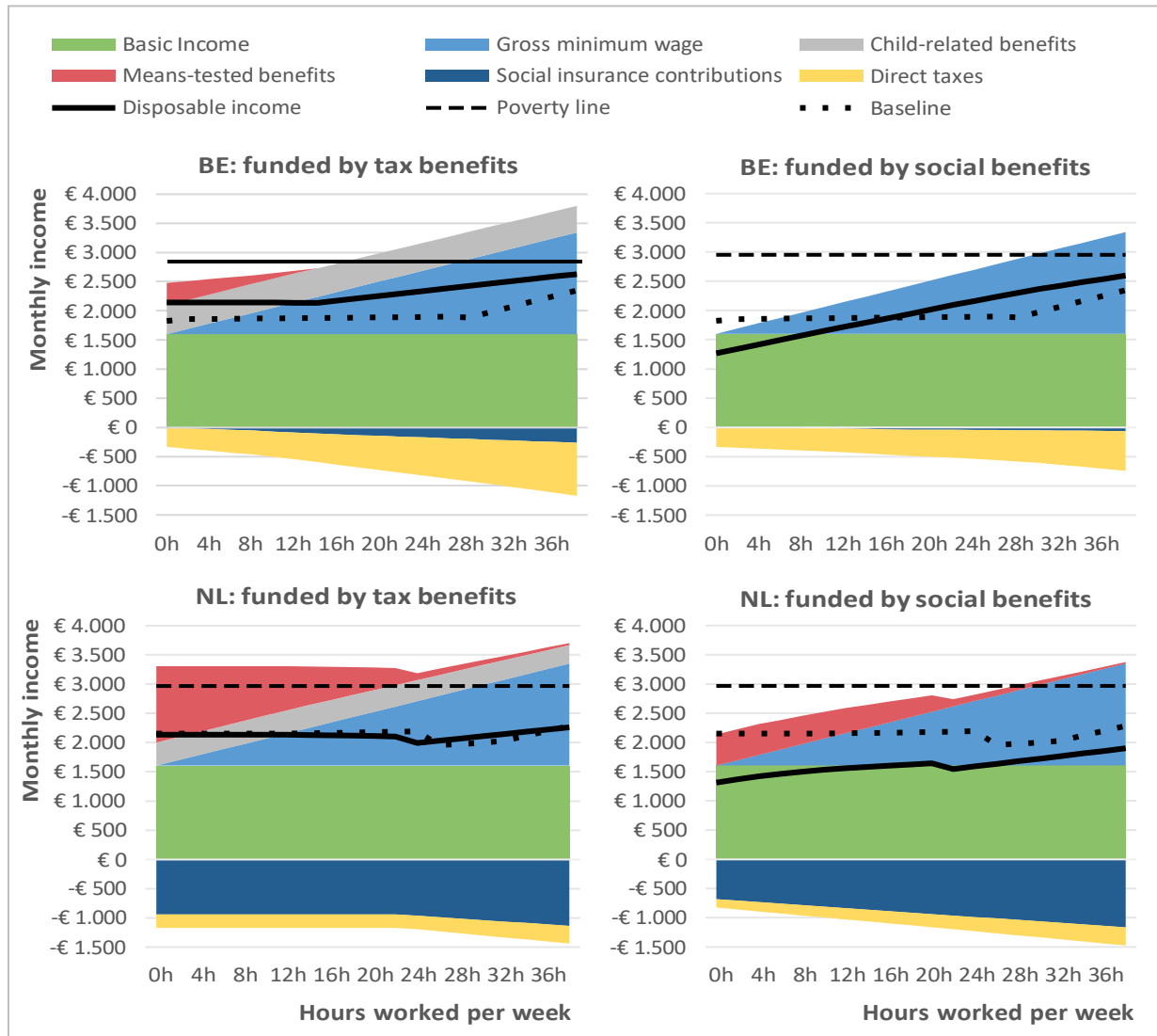
Source: Own calculations based on EUROMOD using hypothetical household data.

Table 3 shows that a BI funded by replacing existing social protection arrangements would increase poverty without exception. Figure 5 (right panel) shows that this type of reform would indeed mainly lower incomes couples with no or a part-time job, pushing them further below the poverty line. This is not surprising: the resources that were initially targeted towards low incomes are now redistributed equally among the population. When a BI is funded by abolishing tax benefits, it creates a universal layer on top of the current social protection system. Because tax benefits typically tend to benefit those with higher incomes, replacing them with a universal BI implies a pro-poor redistribution and a decrease in poverty (see left panel of Figure 5). This is more pronounced in Belgium than in the Netherlands, due to the difference in the distribution of tax versus social benefits and the substantial increase in social insurance contributions (see previous section).

Figure 6. Income effect of coupling a BI with a progressive or flat tax (high BI scenario)
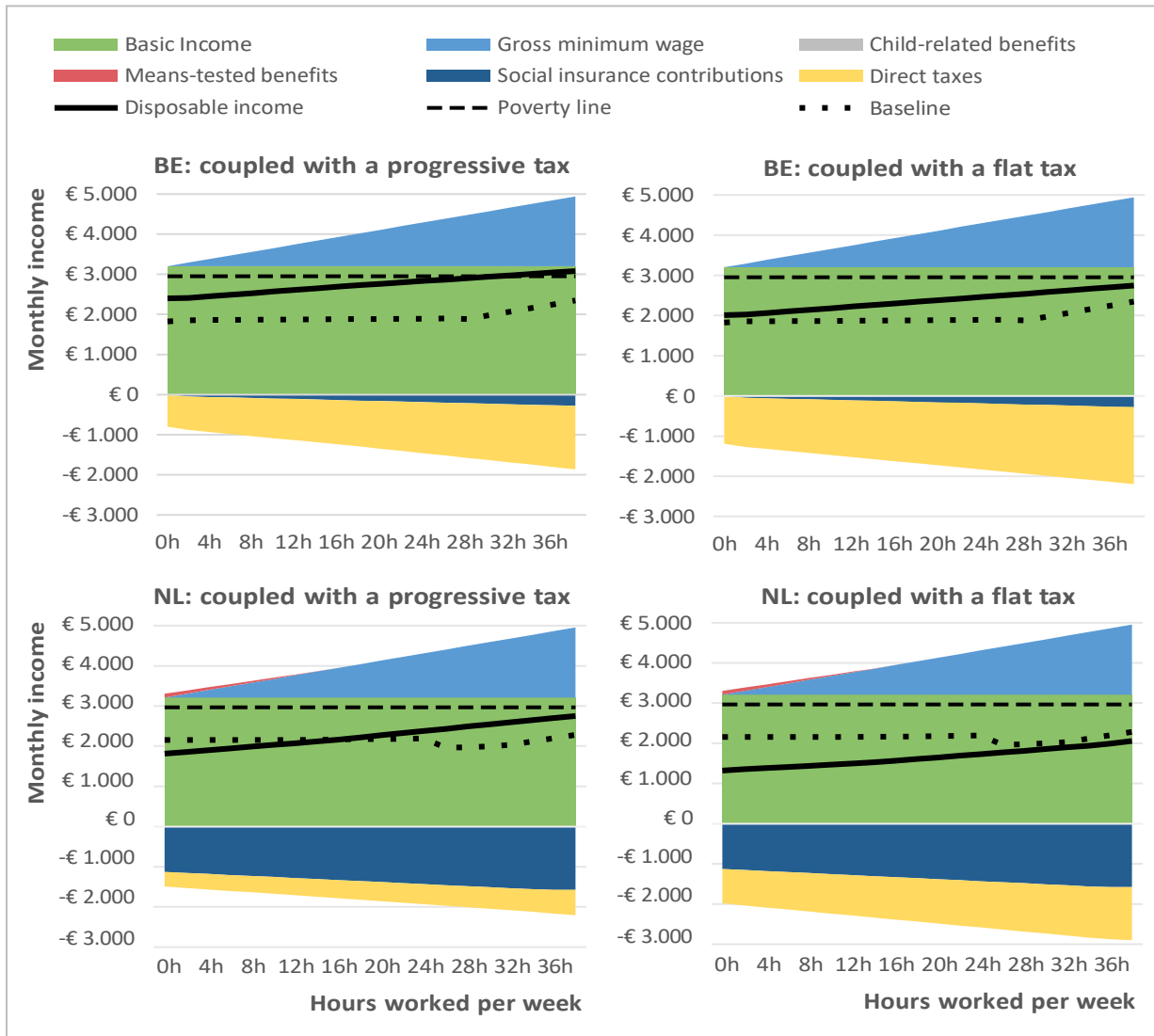
Source: Own calculations based on EUROMOD using hypothetical household data.

