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Revisiting the 'Make Work Pay' debate: How pervasive are dependency and poverty traps really?

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Abstract

In recent decades, the principle of 'make work pay' has dominated the current policy discourse. Yet, much of the evidence supporting claims that work does not pay and that dependency traps afflict large sections of the population typically builds on model family type data, which are inevitable selective and thus not necessarily representative of real-world financial pay-offs. This paper examines how pervasive and important such dependency and poverty traps really are. Using rich administrative data for Belgium, we simulate participation tax rates (PTR) for those not in work and part-time to full-time tax rates (PTFTR) for those in part-time work. Contrary to common claims, our findings show that only 6% of the non-working and 2% of the part-time working population face strong financial disincentives to take up full-time work. We further evaluate the role of commonly used 'make work pay' instruments, confirming just how delicate a balancing act it is to design a system that performs optimally in terms of work incentives at both margins and poverty reduction. Finally, we draw the profiles of those facing weak and strong incentives. We find that nearly half of those with weak incentives to work appear to be single mothers, highlighting the need for targeted policy attention. We, however, also find similar profiles on both ends of the spectrum from low to high work incentives. This suggests that for some there may be another reason for not working full-time that goes beyond the realm of financial incentives and that many individuals also face structural barriers to employment, regardless of their willingness to work. This calls for a more nuanced policy discourse, one that not only expects people to work but also enables them to do so.

Keywords: Financial work incentives, dependency and poverty traps, tax-benefit systems, microsimulation modelling

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1. Introduction

In recent decades, the principle of 'making work pay' has become an ubiquitous slogan and policy preoccupation of many governments in rich welfare states. Ever since the landmark OECD Job Study (1994), both the OECD and the European Commission have been pressing the 'make work pay' agenda and consistently recommending governments to strengthen the financial incentive to work. Initially, they recommended doing so by curbing benefit generosity, but later on their emphasis gradually shifted towards increasing the pay-off to work, for example by means of in-work benefits, tax reforms and minimum wages. Driven by this narrative, many governments have already taken steps to implement reforms, from the UK's expansion of tax credits and the US's introduction of the Earned Income Tax Credit to the broader adoption of in-work benefits and tax relief on low wages across continental Europe (Immervoll & Pearson, 2009; Kenworthy, 2019; Marchal & Marx, 2018).

Underlying this policy discourse is a widely shared concern about so-called dependency and poverty traps: situations in which individuals have little to gain financially from taking up work or increasing their work efforts, leaving them entrapped in benefit dependency and poverty. Advocates of basic income, such as Van Parijs and Vanderborght (2017), have been particularly vocal in highlighting these traps as persistent evils marring contemporary welfare states. In their view, dependency and poverty traps are not only widespread, but also structurally inherent to our traditional social protection systems. Only a universal basic income, they argue, could be made free of such traps and offer the promise of 'real freedom for all'.

Yet, much of the evidence supporting claims that work does not pay and that dependency traps afflict large sections of the population typically builds on model family type data. Simulations, such as by the OECD Tax-Benefit Model, often illustrate limited financial pay-offs from making the transition from benefits to minimum wage or low-paid employment (e.g. Carone et al., 2004; OECD, 2005). However, these stylized model family types are not always representative of the broader population. We know for instance that the prevalence of minimum wage work is limited in many countries. In practice, wage floors are often higher than statutory minimum wages, for example because of collective bargaining agreements (Haapanala et al., 2023; Ryckx & Kampelmann, 2012). Moreover, many individuals do not receive any benefits at all and/or might have an earnings potential above the minimum wage. All of this suggests that the actual pay-offs from work may be markedly higher than those depicted in model family type data.

And this begs the question: how pervasive and important are dependency and poverty traps really? What is the profile of those facing very weak financial work incentives, as well as the profile of those having strong financial work incentives, yet fail to act upon them? And what has been the impact of 'make work pay' policy measures on financial incentives to work so far? This paper addresses these questions using the Belgian microsimulation model BELMOD combined with rich administrative data for Belgium. Belgium offers a uniquely relevant context for analysing the prevalence and drivers of dependency and poverty traps. Despite substantial labour market investments and strong labour demand, Belgium continues to record one of the lowest employment rates and weakest financial incentives to work in the EU. This paradox makes Belgium a prime case study.

We delve into three interrelated types of dependency traps that feature prominently in both policy debates and academic literature: the inactivity trap, the part-time work trap and the poverty trap. While encouraging labour market participation among the non-working remains the key priority for policymakers, growing concerns over labour shortages and demographic pressures have

prompted governments to also focus on increasing work intensity among those already in employment. In this paper, we thus address the financial work incentives faced by both non-working individuals as well as part-time workers, examining the extent to which the tax-benefit system supports or discourages the transition to full-time employment.

First, we estimate and characterise the proportion of the non-working population facing either remarkably strong or weak financial incentives to take up work, using the participation tax rate (PTR) as our key metric. Second, we extend our analysis to part-time work by calculating and describing the proportion of the part-time working population facing very strong or weak financial incentives to increase working hours. To that end, we introduce the concept of the part-time to full-time tax rate (PTFTR), which captures the financial pay-off for part-time workers to make the transition to full-time employment. Alongside, we identify the main drivers of low work incentives and evaluate the design of commonly used 'make work pay' policy instruments in strengthening work incentives. And, third, we explore whether these 'hypothetical' transitions into full-time work actually lift individuals out of poverty, thereby validating the often-assumed link between employment and poverty reduction.

Overall, this paper offers a comprehensive and empirically grounded assessment of the prevalence and nature of dependency and poverty traps. In doing so, this paper makes several contributions to the ongoing 'make work pay' debate. Methodologically, it departs from traditional approaches based on model family type or survey data simulations by relying on detailed administrative data and microsimulation techniques instead. This allows for a more precise and granular estimation of work incentives on population level. Moreover, we focus specifically on the groups for whom the issue of financial work incentives is most relevant, namely those currently out-of-work or working part-time. This stands in contrast to much of the existing studies, which tend to gauge work incentives either across the entire population or even only among those already in employment (e.g. Bartels & Pestel, 2016; Jara et al., 2020; O'Donoghue, 2011). And, when analysing work incentives for part-time workers, we do not turn to the commonly used marginal effective tax rate, which measures the financial gain from working an additional hour or getting a marginal wage increase. Instead, we develop a new indicator that captures the financial gain associated with transitioning from part-time to full-time employment. We believe this better reflects real-world constraints, where workers often face limited flexibility in choosing their working hours. Following Fernandez et al. (2016) and Immervoll et al. (2019), we also advance past basic descriptive statistics by developing distinct socio-demographic profiles of those most and least at risk of being trapped in inactivity or part-time work, supporting better targeting of potential reforms and labour market activation policies. Finally, by identifying the key drivers of low work incentives and evaluating the impact of specific policy instruments, we contribute to the broader understanding of how tax-benefit systems can be designed to balance adequate social protection with the promotion of labour market participation.

2. Background

2.1. The concept of financial incentives to work

The concept of financial incentives to work refers to the extent to which individuals are financially rewarded for entering employment or increasing their working efforts. They thus reflect individuals' extrinsic motivation to work, driving decisions about whether to work, how much to work and under what conditions. Financial incentives are shaped by the architecture of the tax-benefit system, specifically by how quickly means-tested benefits are withdrawn as income rises,

how much in-work support is provided and how much of the additional earnings from work are taken away through personal income taxes and/or social insurance contributions.

Financial incentives to work are highly relevant to policymakers and the broader policy discourse for several reasons. First, and most obviously, they play a role in shaping labour market outcomes. When the net income gain from moving into work or increasing working hours is limited, people may decide that the effort is not worth the reward. This can lead to so-called dependency and poverty traps, which can discourage labour market participation. For example, an unemployment or inactivity trap refers to a situation where taking up work results in little financial improvement compared to remaining on unemployment or social assistance benefits. A part-time work trap, on the other hand, occurs when an individual already in employment, often in low-paid or part-time jobs, would experience only a small increase in net income when increasing their working hours. And lastly, a poverty trap refers to a broader situation in which individuals or households remain poor even after taking up work or increasing their work effort. As such, financial work incentives are a key lever for governments seeking to raise employment rates.

At a more structural level, financial work incentives are also at the heart of the so-called social trilemma, which captures the difficulty of simultaneously achieving adequate minimum income protection, strong financial incentives for work and low public spending (Cantillon et al., 2020). In capitalist democracies, avoiding employment traps requires that net income from work exceeds income from social assistance. Yet, when minimum wages stagnate or decline, they create a glass ceiling over the adequacy of minimum incomes. Hence, it becomes increasingly difficult to lift households above the poverty line without undermining work incentives, unless welfare states are willing to also increase their gross-to-net efforts by means of e.g. in-work benefits or tax credits.

Finally, financial work incentives carry strong normative weight. In public and political debates, they are closely tied to ideas of deservingness and reciprocity. That is, who is seen as making an effort, who should be encouraged to work and who is entitled to support. These perceptions indirectly influence the generosity of benefits, the pace of their withdrawal and the intensity of activation policies (Laenen, 2020). That way, financial work incentives are not just a technical issue, but also a reflection of broader societal values.

A growing body of empirical research has therefore focused on the role of financial incentives to work. In the literature, two types of indicators are commonly used to capture the financial incentive to work. First, there is the incentive at the extensive margin of labour supply, which refers to the financial gain from taking up work compared to not working. It is usually measured by the participation tax rate. The PTR calculates the proportion of gross earnings lost due to taxes or benefit withdrawal if a person moves from unemployment or inactivity into employment. Second, there is the incentive at the intensive margin of labour supply, which reflects the financial gain from increasing earnings or working hours. It is usually measured by the marginal effective tax rate. The METR calculates the proportion of a marginal wage increase lost due to taxes or benefit withdrawal if a person starts working and/or earning more. As demonstrated by Blundell et al. (2013), both margins matter in explaining labour supply outcomes.

Previous studies attempting to quantify the impact of tax-benefit systems on financial work incentives highlight significant variation in work incentives across countries, reflecting differences in the design of tax-benefit systems (see e.g. Immervoll, 2004; Jara et al., 2020; Jara & Tumino, 2013; Kalíšková, 2020; O'Donoghue, 2011). But, even when tax-benefit systems may appear parametrically similar, their actual impact on financial work incentives can still differ substantially due to factors such as coverage, entitlement duration and the characteristics of the

underlying population. In general, countries with higher levels of social protection and progressive taxation also tend have higher participation and marginal effective tax rates, reflecting the underlying trade-off identified in the social trilemma.

Within these cross-country comparative studies, Belgium consistently shows up as one of the countries with the highest disincentives to work. Jara et al. (2020), focusing on the working population only, reported for Belgium an average short-term PTR of 74% (in the first year of unemployment), an average long-term PTR of 48% (on social assistance) and an average METR of 54%. Kalíšková (2020) specifically examined work incentives for women and found a long-term PTR of 42%. These findings are echoed in two recent single-country studies focusing on Belgium. Collado (2018) estimated an average PTR of 76% specifically among the unemployed in Belgium. And, finally, Decoster et al. (2019) assessed work incentives across the entire working-age population and found a short-term PTR of 77% and an average METR of 55%.