We not only find that the way taxes are designed to fund the BI matters for poverty outcomes (see Table 3), but that the impact differs between both countries. This mainly relates to the fact that the Netherlands has a more progressive income tax system than Belgium. Figure 6 shows that replacing this more progressive system with a flat tax would greatly reduce incomes at the bottom as they would be taxed at a higher rate and thus pay substantially more taxes (right panel).

7. Conclusion

Taking a BI seriously as a policy option requires that we consider carefully how we could really implement it. This paper debunks the proclaimed simplicity of a BI. We show that implementing a BI is far more complicated than many people, especially BI advocates, seem to realize. Our analysis sparks three key take-away messages:

1) *A Basic Income is never simple – it requires many choices.* The exact specification of the BI matters a great deal. Which parts of the existing tax/benefit system are maintained? What is abolished, modified or replaced? Is a BI made taxable? Is eligibility to other benefits affected by a BI, for example through a means-test? These choices are best made with a specific purpose in mind. For a BI can serve many end goals, which may well be incompatible.

2) *Those choices matter, even apparently 'minor' choices matter.* Depending on how exactly a BI is specified, the effects may vary a lot. The level of the BI is only one choice that needs to be made. Strikingly, a higher BI will not necessarily always have "better" distributional consequences, especially if poverty reduction is the goal. But besides the amount of the BI, we have demonstrated that many other design features matter just as much. When a BI would be implemented as a wholesale replacement of existing social protection arrangements, poverty would increase without exception. Alternatively, replacing tax allowances – which tend to benefit those with higher incomes – with a BI would reduce poverty rates (as probably would be even more the case with more targeted benefits). Whether or not a BI is included in the means-test of other benefits also matters for the poverty reduction that can be achieved. Even the tax structure matters. A BI accompanied by a flat tax would for example be overall far less redistributive compared to a progressive tax. Our analysis thus highlights the importance of scheme design in developing a BI policy.

3) *The implications of those choices will vary across different national contexts.* Using the cases of Belgium and the Netherlands, we show that a BI would produce far from uniform effects in the two countries. That is because there are important differences in their socio-economic and institutional context. As existing benefits are more strongly targeted towards low-income households in the Netherlands than in Belgium, the introduction of a BI would benefit lower-income households less in the Netherlands.

De Wispelaere (2004) has it right when he states, "There is no such thing as a preferred basic income scheme independent of the overall institutional and policy context". A BI scheme that reduces poverty and inequality in one country, will not necessarily have a similar impact in another country. A BI income can potentially help to reduce poverty, but always at a high budgetary cost and with significant shares of the population incurring significant losses, which matters for political feasibility. Yet a miracle remedy for persistent poverty BI is unlikely to be, even when set at a very high level. Its heralded simplicity seems vastly overestimated. BI has something of a treacherous iceberg. Below that gleaming, appealing tip of simplicity, there is a murky mass of complex choices to be made and interactions to be accounted for. What you get may be very different from what you wish for.

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Appendix

Table A1. Characteristics of social benefits in Belgium and the Netherlands (2019)

Social benefit	BE			NL		
	Means-test?	Taken into account in calculation of other benefits?	Taxable?	Means-test?	Taken into account in calculation of other benefits?	Taxable?
Social assistance	x	x		x		
Unemployment benefit		x	x		x	x
Sickness and disability benefit		x	x		x	x
Housing benefit	x			x		
Child benefit	x[1]			x		
Education benefit	x			x	x	
Survivor benefit		x	x	x	x	x
Early retirement benefit		x	x	-		
Care allowance	-			x		

Note: [1] Universal base amount, supplemented by a means-tested top-up. *Source:* Assal et al. (2021) and de Vos (2021).

Table A2. Characteristics of tax benefits in Belgium and the Netherlands (2019)

Tax benefit	BE		NL	
	Eligibility?	Tapered against income?	Eligibility?	Tapered against income?
Tax-free base allowance	Every taxpayer, with supplements for certain family situations (e.g. dependent children or relatives, disability, single parent)	No	-	
Tax deduction of professional expenses	Employees and self-employed	No	-	
Tax deduction of mortgage repayments	Homeowners taking out a mortgage[1]	No	Homeowners taking out a mortgage	No
Self-employment tax deduction	-		Self-employed	No
Tax credit on replacement incomes	Recipients of early retirement benefit, sickness/disability benefit or pension	Yes	-	
Tax credit on low activity incomes/wages	Low-income employees or self-employed	Yes	-	
General tax credit	-		Every taxpayer	Yes
Work credit	-		Employees and self-employed	Yes
Income-related combination credit	-		Employees and self-employed with children	No
Work bonus	Low wage employees	Yes	-	
Marital quotient	Married or legally cohabitant couples of which one of the spouses has no or little earnings	Yes	-	

Note: [1] Only for loans contracted before 2019. *Source:* Assal et al. (2021) and de Vos (2021).

Table A3. Yearly budget of social and tax benefits in Belgium and the Netherlands, in Billion euros (2019)

EUROMOD outcome	BE	NL
Tax benefits	**40.28**	**58.39**
Tax-free base allowance	20.40	-
Tax deductions	12.81	15.09
Tax credit on replacement incomes	4.09	-
Tax credit on low activity incomes & low wages	0.70	-
General tax credit	-	23.46
Work credit	-	17.72
Income-related combination credit	-	2.11
Marital quotient	0.71	-
Work bonus	1.57	-
Social benefits	**31.32**	**37.78**
Sickness and disability benefit	10.64	9.45
Unemployment benefit	8.28	6.03
Social assistance	3.16	3.53
Housing benefit	0.04	3.99
Child benefit	6.36	5.11
Education benefit	0.71	3.53
Survivor pension	1.08	0.30
Early retirement pension	1.76	-
Care allowance	-	4.86
Old-age pension	**48.90**	**36.36**

Note: The assumption of 100% take-up is likely to inflate the cost of certain means-tested benefits. A validation of the simulated outcomes against external official data can be found in the EUROMOD country reports. *Source:* Own calculations based on EUROMOD and micro-data from EU-SILC.

Table A4. Income tax schedule before and after reform in Belgium and the Netherlands (2019)

BE			NL		
Tax band	Tax rate baseline	After increase in tax rate	Tax band	Tax rate Baseline	After increase in tax rate
> € 13,250	25%	29%	< € 20,384	9%[1]	11%
€ 13,250 - € 23,390	40%	46%	€ 20,384 - € 34,300	10%[1]	17%
€ 23,390 - € 40,480	45%	53%	€ 34,300 - € 68,507	38%	51%
> € 40,480	50%	58%	> € 68,507	52%	65%

Note: [1] Excluding peoples' insurances (combined rates amount to 36.65%, 38.10% and 51.75%). *Source:* Assal et al. (2021) and de Vos (2021).