Financial incentives to work vary not only between countries, but also across individual circumstances and family composition. Typically, low-skilled individuals with low-earning potential are more likely to face weak incentives to work due to the narrow gap between their in-work income and cash benefit provisions (Carone et al., 2004; Navickė & Lazutka, 2016; OECD, 2005). However, there does not necessarily exist a linear relationship between earnings potential and work incentives. Rather, PTRs and METRs tend to be more dispersed in lower earnings deciles than in higher earnings deciles due to greater heterogeneity in living arrangements and benefit receipt (Bartels & Pestel, 2016; Dusek et al., 2013). Single parents are also confirmed as a group facing relatively low work incentives compared to other household types, as they both receive higher levels of income support and earn lower wages on average (Adam et al., 2006; Dockery et al., 2008; OECD, 2005). Next, younger individuals tend to face higher work incentives than older age groups as they have a shorter employment history which gives them a lower wage and makes them less eligible for generous unemployment benefits (Bartels & Pestel, 2016). Finally, second earners are also supposed to be more likely to have lower work incentives than primary earners, especially in systems with joint taxation or household-based tax reliefs and benefits (Dusek et al., 2013; Immervoll, 2004; OECD, 2024; Thomas & O'Reilly, 2016).

The term financial work incentives is evidently a technical one and does not necessarily translate into a real incentive to get work. The extent to which financial work incentives affect labour market behaviour is more difficult to predict, as individuals ability and/or willingness to act upon them depends on their personal preferences, constraints and context. A number of studies have attempted to estimate how responsive individuals are to (variation in) financial incentives to work based on their responses to past tax and benefit changes. While there appears to be a broad consensus that high PTRs and METRs discourage work, the magnitude of these disincentive effects on employment remains moderate and varies widely across studies, contexts and demographic groups (e.g. Bartels & Pestel, 2016; Brewer et al., 2006; Figari, 2015; Kalíšková, 2020; OECD, 2005).

Differences in labour supply elasticities help explain this variation (see Bargain et al., 2014; Mastrogiacomo et al., 2017; Meghir & Phillips, 2010). For example, responsiveness at the extensive margin is generally greater than at the intensive margin. Labour supply elasticities also differ across socio-economic groups. Low-income individuals tend to be more sensitive to changes in income than those with middle or high incomes. Second earners and households with children also exhibit higher responsiveness than primary earners and households without children. Gender differences are one of the most documented: women tend to react more strongly to changes in income than men. In particular, single mothers show high responsiveness at both the

extensive and intensive margins of labour supply. And, finally, Immigrants are also found to have higher labour supply elasticities than natives.

2.2. The Belgian case

Belgium offers a uniquely relevant context for analysing the prevalence and drivers of dependency and poverty traps, basically for two reasons. First, the country is facing considerable underemployment. Belgium continues to have one of the lowest employment rates in the EU. In 2024, it ranked fifth lowest with 72.3%. Only Spain, Italy, Greece and Romania reported lower employment levels. What is striking is that this low employment rate is not primarily driven by high unemployment. Rather, Belgium suffers from an exceptionally high inactivity rate, particularly among groups such as the low-skilled, women and individuals with a non-EU nationality. Adding to this are pronounced regional differences in employment and inactivity rates across Flanders, Wallonia and Brussels. This underemployment is clearly not because there is a lack of demand for labour. There are plenty of vacancies. In fact, Belgium, together with the Netherlands, has the highest job vacancy rate in the EU with 4.1%.

This brings us to the second reason why Belgium is such an instructive case study: the problem is widely seen as a supply side problem. Belgium's exceptionally high labour taxes (including social security contributions) combined with comparatively generous out of work benefits are seen as discouraging many people to take up work. As shown in Table 1, Belgium has the highest tax wedge on labour in the EU with 52.3%, meaning that the difference between employers' labour costs and employees' net take-home pay is exceptionally large. Countless policy reports from the OECD, the European Commission and Belgium's own High Council for Employment (e.g. Adalet McGowan et al., 2020; European Commission, 2023; High Council for Employment, 2022, 2023, 2024) have pointed to poor financial incentives to work as the potential key factor accounting for Belgium's low employment rate. Indeed, if one looks at the calculations presented in OECD and other reports there appears to be a strong basis for this perception. Taking up work, especially low paid work is often not financially attractive. However, the question is: how representative are the inevitable selective model family type calculations that loom so large in policy thinking?

Apart from underemployment, also part-time employment is an important feature of the Belgian labour market, especially for women. Around 23% of workers were employed part-time in 2024, which is slightly above the EU average (though still well below countries like the Netherlands or Germany). In this context, it is interesting to examine whether part-time work reflects genuine individual preferences or is shaped by financial or structural constraints.

Table 1. Labour market indicators for Belgium and selected EU countries

	Belgium	Germany	Netherlands	France	Ireland	Sweden	Spain	Hungary	EU
Employment rate									
Total	72.3%	81.3%	83.5%	75.1%	79.8%	81.9%	71.4%	81.1%	75.8%
Men	76.3%	84.8%	87.3%	78.1%	84.5%	83.9%	76.3%	85.0%	80.8%
Women	68.3%	77.7%	79.7%	72.2%	75.2%	79.9%	66.5%	77.1%	70.8%
Low education	47.5%	65.6%	69.0%	54.2%	54.7%	60.5%	61.4%	59.9%	58.5%
Middle education	68.1%	82.2%	83.8%	71.9%	75.6%	80.9%	66.9%	80.5%	75.0%
High education	86.0%	88.0%	89.9%	85.8%	87.5%	88.4%	82.4%	91.0%	86.6%
Reporting country	73.7%	83.9%	84.3%	76.4%	79.5%	83.2%	72.4%	81.2%	76.7%
EU27 citizenship	71.9%	81.2%	83.9%	72.6%	85.0%	83.3%	73.6%	76.1%	77.3%
Non-EU27 citizenship	51.3%	62.7%	64.2%	58.8%	77.4%	64.1%	63.3%	59.1%	64.3%
Unemployment rate									
Total	4.1%	2.8%	2.6%	5.6%	3.2%	6.3%	8.8%	3.6%	4.6%
Men	4.7%	3.1%	2.6%	6.0%	3.5%	6.4%	8.3%	3.9%	4.7%
Women	3.6%	2.5%	2.7%	5.3%	3.0%	6.2%	9.4%	3.3%	4.5%
Inactivity rate									
Total	23.6%	15.9%	13.9%	19.3%	17.0%	11.8%	19.8%	15.3%	19.6%
Men	19.0%	12.1%	10.1%	15.9%	12.1%	9.7%	15.4%	11.1%	14.5%
Women	28.1%	19.8%	17.7%	22.5%	21.7%	13.9%	24.2%	19.6%	24.7%
Part-time employment rate									
Total	23.2%	28.9%	38.6%	16.5%	17.3%	17.6%	13.0%	4.2%	17.1%
Men	10.6%	11.3%	18.6%	7.5%	9.1%	11.1%	6.1%	2.5%	7.7%
Women	37.3%	48.5%	60.5%	25.8%	26.1%	24.7%	20.9%	6.0%	27.8%
Job vacancy rate									
Total	4.1%	3.2%	4.1%	2.6%	1.2%	2.0%	0.9%	2.0%	2.3%
Tax wedge on labour costs									
Average single worker	52.6%	47.9%	35.1%	47.2%	35.2%	41.5%	40.6%	41.2%	41.7%
Public spending on labour market programmes*									
As a % of GDP	1.6%	1.3%	1.5%	2.5%	-	1.3%	2.3%	0.4%	1.2%

Source: Eurostat Data Browser & OECD Data Explorer. *Note*: Refers to 2024 data, except for (*) which is 2022 data.

In response to the challenge of considerable underemployment, several tax-benefit reforms were implemented in Belgium aimed at strengthening financial incentives to work (see Table 2). These reforms closely reflect what has happened in other advanced welfare states over the past decade or so.

In recent decades, many European countries have introduced reductions in tax liabilities for low-wage earners, reflecting the expanding role of the tax system in making work pay (Marchal & Marx, 2018; Vandelannoote & Verbist, 2020). In Belgium, one of the key measures introduced for this purpose was a sizeable reduction in personal social security contributions for low-wage workers in 2000. Initially temporary, the measure was made permanent in 2005 and renamed the *work bonus*. Over time, the coverage and generosity of the work bonus have gradually increased, while maintaining the principle that the reduction gradually tapers off as wages rise. Today, the work bonus consists of two components. The *social* work bonus entails a reduction in the employee's social security contributions, while the *fiscal* work bonus provides an additional reduction in the personal income tax. The goal of the work bonus is twofold. First, it seeks to address the unemployment trap by increasing the gap between unemployment benefits and the lowest net wages. Second, it contributes to poverty alleviation by improving the disposable income and purchasing power of workers in low-wage jobs. Importantly, the design of the workbonus allows these goals to be pursued without raising labour costs for employers or reducing the level of unemployment benefits.

In line with the broader trend towards individual taxation (OECD, 2022), Belgium has decided to gradually phase out the *marital quotient*. This form of joint taxation allows the higher-earning partner in a couple to transfer part of their income to their partner with little or no income, thereby reducing the household's overall tax burden. While originally intended to support single-earner households, it has been criticised lately for discouraging labour market participation among secondary earners. Hence, the government has decided to half the marital quotient by 2029 in order to improve individual work incentives as well as to ensure a more neutral treatment of singles and couples.

Many countries have also sought to promote employment-conditional income top-ups to low-income families to make work more attractive (Immervoll & Pearson, 2009; OECD, 2011). An example in Belgium was the introduction of the *Income Guarantee Allowance (IGU)* for part-time workers with retained unemployment rights in 1993, to which additional adjustments have been made over the years to improve and expand the system. The IGU functions as a an additional hourly income supplement designed to ensure that individuals moving from unemployment to part-time employment receive a total income (wage plus allowance) that is at least equivalent to their unemployment benefit before their return to work. Eligibility is limited to individuals who are registered as full-time job seekers and who remain available for full-time employment. This measure seeks to enhance the financial attractiveness of part-time work as an intermediate step toward full-time employment, while simultaneously reducing the unemployment trap that can arise when individuals re-enter the labour market on a part-time basis. A comparable system was introduced in 2002 for recipients of social assistance, aimed at encouraging their (re)entry into the labour market. Individuals who take up employment after receiving social assistance may, for a maximum duration of three years, benefit from a so-called *socio-professional exemption (SPI)*. This entails that a fixed monthly amount of earned income can be disregarded in the means test used to calculate the social assistance benefit. As a result, beneficiaries who engage in part-time work can still retain a portion of their social assistance, thus ensuring a higher total net income. Similarly, the SPI thus seeks to promote labour market integration by making the transition from social assistance to (part-time) work financially more attractive.

Finally, the debate on financial work incentives has recently also focused on the duration of unemployment benefits. Belgium remains the only EU country with a system of degressive, yet unlimited unemployment benefits. As a result, a proposal to introduce a time limit of two years has gained traction in the political arena. Proponents argue that such a reform would strengthen job search incentives, reduce long-term unemployment and lower public spending. Critics, however, warn of the pressure this would place on the social assistance system, which already struggles with limited resources. And they also point to the risk of inadvertently creating more social exclusion and inequality, particularly for individuals facing structural barriers to employment. The government has recently decided to limit the duration of unemployment benefits to two years by 2026.