Figure A1. Allocation of overall public spending for active-age population across income deciles, Belgium and the Netherlands (2019)
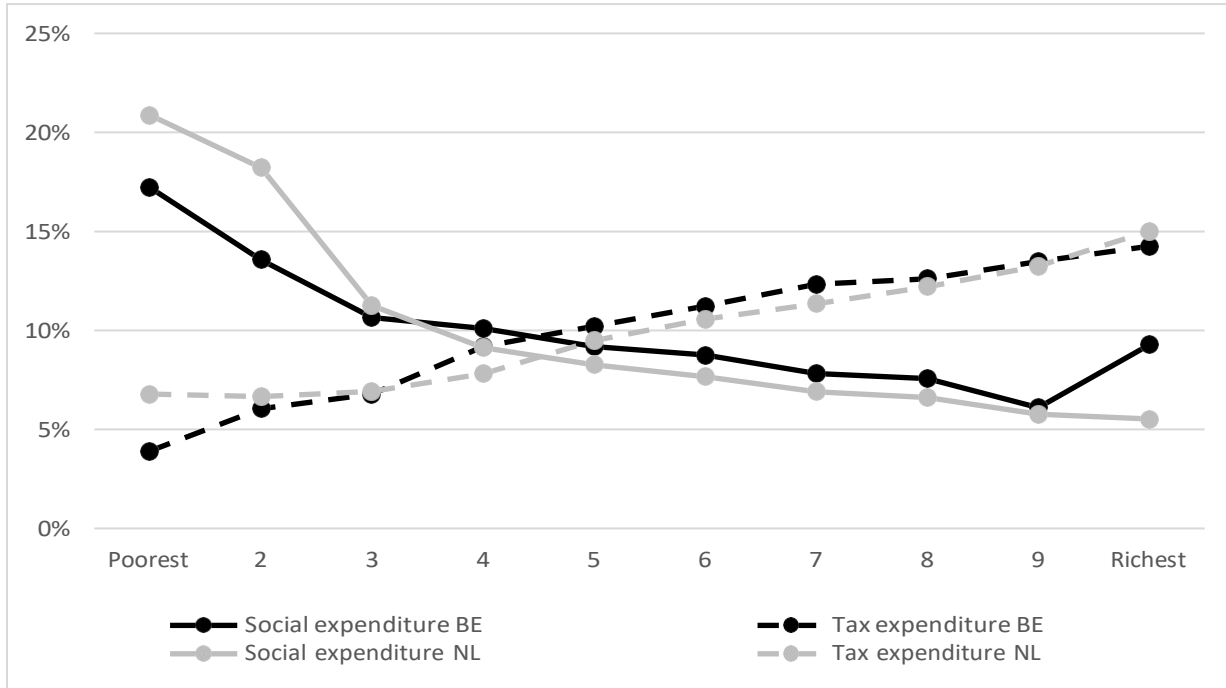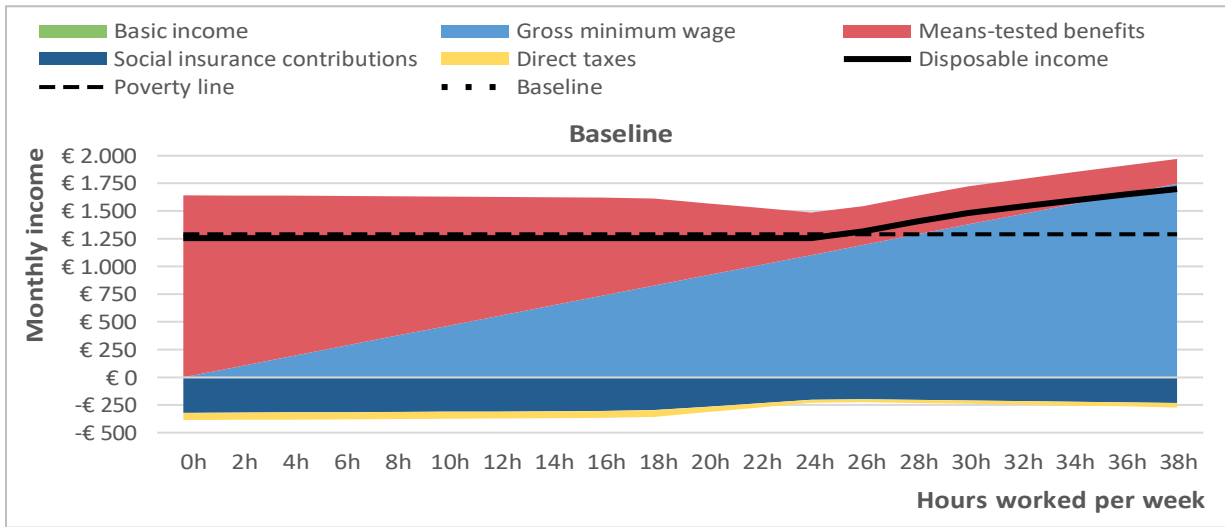

Notes: (1) Each decile captures 10% of the population, ranked from lower to higher equivalised disposable household income. Incomes are equivalised (using the modified OECD scale) to account for differences in household composition. (2) Public spending refers to cash benefits and allowances only. In-kind benefits from publicly provided goods or services are not considered in our analysis. *Source:* Own calculations based on EUROMOD and micro-data from EU-SILC.
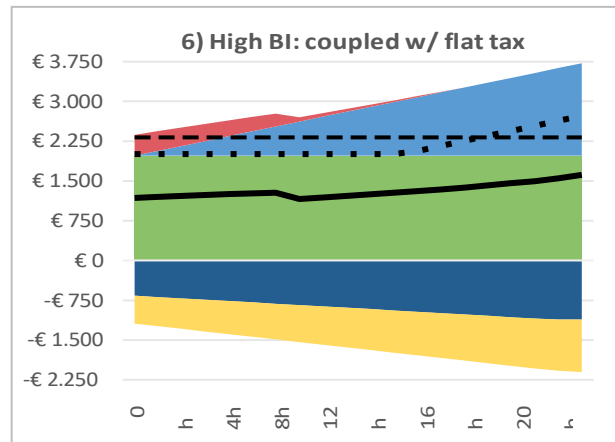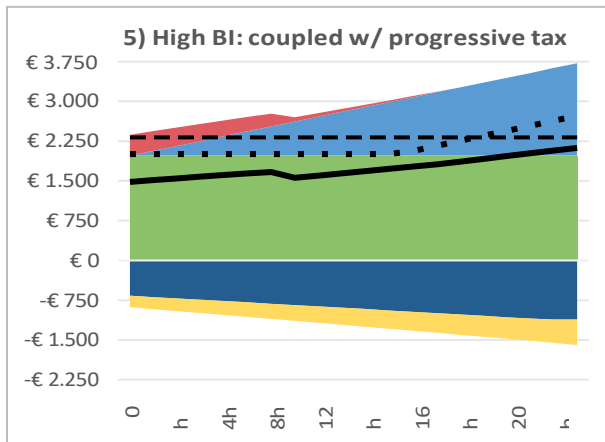
Figure A2. Decomposition of net disposable income of a single person by working hours
Panel A. Belgium
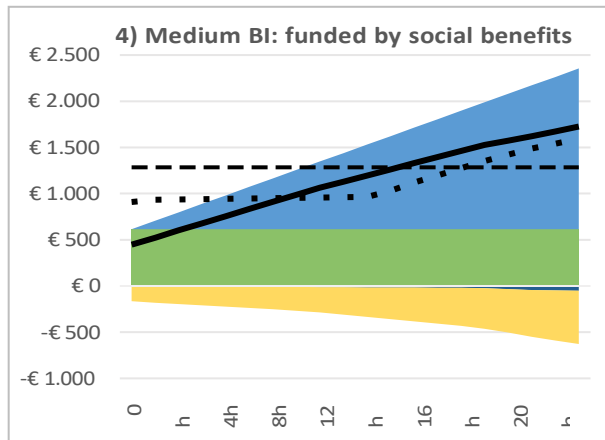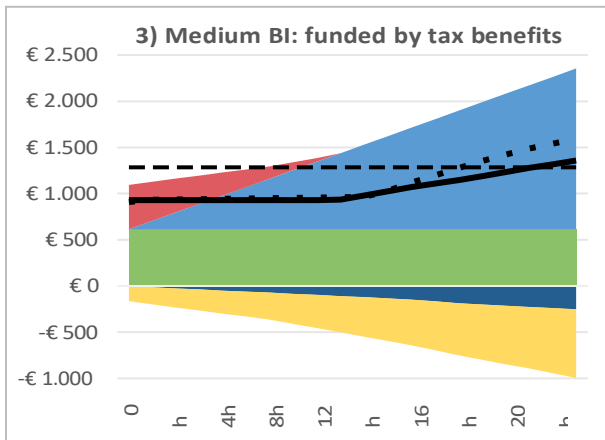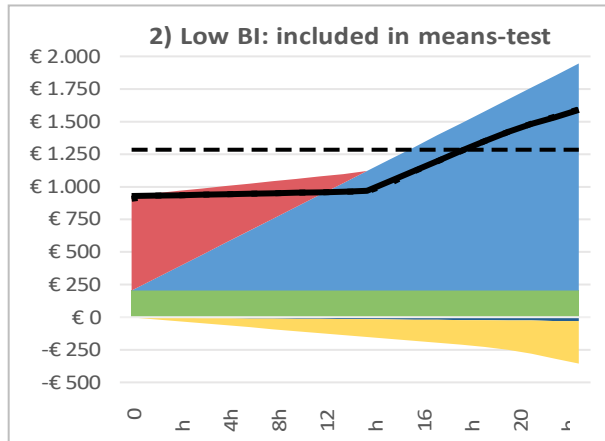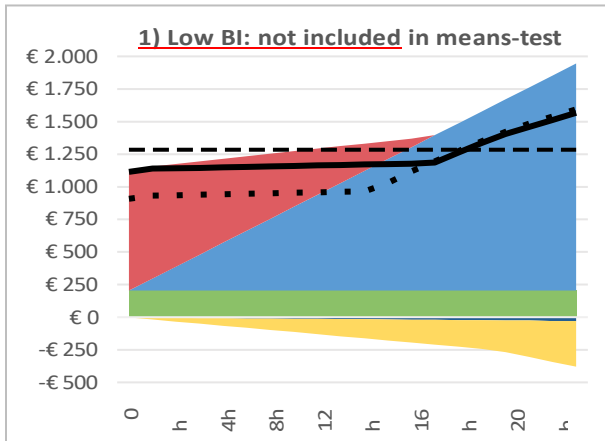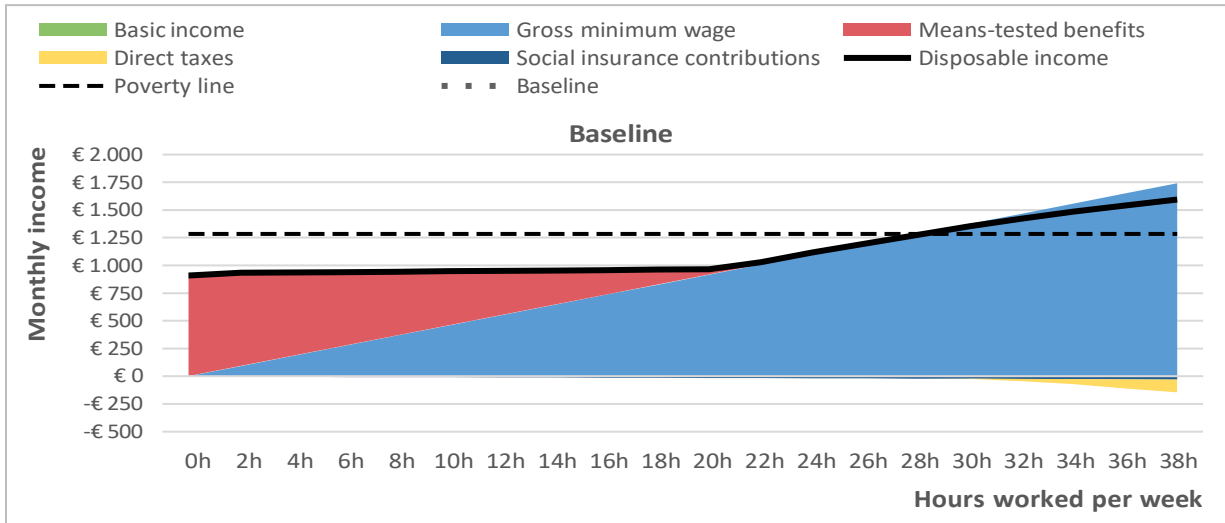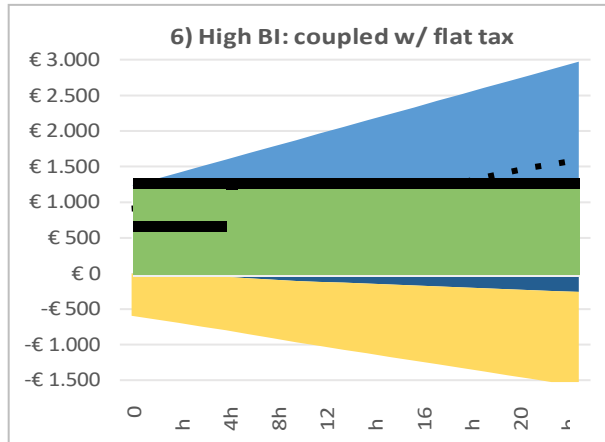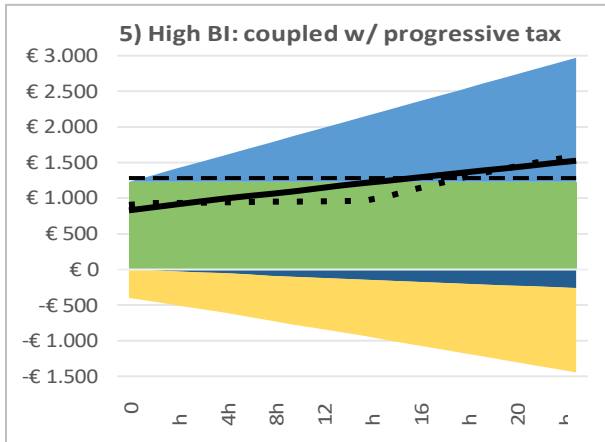
5) High BI: coupled w/ progressive tax

6) High BI: coupled w/ flat tax

Panel B. Netherlands

Legend: Basic income | Gross minimum wage | Means-tested benefits | Social insurance contributions | Direct taxes | Disposable income | Poverty line | Baseline