Table 2. Overview of 'make work pay' policy measures in Belgium

Policy measure (current/planned)	Objective	Target group	Mechanism
Social work bonus (since 2000)	Alleviate poverty and increase gap between out of work income and net wages	Low-wage workers	Flat-rate reduction of €278 in employee social security contributions, gradually decreasing from a gross monthly wage of €2,133 and phasing out completely at a gross monthly wage of €3,207
Fiscal work bonus (since 2005)	Reinforce the goals of the social work bonus	Low-wage workers	Reduction in withholding income tax, corresponding to a percentage of the amount of social work bonus granted
Phasing out of marital quotient (by 2029)	Improve work incentives of second earners and ensure neutral treatment of singles and couples	Married or legally cohabitating couples	Type of joint taxation, where 30% of the professional income of one spouse can be attributed to the spouse with little or no income up to a maximum of €13,460 net taxable per year, that will be halved
Income Guarantee Allowance (since 1993)	Encourage labour market re-entry and reduce unemployment trap	Unemployment benefit recipients taking up part-time work	Cumulative income arrangement for those working max. 80% and earning below €2,070, ensuring that total income matches or exceeds the unemployment benefit received before returning to work
Socio-Professional Exemption (since 2002)	Encourage labour market (re-)entry and reduce inactivity trap	Social assistance benefit recipients taking up part-time work	Exemption of €297 per month up to 3 year for those working part-time, allowing part of their earned income to be disregarded in the means test used to calculate the social assistance benefit
Limiting of unemployment benefit duration (by 2026)	Strengthen financial work incentives and reduce long-term unemployment	Unemployment benefit recipients	Anyone who has been unemployed for more than two years will lose access to their unemployment benefits, except those aged 55 that have had a career of at least 30 years

3. Methodology and data

3.1. Participation tax rate (PTR)

We measure the incentive for those out of the labour market to take up work using the participation tax rate (PTR). The participation tax rate is a measure of the monetary attractiveness of working as opposed to not working. It indicates the proportion of earnings lost due to taxes or benefit withdrawal if a person moves from inactivity or unemployment to work.

The participation tax rate of individual i can be equated to gross individual earnings (E) and household disposable income (Y) in the following way:

$$PTR_i = 1 - \frac{Y(W_h) - Y(0_h)}{E_i}$$

where $Y(W_h)$ is household net disposable income when individual i is in work, $Y(0_h)$ is household net disposable income when individual i is not in work and E_i is individual labour market earnings when individual i is in work. While the PTR is thus used to measure work incentives for a particular individual by changing its labour market status and corresponding individual gross earnings, the effect on disposable income is assessed at the household level. This approach is consistent with the household being the relevant unit of assessment for benefits and the standard unit of aggregation when measuring living standards. PTRs typically range between 0% and 100%, with higher rates implying weaker incentives to take up work due to the limited financial gain in doing so. However, because of non-linearities and complex interactions in the tax-benefit systems, individuals with PTRs exceeding 100% (or even negative PTRs) may also be observed.

In order to calculate participation tax rates, we thus need to know for each unemployed individual how much their income would be in and out of work, while we can observe it only in the latter state. Accordingly, we must either assume or predict their both their potential employment income. Multiple approaches are possible: assigning an arbitrary wage level such as the minimum wage, using previous in-work earnings or predicting wages based on an earnings equation or a matching estimator. Since relying on past earnings limits the analysis to those with prior employment and most workers in Belgium actually earn above the minimum wage, we predict wages for the non-working instead. While a matching approach could also have been considered, we opt for a parametric earnings equation because it allows for a greater generalizability and also to account for sample selection bias. However, as a robustness check and to provide a lower-bound estimate, we also compute PTRs assuming that all individuals take up work at the statutory minimum wage. These results can be found in the appendix (Figures A1-A2 and Tables A1-A3).

In this equation, we use the hourly wage variable included in the administrative dataset as our dependent variable together with level of education, age, nationality and a set of regional and occupational dummies as explanatory variables. We estimate this wage equation on the working population and then use the resulting coefficients to predict individual hourly wages for the non-working population. To account for the fact that individuals who are not in work may systematically differ from those who are, we employ a Heckman (1979). This method involves adding an additional variable, the inverse Mills ratio, generated from a probit participation equation, into the earnings equation to correct for this selection bias. In a final step, predicted hourly wages are scaled to monthly full-time earnings based on a full-time workweek of 38 hours (including prorated statutory holiday pay and end-of-year bonuses). Considering that our overall results are to a certain extent driven by the wage equation used to predict earnings in employment, we report the estimation results of the Heckman selection model in the appendix (Figure A3 and Tables A4-A5).

3.2. Part-time to full-time tax rate (PTFTR)

We extend the concept of the participation tax rate to measure the financial incentive for individuals working part-time to transition to full-time employment. We refer to this as the part-time to full-time tax rate (PTFTR). It is a measure of the monetary attractiveness of working full-time as opposed to working part-time. The part-time to full-time tax rate of individual i is calculated as:

$$PTFTR_i = 1 - \frac{Y(FTW_h) - Y(PTW_h)}{E(FTW_i) - E(PTW_i)}$$

where $Y(FTW_h)$ is household net disposable income when individual i is in full-time work, $Y(PTW_h)$ is household net disposable income when individual i is in part-time work, $E(FTW_i)$ is individual labour market earnings when working full-time and $E(PTW_i)$ is individual labour market earnings when working part-time.

In order to calculate the part-time to full-time tax rate, we thus need to estimate for each part-time worker what their potential full-time income would be. This is done by taking their reported hourly wage in their current part-time job and scaling it to a standard full-time work schedule of 38 hours per week, on the assumption that they would earn the same hourly wage in a full-time job as in their part-time job. Where necessary, we calculate PTFTRs separately for each partner in a couple by alternately adjusting one partner's labour income while holding the other's income constant.

The interpretation of the part-time to full-time tax rate is consistent with that of the participation tax rate. A value of 0% indicates that the individual keeps the entire increase in earnings, whereas a value of 100% means that the full increase is offset by higher taxes, additional social insurance contributions or the loss of benefit entitlements.

3.3. Microsimulation modelling

In order to simulate household disposable incomes under different employment scenarios, we rely on microsimulation modelling. This type of modelling combines microdata on household incomes and characteristics with national tax-benefit policy rules, allowing us to simulate incomes in both the current state of not-working/part-time working and the hypothetical state of full-time working. Microsimulation modelling is hence particularly valuable for assessing work incentives because it provides a structured and consistent framework to account for the complex interactions between earnings, taxes and social benefits. It is important to note that our simulations are static and do not assume behavioural responses or general equilibrium effects.

For this study, we make use of the BELMOD microsimulation model, which was recently developed by the Belgian Federal Public Service Social Security in collaboration with the Federal Planning Bureau, University of Essex, University of Antwerp and KU Leuven (FPS Social Security, 2025). BELMOD is built on the EUROMOD infrastructure, but extends its capabilities in two important ways. First, it offers a more detailed analysis of a broader set of policy programs, better capturing the complexity of the Belgian system. Second, BELMOD operates on administrative data instead of survey data, providing a more accurate and representative view of the Belgian population.

3.4. Administrative data

We move beyond traditional approaches based on survey data or model family simulations by leveraging BELMOD with administrative data (FPS Social Security, 2022). Administrative data support a more in-depth and precise representation of incomes, benefit receipt and tax liabilities, reducing issues related to misreporting and bias. This results in more accurate estimates of work incentives. In addition, its significantly larger sample size and greater representativeness allow for a more granular analysis of specific subgroups within the population. This is particularly important for understanding how work incentives vary across different demographic and socio-economic profiles.

BELMOD's administrative input dataset contains the socio-economic data of the year 2019 of about 1.410.000 individuals clustered in 473.500 households, which equals to 12,2 % of the Belgian population. The sample is disproportionately stratified, so that it is representative across Belgium's regions and communities. The main data sources are the Data Warehouse Labour Market & Social Protection of the Crossroads Bank for Social Security and the IPCAL database of the FPS Finance. At present, the most recent policy coding in BELMOD reflects the situation in 2024. In order to run the input data from 2019 on the 2024 policies, we uprate all monetary variables using the standard uprating indices included in BELMOD.

We calculate participation tax rates exclusively for those individuals that are not employed, but could potentially enter the labour market. While generally all individuals aged 18 to 65 are considered available for the labour market, not all individuals in this group will be truly available for work. As such, we have further restricted the sample by excluding all students, individuals who are sick or disabled, the early retired and those currently receiving maternity or paternity benefits. That gives us a final sample of 110,778 (unweighted) or 915,866 (weighted) non-working individuals or for whom we calculate the participation tax rate.

We calculate part-time to full-time tax rates exclusively for individuals aged 18 to 65 who are currently employed part-time. In line with the OECD, we define part-time employment as working 30 hours or less per week. To focus on those who could realistically make the transition to full-time work, we again exclude all students as well as individuals who are sick or disabled. The self-employed are also excluded, as their reported earnings and working hours are less stable and reliable. After applying these restrictions, our final sample consists of 98,360 (unweighted) or 799,542 (weighted) part-time working individuals for whom we calculate the part-time to full-time tax rate.

Table 3 below provides a descriptive overview of the key socio-demographic characteristics of the sample used in our analysis. It shows the distribution of individuals across categories such as gender, age group, educational level, household composition and region of residence. These descriptive statistics offer insight into the composition of both our non-working and part-time working population under study and provide important context for interpreting the indicators.

The profiles of both samples are strikingly different. While both groups are predominantly female, the proportion of women is highest among the part-time working group. The non-working sample also seems to be lower educated than the part-time working group, although caution is warranted here due to the substantial number of missing values for the education variable. Citizenship status also varies strongly across groups. About 40% of non-working individuals do not hold Belgian citizenship, compared to just over 10% among part-time workers. Finally, most individuals in the non-working group live in a jobless household, whereas the vast majority of part-time workers have a working partner.

Table 3. Socio-demographic characteristics of the population sample

	Not-working	**Part-time working**
N	110,778	98,630
Gender		
Female	60%	71%
Male	40%	29%
Level of education		
Missing	37%	12%
Low education	25%	15%
Medium education	22%	32%
High education	15%	42%
Age		
18-24 years	7%	4%
25-34 years	21%	23%
35-44 years	22%	27%
45-54 years	22%	25%
55-64 years	29%	20%
Region		
Brussels	23%	9%
Flanders	40%	59%
Wallonia	37%	32%
Citizenship		
Belgium	62%	88%
EU	21%	8%
Outside of EU	17%	4%
Benefit receipt		
No benefits	56%	76%
Social assistance benefits	18%	18%
Unemployment benefits	26%	3%
Interruption allowance	1%	3%
Household type		
Single-adult household	23%	13%
Single-adult household with dependent children	6%	6%
Two-adult household	25%	25%
Two-adult household with dependent children	30%	42%
Multi-adult household	9%	9%
Multi-adult household with dependent children	7%	6%
Number of dependent children		
0 children	57%	46%
1 child	16%	21%
2 children	15%	24%
3 children	7%	8%
4 or more children	5%	2%
Marital status		
Missing	8%	3%
Single	29%	35%
Married	49%	49%
Separated, divorced or widowed	13%	13%
Household work intensity		
No other household members in employment	57%	30%
Other household members in employment	43%	70%

Source: Own calculations based on BELMOD and administrative data. *Note*: Weighted percentages, unweighted N.

4. Results

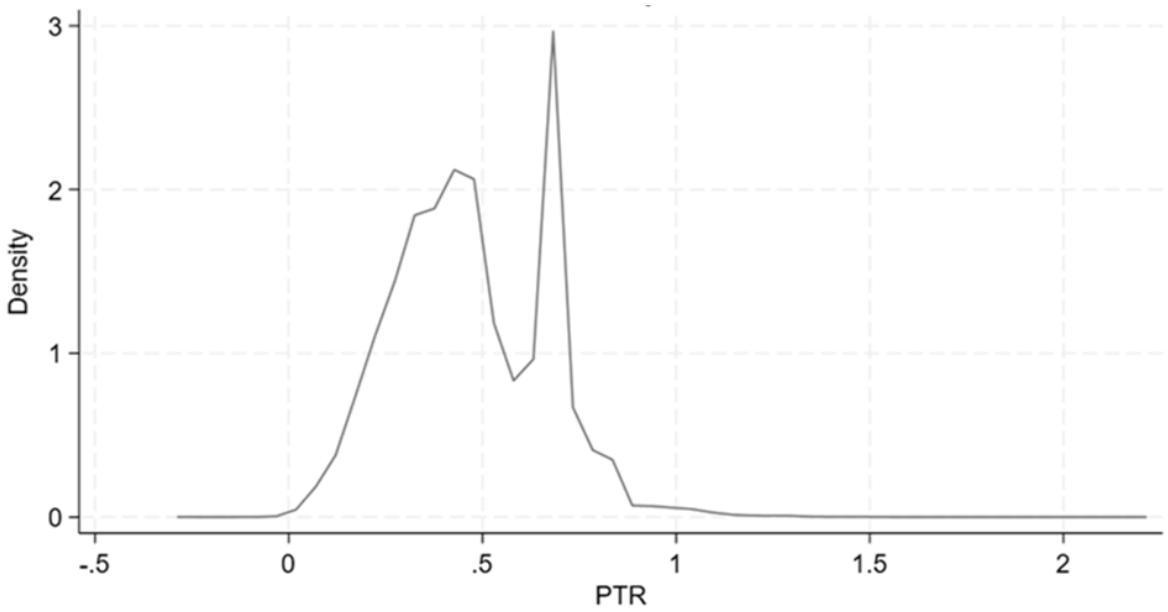
4.1. The inactivity trap

4.1.1. How pervasive are inactivity traps really?

Figure 1 shows the probability density function of the participation tax rate (PTR), illustrating the distribution of financial work incentives among the non-working population. The distribution appears to be rather heterogeneous, with twin peaks emerging around PTR values of 25% to 50% and around 60% to 75%. Almost half of individuals fall within the first peak, while approximately a quarter of individuals are concentrated in the second. Very few individuals face PTRs close to 0% or 100%, indicating that extreme cases are rare. On average, the participation tax rate in our sample is 47%, meaning that someone who is not working in Belgium would retain just over half of their gross earnings when taking up work. This confirms that the real-world financial pay-offs from work are indeed for most considerably higher than what is depicted in model family type based simulations.

For completeness, and because the PTR is a relative measure and may be more abstract for interpretation, we also report the absolute net change in disposable household income when moving from non-employment to full-time employment at the predicted wage. Their distributional and subgroup averages provide a more intuitive sense of the magnitude of financial gains from work and can be found in the appendix Tables A6 and A7.

Figure 1. Kernel density plot of PTR



Source: Own calculations based on BELMOD and administrative data.

In the literature, there is no clear consensus yet on the PTR level above which individuals are considered to have insufficient work incentives. Admittedly, the point at which work becomes financially unattractive will vary from person to person, depending on their individual preferences, constraints and context. However, for analytical purposes, we need to adopt a uniform threshold in order to identify and compare cases of weak work incentives. Given that the PTR, as calculated in our analysis, does not fully account for all costs associated with entering the labour market (such as childcare expenses, commuting cost, potential loss of in-kind benefits or other non-pecuniary costs), we consider an individual to be caught in a trap when their

participation tax rate exceeds 75%. While we acknowledge that this cut-off is to some extent arbitrary, it reflects a level at which the financial gain from employment may be outweighed. To account for the sensitivity of our findings to this assumption, Table 4 presents the share of individuals facing 'problematic' work incentives across a range of PTR thresholds.

Table 4. Share of individuals facing low work incentives by PTR threshold

Threshold	Relative frequency (%)
PTR above 65%	25.3%
PTR above 70%	10.0%
PTR above 75%	5.8%
PTR above 80%	4.1%
PTR above 85%	1.8%
PTR above 90%	1.4%

Source: Own calculations based on BELMOD and administrative data. *Note*: Weighted percentages.

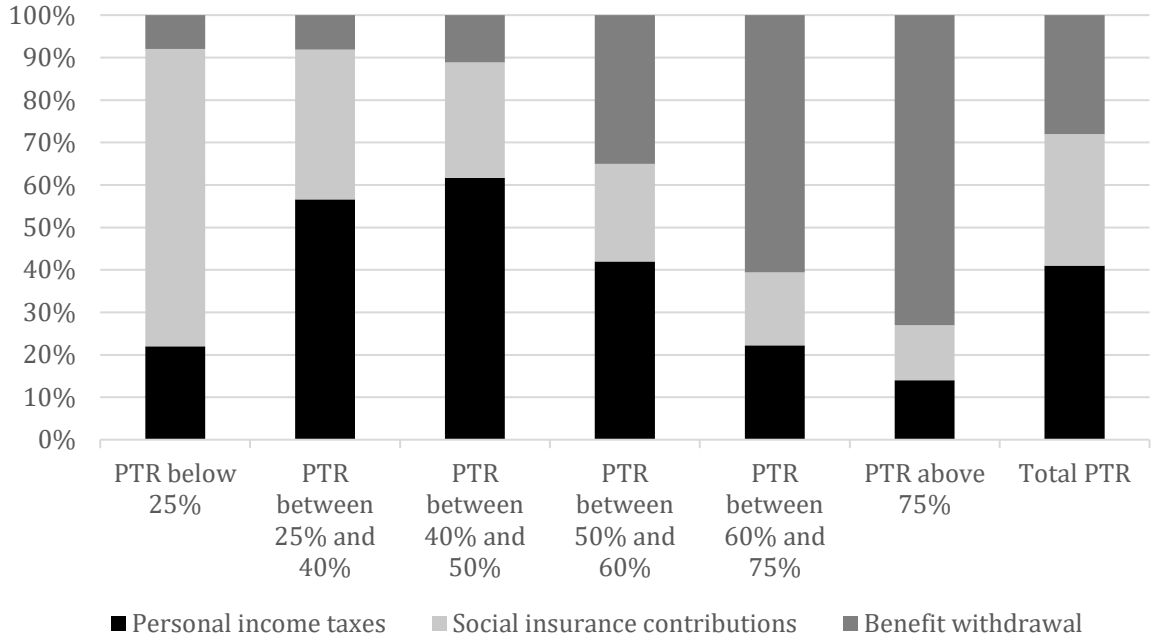
Applying our preferred cut-off of 75%, only 6% of our sample is at risk of falling into an inactivity or unemployment trap. This corresponds to only 7,360 out of the 110,778 non-working (yet available for the labour market) individuals observed in our sample. Or, when applying population weights, this would translate to only about 54,000 individuals out of a group of almost 1 million. Most therefore appear to have sufficient financial incentives to take up work, at least full-time. This implies that inactivity traps, while present for some, are not widespread across the non-working population.

4.1.2. What is the impact of policy on work incentives?

Financial work incentives are shaped by the structure of the tax-benefit system, which determines how much of the additional income from work is taken away through taxes, social insurance contributions and benefit withdrawal. To better understand what drives participation tax rates in Belgium, we decompose the PTR into its underlying components. Figure 2 illustrates the relative contribution of each component to the participation tax rate. Overall, participation tax rate levels tend to be driven most by changes in personal income taxes. However, our findings also reveal the importance of benefit withdrawal as being the biggest driving force in high PTRs.

Figure 2 also helps to explain the twin peaked distribution of PTRs observed earlier. Individuals in the first peak, with a PTR between 25% and 50%, typically do not receive means-tested benefits and are thus only affected by taxes and social insurance contributions. As mentioned before, taxes and social insurance contributions are relatively high in Belgium, which explains why the average PTR is closer to the 50% mark. However, individuals who are eligible for tax credits or other reductions, such as low-wage workers, may face a lower fiscal burden, which in turn lowers their PTR. By contrast, individuals in the second peak, those with PTR's above 60%, tend to receive social benefits while out of work. For this group, taking up employment thus not only leads to higher taxes and social insurance contributions, but also to substantial benefit withdrawal, resulting in significantly higher PTRs. Additional decompositions of the PTR by wage quintile and household type can be found in Figures A4 and A5 in the appendix.

Figure 2. Decomposition of PTR into contributing factors (%) by PTR level



Source: Own calculations based on BELMOD and administrative data.

We can also examine more closely the role of individual policy instruments in shaping work incentives. First, we will evaluate the specific impact of the social and fiscal work bonus, which are a reduction in social insurance contributions and withholding tax, respectively. Table 5 compares participation tax rates by predicted wage quintile in the current situation to a counterfactual scenario in which the work bonuses are removed.

The results provide clear evidence that this in-work benefit significantly lowers the participation tax rate at the lower end of the earnings distribution. For those in the bottom wage quintile, the social and fiscal work bonus together decrease the average PTR from 50% to 38%. As a result, low-wage workers now even appear to have some of the strongest incentives to take up work. These findings suggest that both in-work benefits, in particular the social work bonus, are achieving their intended goal of improving the financial incentive to take up work.

Table 5. Impact of workbonus on PTR by predicted wage quintile

Wage quintile	Bottom	Lower middle	Middle	Higher middle	Top	Total
PTR without workbonus	0.495	0.493	0.498	0.520	0.530	*0.504*
Impact of social workbonus on PTR	-0.087	-0.047	-0.013	0.000	0.000	*-0.023*
Impact of fiscal workbonus on PTR	-0.029	-0.015	-0.004	0.000	0.000	*-0.008*
PTR with workbonus	*0.379*	*0.431*	*0.481*	*0.520*	*0.530*	*0.473*

Source: Own calculations based on BELMOD and administrative data.

Second, we disentangle the impact of the marital quotient on the participation tax rate. The marital quotient is a form of joint taxation of couples that the government is slowly going to phase out due to its presumed negative impact on the labour market participation of secondary earners. Table 6 compare participation tax rates by household type in the current tax system to a counterfactual scenario in which the marital quotient is abolished. The results confirm that joint taxation weakens work incentives. However, its impact is very limited, largely because single-earner households have become relatively rare. As a result, the planned phasing out of the marital quotient in Belgium is unlikely to substantially improve work incentives at an aggregate level.

Table 6. Impact of marital quotient on PTR by household type

Household type	**Single-adult**	**Single-adult with children**	**Two-adult**	**Two-adult with children**	**Multi-adult**	**Multi-adult with children**	***Total***
PTR without marital quotient	0.549	0.605	0.423	0.433	0.392	0.410	*0.461*
Impact of marital quotient on PTR	0.000	0.000	+0.021	+0.011	+0.020	+0.014	*+0.012*
PTR with marital quotient	*0.549*	*0.605*	*0.444*	*0.444*	*0.412*	*0.424*	*0.473*

Source: Own calculations based on BELMOD and administrative data.