Baseline

1) Low BI: not included in means-test

2) Low BI: included in means-test
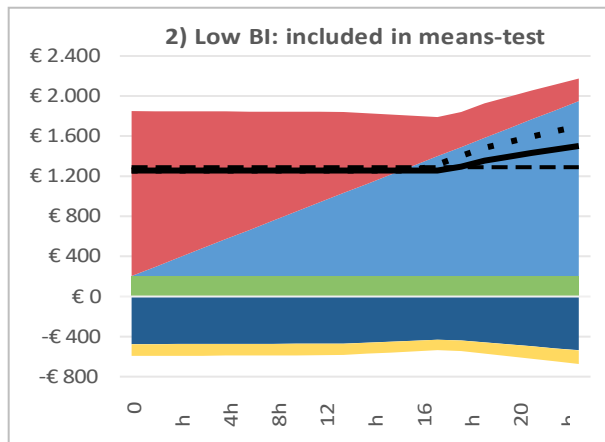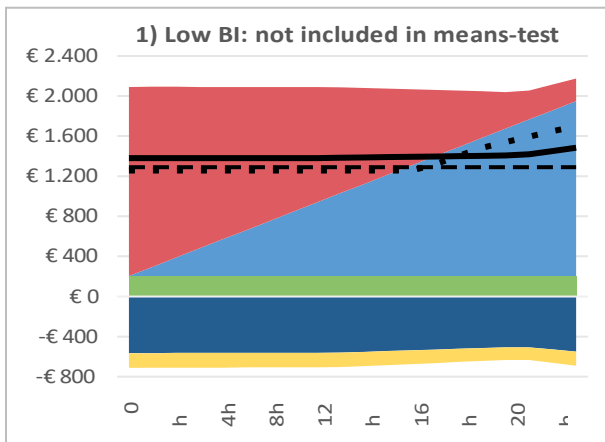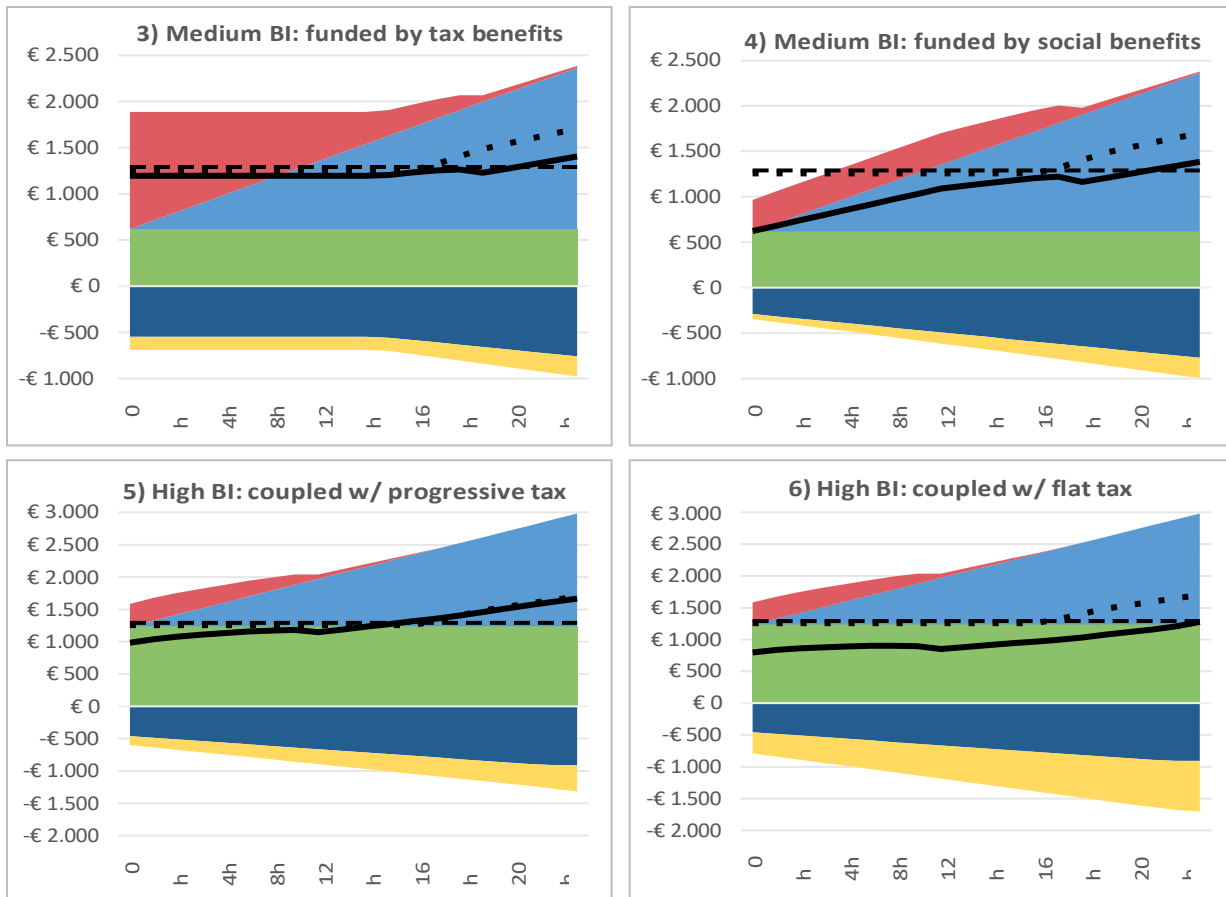
Source: Own calculations based on EUROMOD using hypothetical household data.

Figure A3. Decomposition of net disposable income of a single parent with two children by working hours
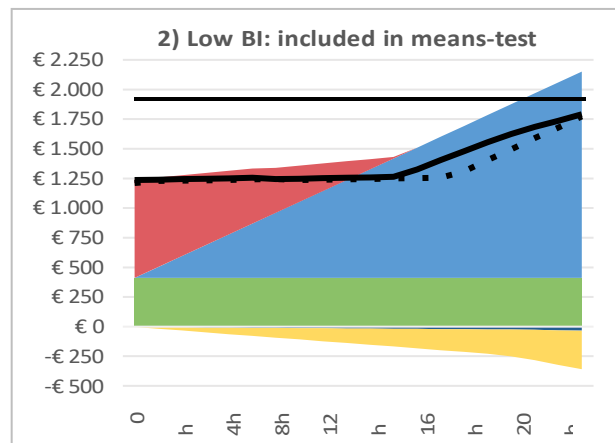*Panel A. Belgium*
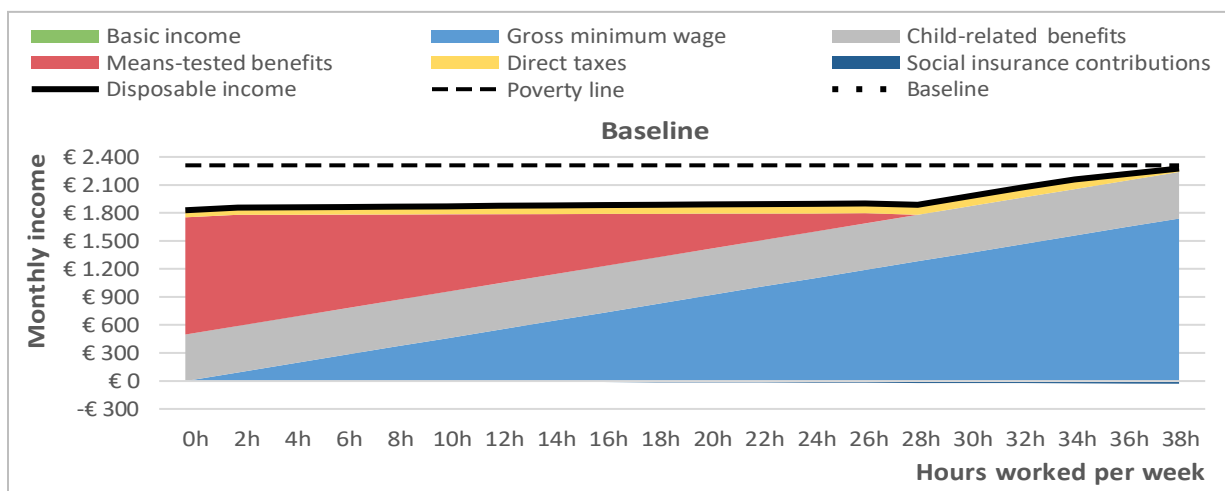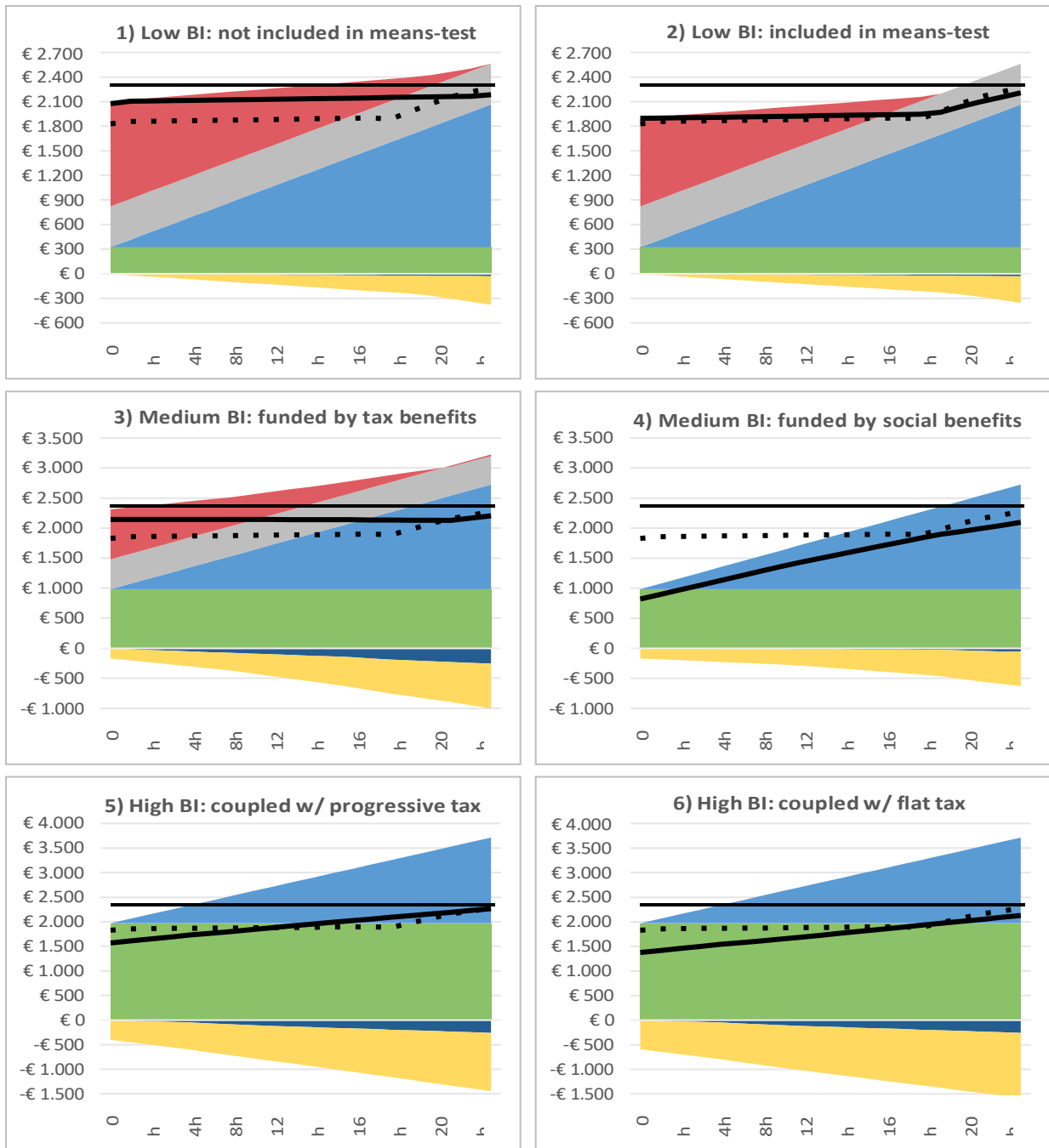
Panel B. Netherlands
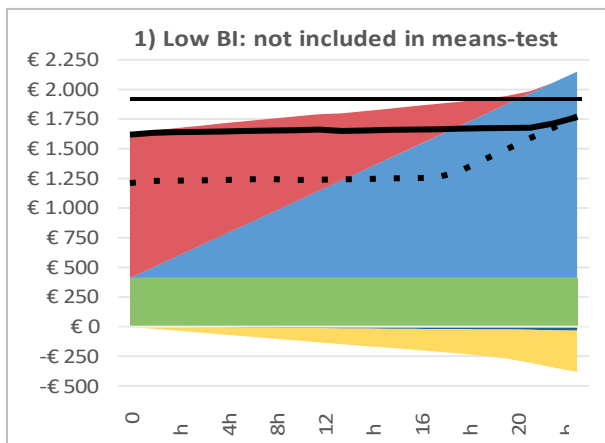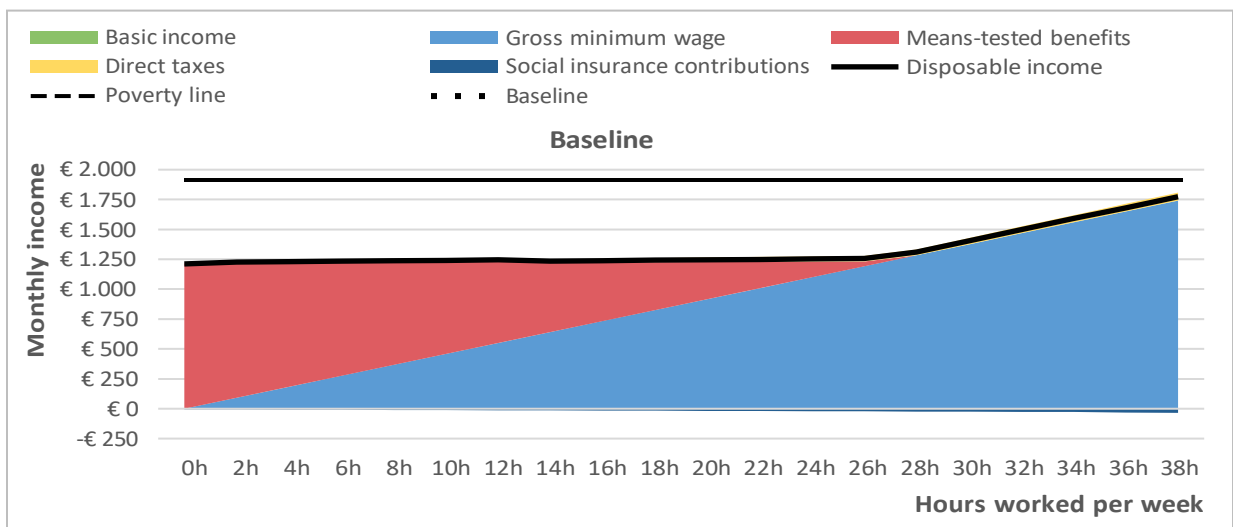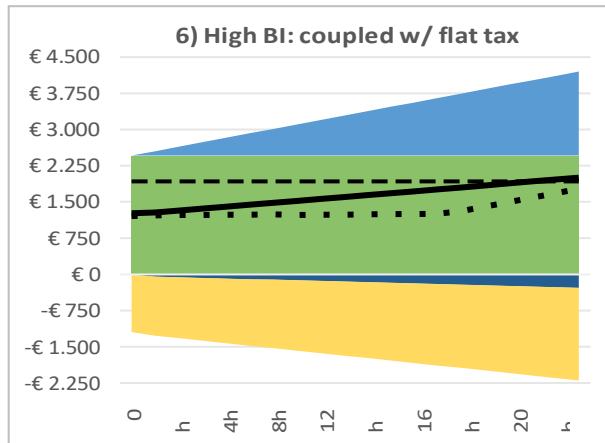
Baseline