4.1.3. What are the profiles of those facing remarkably weak or strong financial work incentives?

Effective policy design requires knowing more than just how many people face poor work incentives. It requires knowing who they are. To this end, we identify the individuals most and least at risk of being trapped in inactivity. Following Fernandez et al. (2016) and Immervoll et al. (2019), we go beyond basic descriptive statistics by creating distinct profiles of these individuals based on an exploratory hierarchical cluster analysis using Ward's Linkage. Specifically, we have grouped individuals with either a very high (>75%) or very low (<25%) participation tax rate according to their demographic, household and labour market characteristics. This allows us to not only enhance our understanding of the combinations of characteristics most closely associated with strong (dis)incentives to work, but also to gain a first sense of other potential structural barriers at play.

Around 6% of the non-working population faces problematically high participation tax rates. Using the cluster tree or dendrogram as guidance, we can identify five meaningful clusters within this group. Table 7 outlines the key socio-demographic characteristics of each cluster, while figure 3 highlights for each cluster which income components drive their high PTR.

The first and largest cluster, in which almost half of all individuals with a high PTR are classified, is characterised by low-educated, single mothers residing in Wallonia or Brussels. They typically receive comparatively generous out-of-work benefits, such as unemployment benefits or social assistance. This profile reflects a combination of lone parenthood, low earning potential and generous benefit entitlement, which results in a very limited financial gain from entering employment.

The next three clusters, while differing in age, citizenship and family composition, share a common structure: they all include individuals living in two-adult, low work intensity households relying on social assistance. The second cluster is a relatively smaller cluster encompassing only 8% of individuals. This cluster outlines the profile of a young, childless individual with a lower earning potential and an assumed migration background, based on the fact that they do not hold Belgian citizenship. They live in a two-adult household as mentioned above and all household members rely primarily on social assistance, although the amount of benefits granted seems to be modest. Representing 18% of the sample, the third cluster includes older, childless adults with a higher earning potential, but who nevertheless live in a jobless household dependent on social assistance. Once again, their reliance on social assistance, combined with the relatively higher taxes associated with their predicted wage, results in particularly low work incentives. The fourth cluster, in which a quarter of all individuals with a high PTR are classified, characterizes the profile of a middle-aged, married mother with a migration background, living in a low work intensity households dependent on social assistance. The presence of children here likely increases the level of benefit entitlement, further weakening financial incentives to work. While the average PTRs in other clusters hover around 85%, this group stands out with the highest PTR at 90%.

The fifth and final cluster, although the smallest with just 4% of the sample, stands out most clearly from the others. It covers older, higher-educated women who receive unemployment benefits, which tend to be more generous than social assistance. These individuals typically live in Flemish households with one or more other adults, as well as dependent children. Unlike the other clusters, these are not jobless households; at least one other adult earns income from work. The high participation tax rates in this group stem from the combined effects of withdrawing generous unemployment benefits and the loss of the marital quotient, which increases the household's overall tax burden.

The clusters observed in our analysis point to a complex interplay of individual characteristics, household context and institutional design. Despite their differences, all five clusters have relatively generous benefit entitlements as a common feature. Although, interestingly, we predominantly find recipients of social assistance benefits here rather than unemployment benefits. This pattern contrasts with the findings of other studies reporting that PTRs in the first year of unemployment are the highest and runs counter to the current policy emphasis on reforming unemployment benefits to enhance work incentives.

As shown in the decomposition graph, it is predominantly benefit withdrawal that drives participation tax rates across all five clusters. This underscores the delicate balance that welfare states must strike between providing adequate social protection for those not in work and ensuring that the financial incentive to work remains sufficiently high. While social assistance benefits thus play a crucial role in alleviating poverty and providing income security, they can also, in some circumstances, unintentionally create welfare traps that discourage labour market participation.

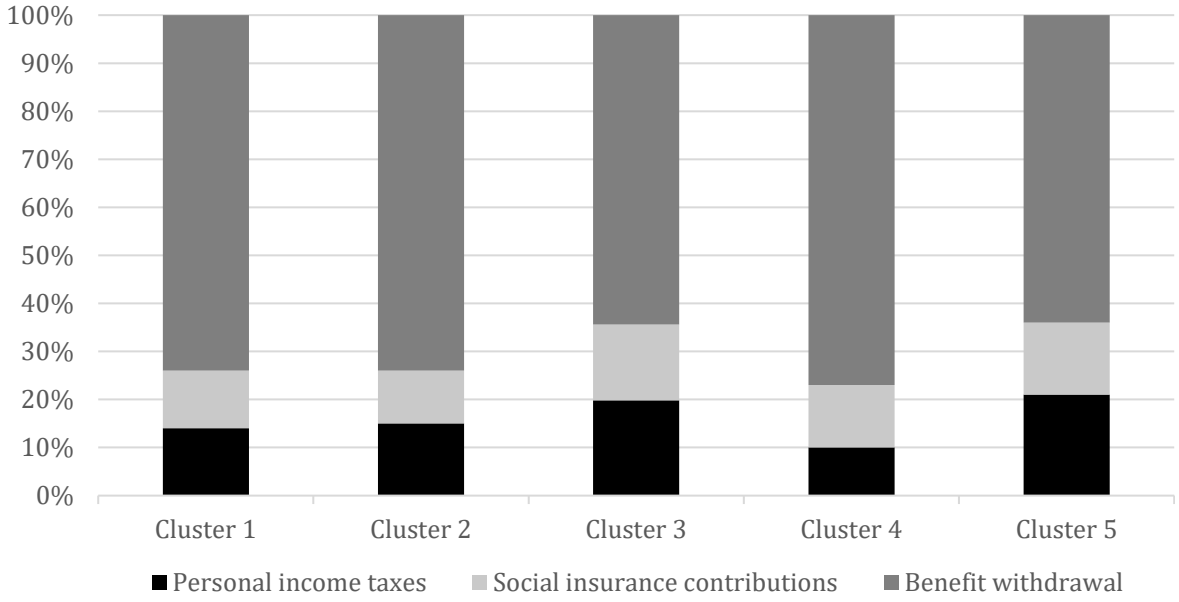
Table 7. Socio-demographic characteristics of individuals with a high PTR by cluster

	Cluster 1	**Cluster 2**	**Cluster 3**	**Cluster 4**	**Cluster 5**	**Total**
N	2,804 (44%)	490 (8%)	1,340 (18%)	2,404 (26%)	322 (4%)	7,360 (100%)
Average PTR	0.85	0.84	0.85	0.90	0.84	0.86
Gender						
Female	**83%**	52%	51%	**61%**	**71%**	69%
Male	17%	48%	49%	39%	29%	31%
Level of education						
Missing	33%	65%	44%	51%	15%	42%
Low education	32%	17%	20%	23%	36%	26%
Medium education	23%	15%	17%	17%	28%	20%
High education	11%	3%	19%	9%	21%	12%
Age						
18-24 years	5%	**29%**	0%	7%	0%	6%
25-34 years	**23%**	**56%**	2%	15%	13%	19%
35-44 years	**35%**	14%	10%	**27%**	16%	26%
45-54 years	28%	0%	**44%**	**36%**	**31%**	31%
55-64 years	9%	0%	**45%**	15%	**40%**	17%
Region						
Brussels	27%	33%	22%	21%	17%	25%
Flanders	25%	32%	40%	36%	**55%**	32%
Wallonia	**48%**	35%	38%	43%	28%	43%
Citizenship						
Belgium	66%	32%	54%	49%	**78%**	57%
EU	15%	**53%**	33%	**28%**	14%	25%
Outside of EU	19%	15%	13%	**22%**	8%	18%
Predicted wage quintile						
Bottom	14%	19%	0%	6%	4%	9%
Lower middle	**42%**	**59%**	8%	**32%**	21%	34%
Middle	25%	20%	**38%**	**34%**	**41%**	30%
Higher middle	17%	3%	**42%**	28%	**33%**	24%
Top	2%	0%	12%	0%	0%	3%
Individual benefit receipt						
No benefits	0%	0%	3%	1%	24%	2%
Unemployment benefits	35%	9%	15%	17%	**50%**	25%
Social assistance benefits	**64%**	**91%**	**83%**	**82%**	26%	73%
Individual benefit generosity						
€ 0	0%	0%	2%	1%	22%	1%
€1-€500	0%	0%	8%	9%	4%	4%
€500-€1000	1%	**84%**	**62%**	**43%**	16%	30%
€1000-€1500	8%	11%	20%	**23%**	17%	15%
€1500-€2000	28%	5%	5%	14%	**34%**	18%
>€2000	**64%**	0%	2%	10%	8%	31%
Household benefit generosity						
€ 0	0%	0%	0%	0%	0%	0%
€1-€500	0%	0%	0%	0%	0%	0%
€500-€1000	14%	19%	0%	6%	4%	9%
€1000-€1500	42%	59%	8%	32%	21%	34%
€1500-€2000	25%	20%	38%	34%	41%	30%
€2000-€2500	17%	3%	42%	28%	33%	24%
>€2500	2%	0%	12%	0%	0%	3%

Household type						
Single adult	0%	7%	7%	0%	0%	2%
Single adult with dependent children	**96%**	3%	0%	0%	0%	43%
Two adults	0%	**65%**	**46%**	0%	9%	14%
Two adults with dependent children	3%	0%	17%	**98%**	**31%**	31%
Multiple adults	0%	12%	**13%**	0%	16%	4%
Multiple adults with dependent children	1%	13%	17%	1%	**45%**	6%
Number of dependent children						
0 children	0%	**84%**	**66%**	0%	25%	20%
1 child	49%	7%	12%	41%	36%	36%
2 children	35%	5%	15%	34%	25%	28%
3 children	16%	3%	7%	24%	15%	16%
4 or more children	0%	0%	0%	1%	0%	0%
Marital status						
Missing	6%	33%	9%	13%	4%	10%
Single	42%	61%	16%	30%	20%	35%
Married	18%	4%	49%	46%	58%	31%
Separated, divorced or widowed	34%	3%	26%	11%	18%	23%
Household work intensity						
Jobless household	**99%**	**79%**	**64%**	**86%**	0%	*84%*
At least one adult in employment	1%	21%	36%	14%	**100%**	*16%*
Employment income of other household members						
€0	99%	79%	64%	86%	0%	*84%*
€1-€500	0%	14%	20%	8%	0%	*7%*
€500-€1000	0%	3%	8%	4%	0%	*3%*
€1000-€2000	0%	3%	8%	2%	11%	*3%*
€2000-€3000	0%	0%	1%	0%	32%	*1%*
>€3000	0%	0%	0%	0%	**51%**	*2%*
Benefit receipt of other household members						
No benefits	**71%**	7%	7%	0%	24%	*34%*
Social assistance benefits	28%	**81%**	**74%**	**83%**	34%	*55%*
Unemployment benefits	0%	0%	0%	1%	4%	*0%*
Sickness or disability benefits	0%	0%	0%	0%	4%	*0%*
Pension benefits	0%	0%	0%	0%	0%	*0%*
Combination of benefits	1%	11%	18%	16%	35%	*10%*

Source: Own calculations based on BELMOD and administrative data. *Note*: Weighted percentages, unweighted N.

Figure 3. Decomposition of high PTRs into contributing factors (%) by cluster



Source: Own calculations based on BELMOD and administrative data.