1) Low BI: not included in means-test

2) Low BI: included in means-test

3) Medium BI: funded by tax benefits

4) Medium BI: funded by social benefits

Legend: Basic income, Gross minimum wage, Child-related benefits, Means-tested benefits, Social insurance contributions, Direct taxes, Disposable income, Poverty line, Baseline

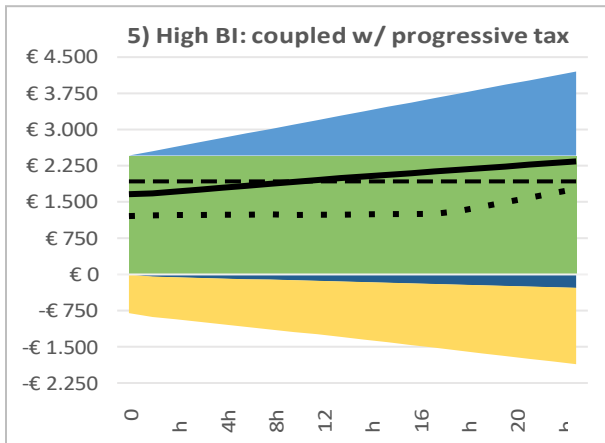**5) High BI: coupled w/ progressive tax**

6) High BI: coupled w/ flat tax
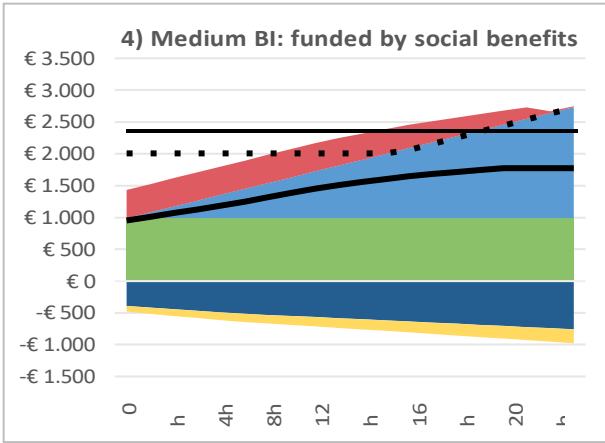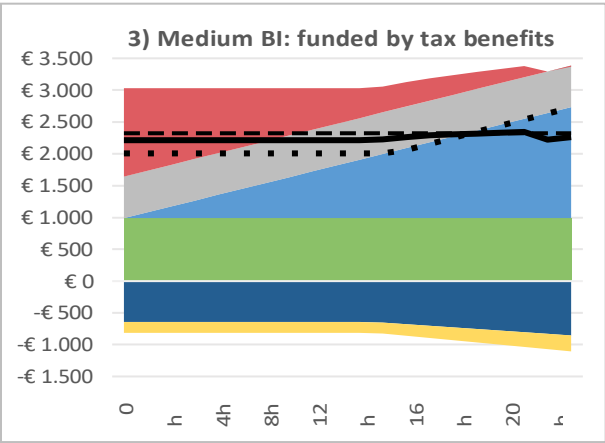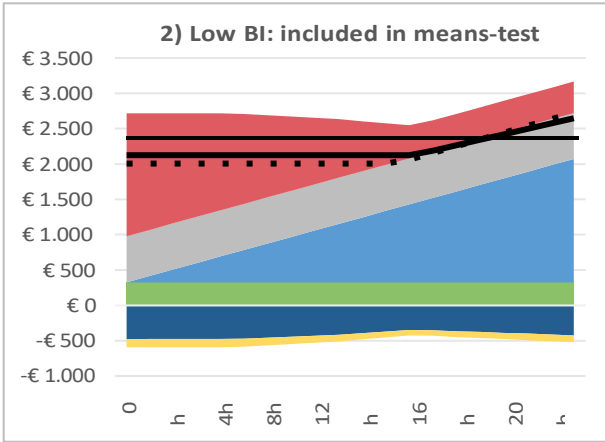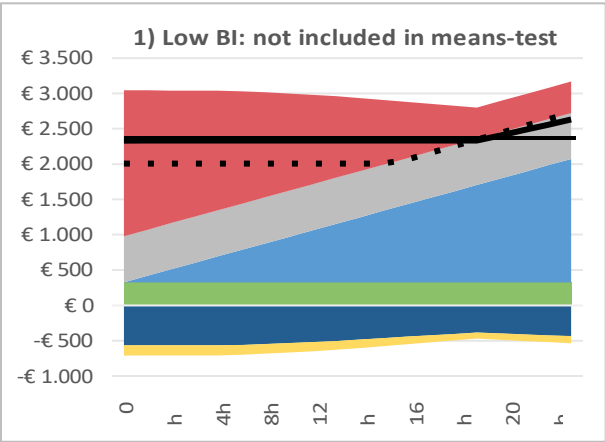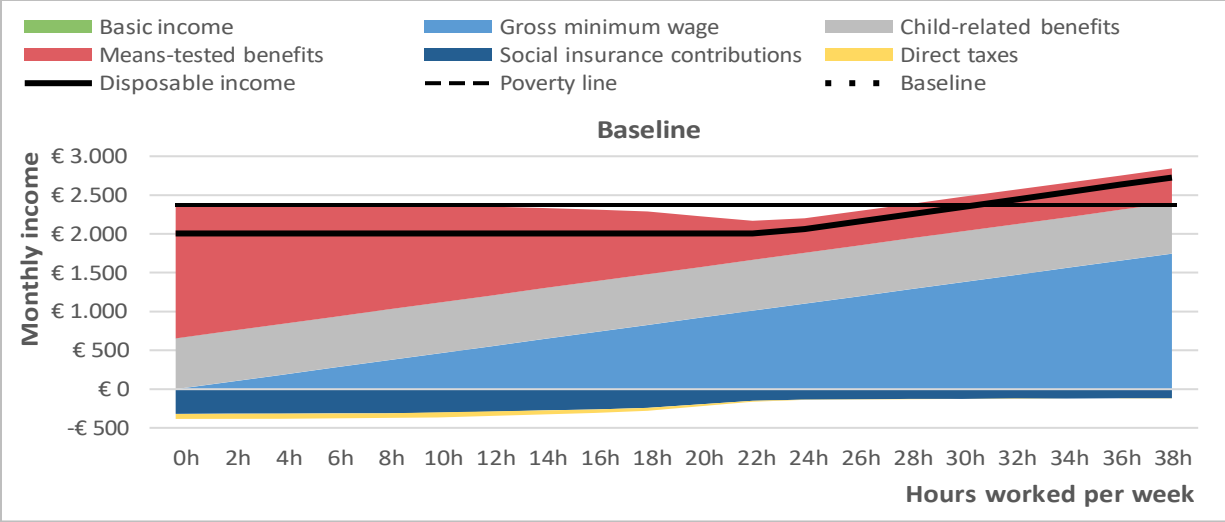
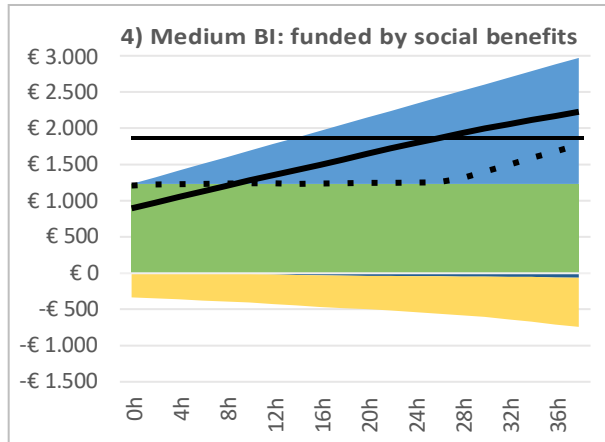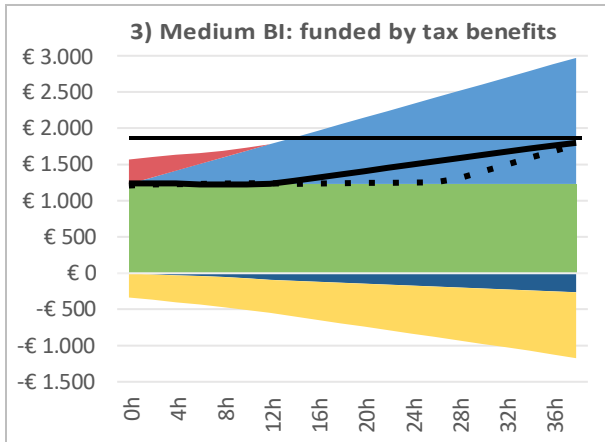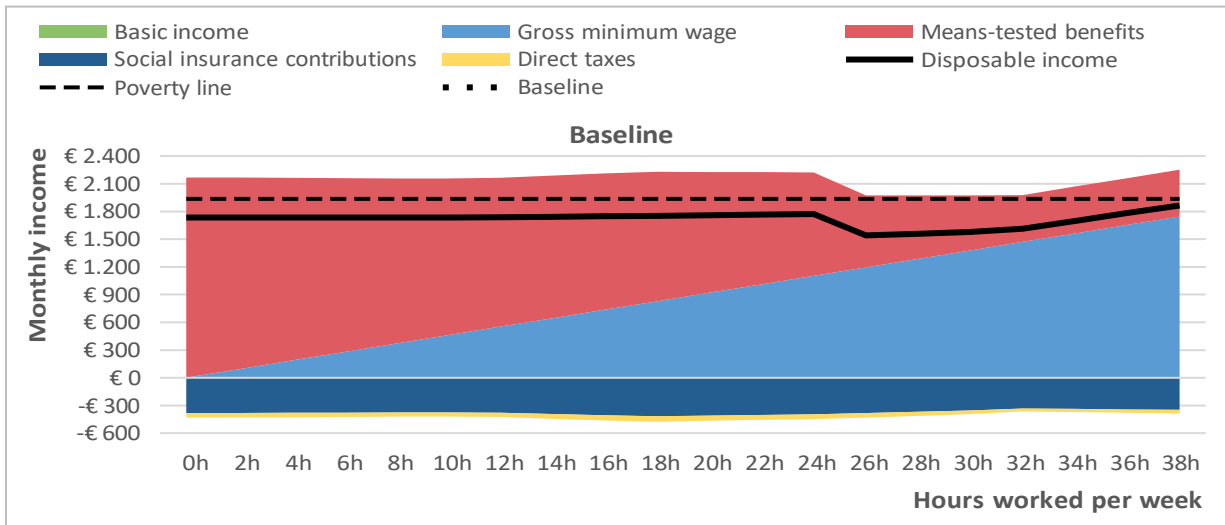*Source:* Own calculations based on EUROMOD using hypothetical household data.

Figure A4. Decomposition of net disposable income of a couple by working hours
Panel A. Belgium

Legend: Basic income · Gross minimum wage · Means-tested benefits · Direct taxes · Social insurance contributions · Disposable income · Poverty line · Baseline

Baseline

1) Low BI: not included in means-test

2) Low BI: included in means-test

Panel B. Netherlands

1) Low BI: not included in means-test

2) Low BI: included in means-test

3) Medium BI: funded by tax benefits

4) Medium BI: funded by social benefits

5) High BI: coupled w/ progressive tax

6) High BI: coupled w/ flat tax

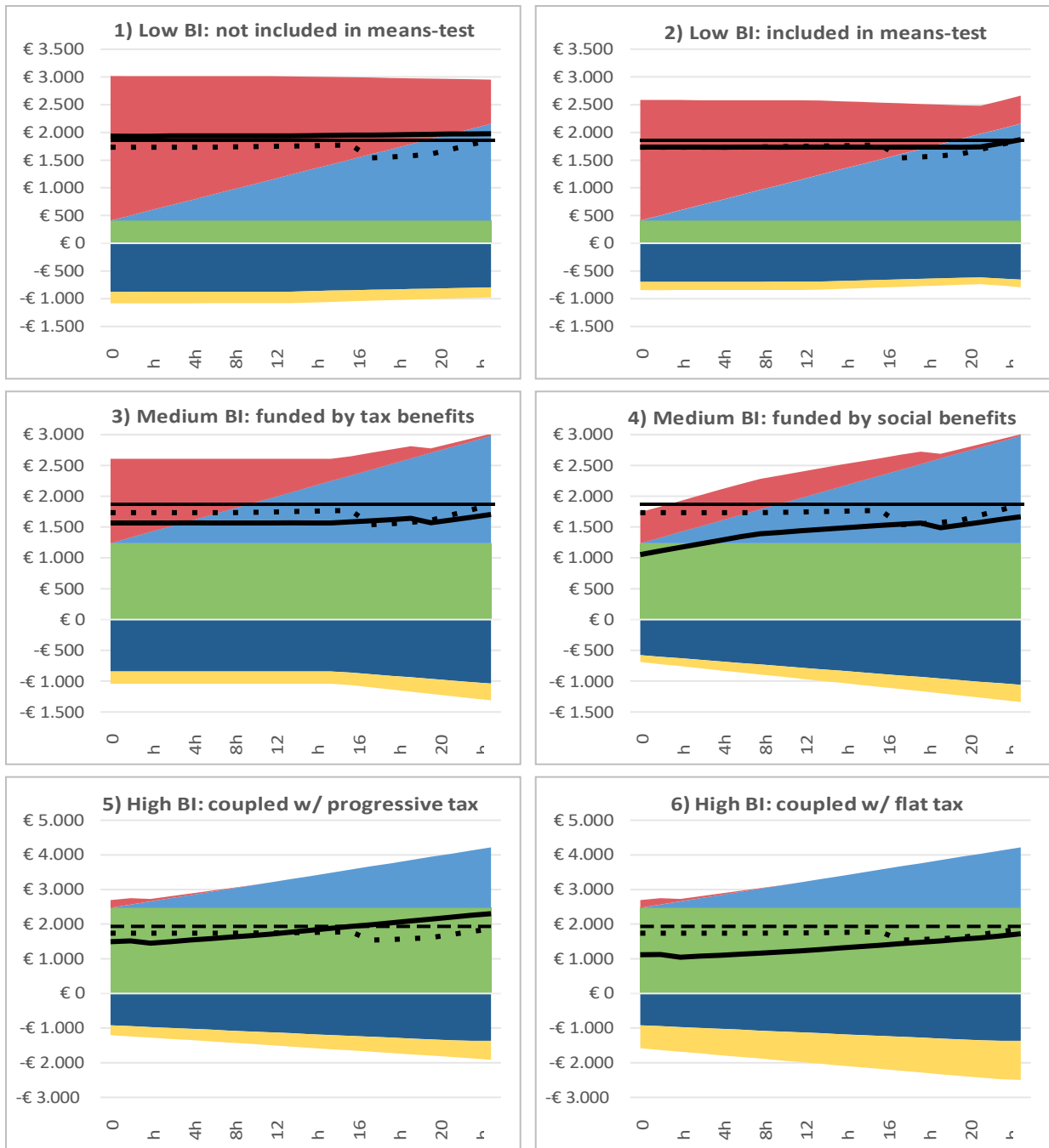*Source:* Own calculations based on EUROMOD using hypothetical household data.