Around 12% of our sample find themselves in the opposite situation, with individuals that have a clear financial incentive to take up work, yet do not do so. To better understand who they are, we again rely on our hierarchical cluster analysis. Based on the dendrogram, we identify four meaningful clusters within this group. Table 8 presents the key socio-demographic characteristics of each cluster, while Figure 4 shows the relative contribution of taxes, social insurance contributions and benefit withdrawal to their PTRs.

The first cluster, in which roughly a quarter of the individuals with a low PTR are classified, reflects the profile of middle-aged, married individuals with children. They are EU migrants with moderate earnings potential. They live in jobless households without any access to social benefits. With an average PTR of 17%, they face relatively strong financial incentives to work because there is little to no benefit income to lose and only limited taxes to pay upon entering employment.

The second cluster, also accounting for about a quarter of the group, is made up of young women with low earning potential, living together with their partner and dependent children. They are not receiving any benefits themselves, but their partner receives substantial income from both work and benefits. This is thus the only cluster where another adult in the household has earnings. As a result, the primary drivers of the PTR in this case are social insurance contributions and personal income taxes; however, their overall impact remains limited due to the predicted wage being in the bottom quintiles. The average PTR in this cluster is 19%, which is marginally higher than in the other clusters.

The third cluster, which is the largest at 36%, sketches the profile of a young, single adults with a non-EU migrant background and no access to social benefits. With a low predicted wage and no benefit withdrawal or household income interactions, these individuals face almost no financial barriers to taking up work. Their PTRs are almost solely driven by the (limited) amount of social contributions they would pay.

The final cluster, which is also the smallest, consists of women with low to moderate earnings potential living in jobless household with one or more other adults and dependent children. While they themselves are not receiving benefits, their household members are; mostly sickness and

disability benefits, which are not affected by the employment status of the partner. And as these women have no personal benefits to lose and only limited earnings prospects, their participation tax rate remains very low at 17% on average.

Across all four clusters, a clear pattern emerges: these are individuals with a low earnings potential and no direct benefits to lose. In most cases, the only source of financial disincentive is the increase in social insurance contributions. Benefit withdrawal, the main driver of high PTRs in the previous section, on the other hand plays virtually no role here. Yet, despite having strong incentives to take up work, the individuals in our clusters remain out of work. The fact that their profiles also largely correspond to socio-demographic groups known to be more responsive to financial incentives further suggests that other barriers are at play. For instance, lack of qualifications or experience, non-recognition of foreign degrees, no access to a network or personalised support, discrimination or insufficient knowledge of the language. In addition, childcare responsibilities appear to be a recurrent theme: three out of four clusters involve women living in households with children. Finally, in cluster two and four, the presence of another adult with a stable income, either from work or benefits, may also reduce the financial urgency or perceived need to take up paid work.

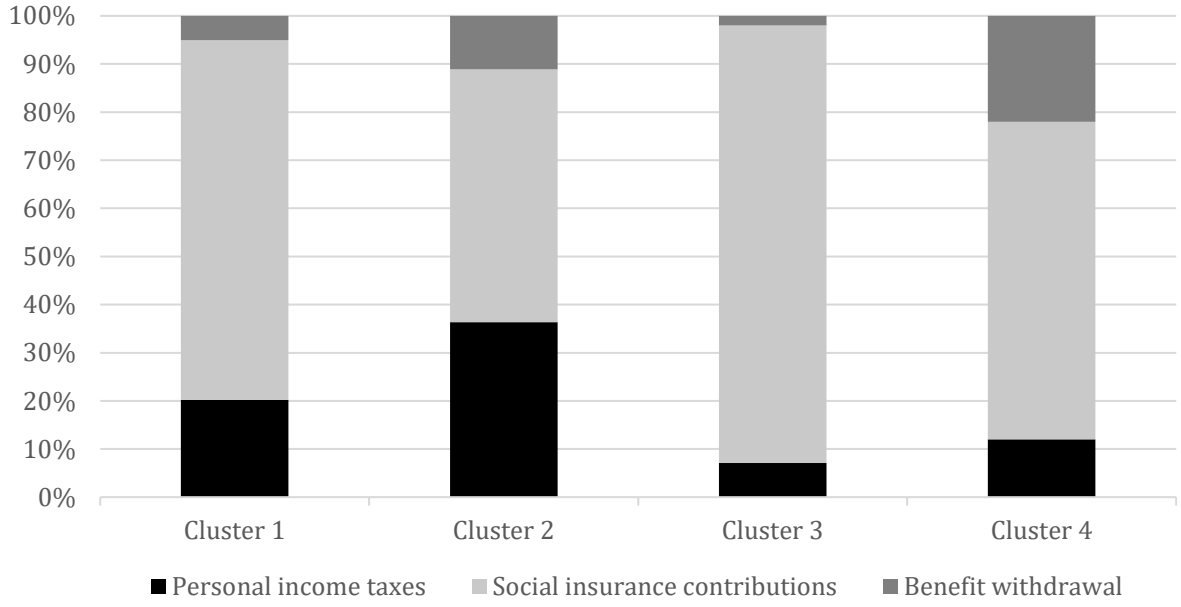
Table 8. Socio-demographic characteristics of individuals with a low PTR by cluster

	Cluster 1	**Cluster 2**	**Cluster 3**	**Cluster 4**	**Total**
N	4,846 (26%)	4,796 (26%)	3,488 (36%)	2,825 (12%)	15,955 (100%)
Average PTR	0.17	0.19	0.16	0.17	0.17
Gender					
Female	56%	**86%**	68%	**85%**	72%
Male	44%	14%	32%	15%	28%
Level of education					
Missing	70%	50%	63%	43%	59%
Low education	12%	33%	26%	42%	26%
Medium education	10%	17%	12%	14%	13%
High education	8%	0%	0%	1%	2%
Age					
18-24 years	1%	**34%**	**35%**	12%	23%
25-34 years	15%	**47%**	**47%**	**22%**	36%
35-44 years	**45%**	17%	15%	**37%**	26%
45-54 years	**28%**	3%	3%	21%	12%
55-64 years	11%	0%	0%	8%	4%
Region					
Brussels	32%	19%	32%	23%	27%
Flanders	30%	38%	25%	31%	31%
Wallonia	38%	42%	43%	46%	42%
Citizenship					
Belgium	29%	**50%**	38%	**65%**	42%
EU	**48%**	17%	19%	4%	24%
Outside of EU	22%	32%	**44%**	31%	34%
Predicted wage quintile					
Bottom	0%	**40%**	**30%**	14%	23%
Lower middle	26%	**57%**	**68%**	**64%**	54%
Middle	**50%**	2%	2%	19%	17%
Higher middle	22%	0%	0%	2%	6%
Top	1%	0%	0%	0%	0%
Individual benefit receipt					
No benefits	**99%**	**95%**	**98%**	**86%**	96%
Benefits	1%	5%	2%	14%	4%

Individual benefit generosity					
€ 0	62%	85%	74%	75%	74%
€1-€500	14%	14%	12%	19%	14%
€500-€1000	18%	0%	8%	1%	8%
€1000-€1500	5%	0%	4%	1%	3%
€1500-€2000	1%	0%	1%	1%	1%
>€2000	0%	0%	1%	2%	1%
Household benefit generosity					
€ 0	18%	19%	58%	0%	30%
€1-€500	25%	20%	14%	1%	17%
€500-€1000	36%	16%	12%	1%	18%
€1000-€1500	11%	17%	7%	3%	10%
€1500-€2000	4%	14%	4%	9%	7%
€2000-€2500	3%	9%	3%	21%	6%
>€2500	2%	7%	2%	65%	11%
Household type					
Single adult	0%	0%	**45%**	0%	16%
Single adult with dependent children	4%	0%	21%	1%	9%
Two adults	18%	21%	16%	4%	16%
Two adults with dependent children	**70%**	**47%**	17%	**46%**	42%
Multiple adults	3%	17%	1%	15%	7%
Multiple adults with dependent children	4%	15%	0%	**34%**	9%
Number of dependent children					
0 children	21%	38%	**62%**	19%	40%
1 child	22%	17%	15%	12%	17%
2 children	**30%**	12%	12%	19%	17%
3 children	17%	13%	7%	**20%**	13%
4 or more children	10%	20%	5%	**30%**	13%
Marital status					
Missing	4%	12%	30%	2%	15%
Single	13%	46%	45%	26%	35%
Married	79%	41%	19%	67%	46%
Separated, divorced or widowed	4%	1%	6%	5%	4%
Household work intensity					
Jobless household	**87%**	6%	**98%**	**75%**	69%
At least one adult in employment	13%	**94%**	2%	25%	31%
Employment income of other household members					
€0	87%	6%	98%	75%	69%
€1-€500	7%	16%	1%	5%	7%
€500-€1000	2%	11%	0%	3%	4%
€1000-€2000	2%	24%	0%	5%	8%
€2000-€3000	1%	20%	0%	6%	6%
>€3000	1%	24%	0%	6%	7%
Benefit receipt of other household members					
No benefits	**88%**	47%	**89%**	7%	68%
Social assistance benefits	0%	2%	0%	1%	1%
Unemployment benefits	3%	22%	3%	10%	9%
Sickness or disability benefits	5%	10%	3%	**36%**	10%
Pension benefits	1%	3%	1%	6%	2%
Combination of benefits	2%	15%	2%	**39%**	10%

Source: Own calculations based on BELMOD and administrative data. *Note*: Weighted percentages, unweighted N.

Figure 4. Decomposition of low PTRs into contributing factors (%) by cluster



Source: Own calculations based on BELMOD and administrative data.

4.2. The part-time work trap

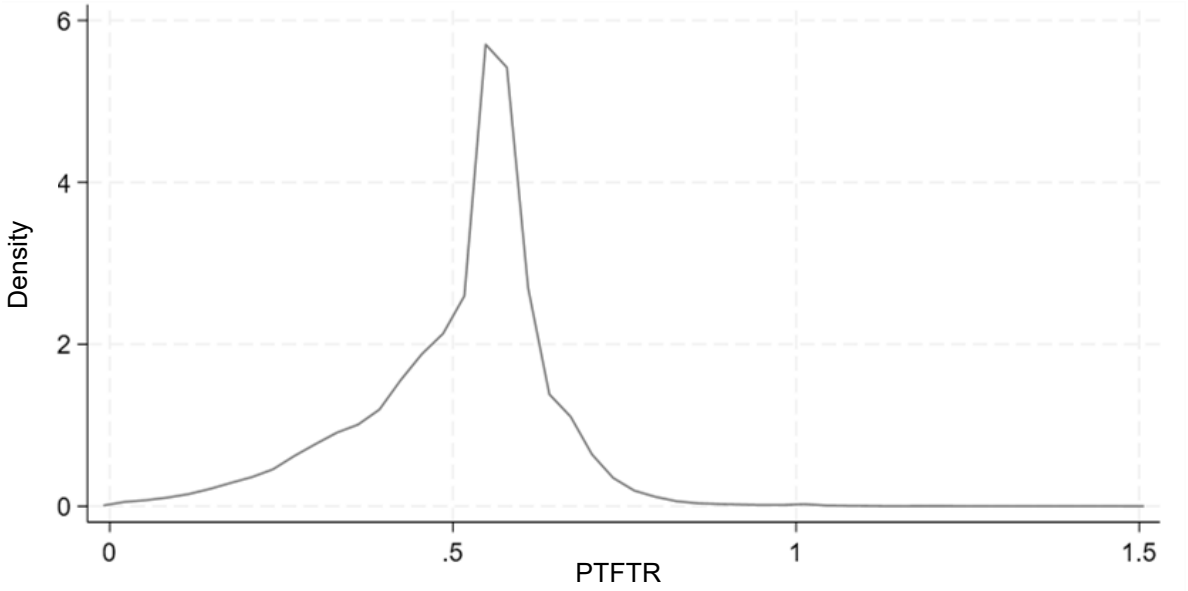
4.2.1. How pervasive are part-time work traps really?

Having scrutinized the prevalence and nature of the inactivity trap among those currently not in work, we now expand our focus to the part-time work trap. This section delves into the financial implications of increasing working hours from part-time to full-time employment. In a similar vein, we assess to what extent part-time working individuals in Belgium face disincentives to work full-time and how these disincentives are shaped by the tax-benefit system.

Figure 5 presents the probability density function of the part-time to full-time tax rate (PTFTR). The distribution appears relatively homogeneous, with a prominent peak emerging around PTFTR values of 50% to 60%. Almost half of all part-time workers fall within this range, while about one third have a PTFTR below 50% and roughly one sixth face a PTFTR above 60%. Virtually no individuals experience PTFTRs close to 0% or 100%. On average, the PTFTR in our sample is 51%, indicating that individuals would retain slightly less than half of their additional gross earnings when transitioning from part-time to full-time work.

For completeness, and because the PTFTR is likewise a relative measure that may be less intuitive to interpret, we also report the absolute net change in disposable household income when moving from part-time to full-time employment. These results are presented in the appendix Tables A8 and A9.

Figure 5. Kernel density plot of PTFTR



Source: Own calculations based on BELMOD and administrative data.

As with the participation tax rate, we define individuals as being caught in a trap when their part-time to full-time tax rate exceeds 75%. To assess the sensitivity of our findings to this assumption, table 9 reports the proportion of individuals facing 'problematic' work incentives across a range of PTFTR cut-offs. Using our preferred threshold of 75%, we find that only 2% or 1,945 part-time workers out of the 98,630 observed in our sample are at risk of falling into a promotion or part-time work trap. When applying population weights, this would translate to about 14,000 individuals out of a group of almost 1 million. Our findings thus suggests that the vast majority of part-time workers face sufficient financial incentives to increase their working hours. Consequently, the decision to remain in part-time work is likely influenced by factors beyond financial gain alone.

Table 9. Share of individuals facing low work incentives by PTFTR threshold

Threshold	Relative frequency (%)
PTFTR above 65%	9.0%
PTFTR above 70%	3.8%
PTFTR above 75%	1.7%
PTFTR above 80%	0.9%
PTFTR above 85%	0.6%
PTFTR above 90%	0.4%

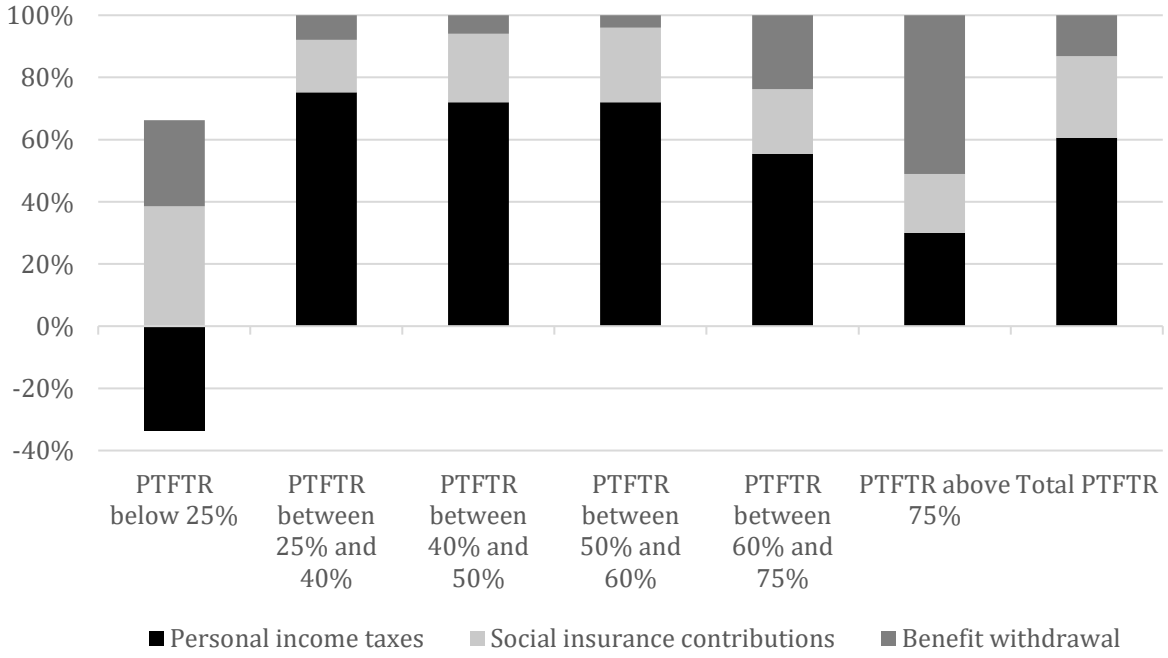
Source: Own calculations based on BELMOD and administrative data. *Note*: Weighted percentages.

4.2.2. What is the impact of policy on work incentives?

In order to gain insight into the role of the tax-benefit system in shaping work incentives, we decompose the part-time to full-time tax rate. Figure 6 shows the relative contribution of the main drivers behind the PTFTR, being personal income taxes, social insurance contributions and benefit withdrawal.

Overall, the part-time to full-time tax rate is primarily driven by increases in personal income taxes and, to a lesser extent, social insurance contributions. This reflects the relatively high fiscal burden in Belgium, which reduces the net gain from working additional hours. As individuals in part-time employment are less likely to receive means-tested benefits, benefit withdrawal generally plays a more limited role here. The tails of the distribution, however, seem to deviate from this pattern. For those with a PTFTR above 75%, benefit withdrawal does pose a problem, resulting in significantly higher PTFTRs. And for those with a PTFTR below 25%, income taxes actually lower their PTFTR rather than increase it. This implies that they would pay less income taxes when working full-time than they currently do in their part-time job, likely because of more generous tax advantages. As a result, their financial incentive to increase their working effort is particularly strong. Additional decompositions of the PTFTR by hourly wage quintile and household type can be found in Figures A6 and A7 in the appendix.

Figure 6. Decomposition of PTFTR into contributing factors (%) by PTFTR level



Source: Own calculations based on BELMOD and administrative data.

In the transition from part-time to full-time work, there are also specific policy measures at play. Table 10 compares the part-time to full-time tax rate by predicted wage quintile in the current situation with a counterfactual scenario in which the social and fiscal work bonuses are removed. The results confirm that these in-work benefits substantially improve work incentives at the lower end of the earnings distribution as well: they lower the PTFTR from 49% to 37% among the bottom wage quintile. As such, they ensure that low-wage workers have the strongest financial encouragement to increase their working hours.

Table 10. Impact of workbonus on PTFTR by predicted wage quintile

Wage quintile	Bottom	Lower middle	Middle	Higher middle	Top	Total
PTFTR without workbonus	0.493	0.525	0.546	0.561	0.578	*0.544*
Impact of social workbonus on PTFTR	-0.090	-0.037	-0.008	0.000	0.000	*-0.027*
Impact of fiscal workbonus on PTFTR	-0.031	-0.012	-0.003	0.000	0.000	*-0.009*
PTFTR with workbonus	*0.373*	*0.475*	*0.535*	*0.561*	*0.578*	*0.508*

Source: Own calculations based on BELMOD and administrative data.

Next, table 11 compares the part-time to full-time tax rate by household type under the current situation and a counterfactual scenario in which the marital quotient is abolished. The overall impact appears to be very minimal. This is not unsurprising as relatively few part-time workers are eligible for the marital quotient (i.e. eligibility requires that the professional income of the partner with the lowest income must constitute less than 30% of the total professional income of both partners combined).

Table 11. Impact of marital quotient on PTFTR by household type

Household type	Single-adult	Single-adult with children	Two-adult	Two-adult with children	Multi-adult	Multi-adult with children	*Total*
PTFTR without marital quotient	0.511	0.576	0.498	0.513	0.486	0.474	*0.508*
Impact of marital quotient	0.000	0.000	0.000	0.000	+0.001	+0.001	*+0.000*
PTFTR with marital quotient	*0.511*	*0.576*	*0.498*	*0.513*	*0.487*	*0.475*	*0.508*

Source: Own calculations based on BELMOD and administrative data.

Finally, we examine the role of the income guarantee allowance (IGU) and socio-professional exemption (SPI), both targeted measures aimed at improving the financial gain of making the transition from unemployment benefits or social assistance to part-time employment. As highlighted by a study by Derboven et al. (2024), the design of these instruments indeed works very well in making part-time work more financially attractive in Belgium. For many benefit recipients, a full transition into the labour market is not always immediately feasible and these measures thus serve an important function in offering them a crucial stepping stone toward re-employment. However, once people are in this situation of part-time work while receiving an income top-up through the IGU or SPI system, they have limited financial incentive left to make the transition to full-time work. Our results in table 12 show that the loss of this allowance upon moving to full-time work results in a sharp increase in the PTFTR, effectively discouraging further career progression. This illustrates the delicate balance between facilitating entry into the labour market and ensuring that continued advancement remains financially worthwhile.

Table 12. Impact of reactivation measures on PTFTR by benefit receipt

Benefit receipt	No benefits	Social assistance	Unemployment benefits	*Total*
PTFTR without SPI/IGU	0.480	0.341	0.275	*0.494*
Impact of SPI on PTFTR	0.000	+0.221	+0.024	*+0.008*
Impact of IGU on PTFTR	0.000	+0.000	+0.232	*+0.006*
PTFTR with SPI/IGU	*0.480*	*0.563*	*0.530*	*0.508*

Source: Own calculations based on BELMOD and administrative data.

4.2.3. What are the profiles of those facing remarkably weak or strong financial work incentives?

In order to illustrate who the individuals most and least at risk of being trapped in part-time work are, we again carry out a hierarchical cluster analysis using Ward's Linkage. Around 4% of our part-time working sample faces a part-time to full-time tax rate above 70%. We thus adopt a slightly lower cut-off, as using the 75% threshold would have resulted in a sample too small to support a meaningful cluster analysis. Based on the resulting dendrogram, we identify four meaningful clusters within this group. Table 13 outlines the key socio-demographic characteristics of each cluster, while figure 7 highlights for each cluster the main income components that drive their PTFTR.

The first cluster, accounting for 16% of this group, outlines the profile of highly educated, high-income earning, divorced single mother living in Flanders. Paradoxically, it is precisely because of their strong earning potential that their financial incentive to move from part-time to full-time work is limited. This is due to a combination of high marginal tax rates and the loss of their favourable treatment as single parent, which reduces the net payoff of working additional hours. The average PTFTR in this cluster is 79%.

The second cluster, in which about a quarter of all individuals with a high PTFTR are classified, consists of low-educated, low wage single mothers. These women typically work only one or two days per week in blue collar jobs, but receive a top-up from either social assistance (SPI) or unemployment benefits (IGU) to supplement their limited earnings. While these allowances make their current situation of part-time work financially sustainable, they also create a strong disincentive to transition to full-time employment as increasing their working hours would lead to a loss of these income top-ups. Benefit withdrawal is thus the primary driver of their high part-time to full-time tax rates, which average around 84%.

The third cluster, which makes up another quarter of this group, is characterised by married women with children who work three to four days per week in a low-wage job. They have a partner who is employed and earning a sufficient income, putting them in the position of the second earner. As such, any move to full-time employment risks bringing on a sharp increase in their household's overall tax burden. While already relatively active in the labour market, there seems to be little financial gain to be made by increasing her working hours even more. Just over a quarter of the individuals in this cluster also receive an interruption allowance, likely linked to parental leave, which they would also lose upon the transition to full-time work. The average PTFTR in this cluster amounts to 80%.

The final cluster, representing 36% of the group, describes a distinct profile of an older woman, between the age of 55 and 64 years old, who is making use of a part-time time credit arrangement, likely in the context of informal care responsibilities. These women are medium-skilled, still working three to four days a week and earning a moderate income. Their earnings are partially supplemented by the interruption allowance linked to their time credit. They are either single or married to a spouse who are still working or already retired. The structure of this time credit, along with the tax implications of returning to full-time work, creates with an average PTFTR of 74% a clear disincentive to increase working hours .

As was the case for the participation tax rate, benefit withdrawal also play a central role in driving the high PTFTRs observed in our clusters. In many cases, part-time workers continue to receive top-up benefits, such as social assistance, unemployment benefits, interruption allowances or child benefits supplements, which would be reduced or even entirely withdrawn upon a move to full-time employment. In addition, the tax system also seems to be contributing substantially to these high PTFTRs, as increasing one's earnings can lead to disproportionally higher tax liabilities, especially for single parents and second earners.

Overall, these clusters reveal that the individuals facing a low incentive to take up full-time work do not necessarily have a weak attachment to the labour market. With the exception of cluster two, they are already working an average of three to four days a week. And it is even more remarkable that all four clusters are juggling work and care responsibilities. We identify single mothers, parents on parental leave and informal caregivers. These are individuals navigating the balance between paid employment and unpaid care. While their incentives to take up full-time work are clearly limited, our findings raise the broader question of whether this is an issue that, first of all, can be addressed, and, secondly, whether it should be.

Table 13. Socio-demographic characteristics of individuals with a high PTFTR by cluster

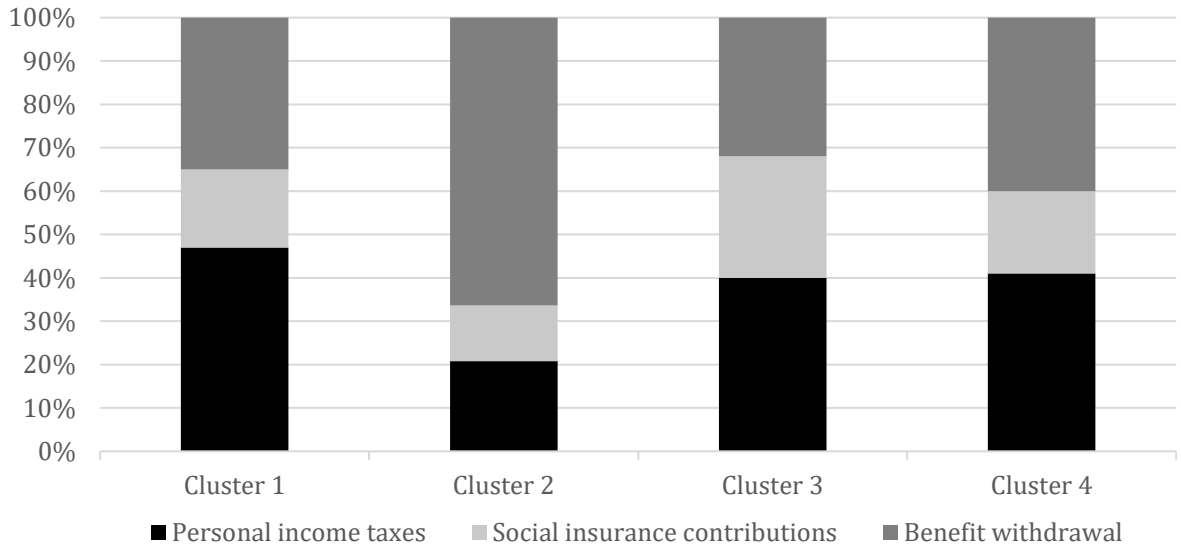
	Cluster 1	**Cluster 2**	**Cluster 3**	**Cluster 4**	**Total**
N	758 (16%)	890 (22%)	1,236 (26%)	944 (35%)	3,828 (100%)
Average PTR	0.79	0.84	0.80	0.74	0.79
Gender					
Female	**87%**	**80%**	**62%**	**59%**	69%
Male	13%	20%	38%	41%	31%
Level of education					
Missing	7%	31%	19%	4%	15%
Low education	3%	**22%**	20%	**36%**	23%
Medium education	26%	**31%**	**37%**	**45%**	37%
High education	**64%**	15%	**24%**	15%	25%
Age					
18-24 years	0%	0%	10%	0%	3%
25-34 years	4%	20%	**32%**	0%	14%
35-44 years	36%	**30%**	**25%**	2%	20%
45-54 years	**50%**	**39%**	21%	10%	26%
55-64 years	9%	10%	11%	**87%**	37%
Region					
Brussels	7%	15%	14%	5%	10%
Flanders	**66%**	**51%**	**58%**	**69%**	62%
Wallonia	27%	34%	28%	26%	29%
Citizenship					
Belgium	**94%**	**71%**	**80%**	**98%**	86%
EU	6%	17%	15%	2%	9%
Outside of EU	0%	13%	5%	0%	4%

Hourly wage quintile					
Bottom	3%	**60%**	**44%**	8%	28%
Lower middle	4%	14%	**23%**	14%	15%
Middle	10%	9%	14%	**36%**	20%
Higher middle	**39%**	11%	15%	**33%**	24%
Top	**44%**	6%	4%	9%	13%
Number of working hours					
1-2 days per week	16%	**49%**	11%	2%	17%
2-3 days per week	21%	28%	17%	**36%**	27%
3-4 days per week	**62%**	23%	**71%**	**62%**	56%
Type of employee					
Blue collar worker	4%	**55%**	**37%**	23%	31%
White collar worker	**62%**	37%	**48%**	**47%**	48%
Civil servant	34%	7%	14%	**29%**	21%
Individual benefit receipt					
No benefits	**63%**	16%	**59%**	5%	31%
Interruption allowance	**25%**	11%	**28%**	**91%**	46%
Unemployment benefits (IGU)	0%	**25%**	4%	4%	8%
Social assistance (SPI)	12%	**47%**	8%	0%	15%
Individual benefit generosity					
€ 0	0%	0%	**42%**	4%	13%
€1-€250	0%	6%	21%	**41%**	21%
€250-€500	6%	13%	17%	27%	18%
>€500	**93%**	**81%**	20%	28%	48%
Household benefit generosity					
€ 0	0%	0%	10%	0%	3%
€1-€500	2%	12%	22%	41%	23%
€500-€1000	51%	15%	32%	26%	29%
€1000-€1500	26%	28%	17%	8%	17%
€1500-€2000	11%	21%	8%	9%	12%
€2000-€2500	5%	10%	5%	7%	6%
>€2500	5%	15%	6%	8%	9%
Household type					
Single adult	0%	0%	2%	**24%**	9%
Single adult with dependent children	**68%**	**61%**	0%	0%	25%
Two adults	0%	0%	15%	**52%**	23%
Two adults with dependent children	28%	**36%**	**56%**	7%	30%
Multiple adults	0%	0%	12%	13%	8%
Multiple adults with dependent children	4%	2%	14%	4%	6%
Number of dependent children					
0 children	0%	0%	29%	89%	39%
1 child	3%	49%	26%	7%	21%
2 children	70%	30%	23%	2%	25%
3 or more children	27%	20%	22%	2%	15%
Marital status					
Missing	0%	5%	6%	0%	3%
Single	28%	33%	41%	19%	29%
Married	25%	33%	44%	56%	43%
Separated, divorced or widowed	47%	30%	9%	25%	25%
Household work intensity					
Single-earner household	**82%**	**92%**	22%	45%	55%
Dual-earner household	18%	8%	**78%**	**55%**	45%

Employment income of other household members					
€0	82%	92%	22%	45%	55%
€1-€500	4%	4%	6%	2%	4%
€500-€1000	3%	2%	6%	2%	3%
€1000-€2000	5%	2%	17%	9%	9%
€2000-€3000	4%	0%	19%	13%	10%
>€3000	2%	0%	29%	29%	18%
Benefit receipt of other household members					
No benefits	**74%**	**54%**	**46%**	**52%**	54%
Social assistance benefits	17%	39%	18%	2%	17%
Unemployment benefits	0%	2%	7%	5%	4%
Interruption allowance	0%	0%	8%	8%	5%
Sickness or disability benefits	2%	0%	6%	9%	5%
Pension benefits	2%	0%	2%	**16%**	7%
Combination of benefits	4%	5%	12%	9%	8%

Source: Own calculations based on BELMOD and administrative data. *Note*: Weighted percentages, unweighted N.

Figure 7. Decomposition of high PTFTRs into contributing factors (%) by cluster



Source: Own calculations based on BELMOD and administrative data.

Conversely, around 5.5% of part-time working individuals have a PTFTR below 25% and thus appear to have a clear financial incentive to work full-time, yet remain in part-time employment. To gain a deeper insight into this group, we once again conduct a hierarchical cluster analysis. Based on the resulting dendrogram, we identify three distinct and meaningful clusters. Table 14 presents the key socio-demographic characteristics of each cluster, while Figure 8 illustrates the relative contribution of taxes, social insurance contributions and benefit withdrawal to their part-time to full-time tax rates.

The first cluster, comprising just over a quarter of this group, is made up of young, childless individuals living together with at least one other adult. They work just one or two days per week on average in very low-paid jobs, with their earnings falling in the bottom wage quintile. Likely at the start of their careers, they appear to benefit from the financial support or stability offered by a cohabiting partner or roommate with a decent income. Because they are not receiving any benefits and earn little, they are not subject to benefit withdrawal or high marginal tax rates, resulting in relatively low PTFTRs.

The second cluster, which is by far the largest with 63%, again describes the profile of women who are working one or two days per week in very low-paid, blue collar jobs. In this cluster, however, they are married or cohabitating and have children. Their partner brings only a limited income to the table as well, either from work and/or benefits. Similarly, these women work very few hours at the bottom end of the wage distribution, leaving significant room to increase earnings without yet facing high marginal tax rates (thanks in part to measures like the work bonus). Yet, they remain in minimal part-time employment.

In both clusters, the average PTFTR is 16%. The individuals in these groups thus seem to be operating in a grey zone where working more is financially worthwhile, but is perhaps again constrained by other, non-financial barriers. Both clusters are for example disproportionally made up of low-educated, low-wage individuals, pointing to deeper, structural factors that are restricting their access to full-time opportunities, such as skills mismatch, lower job mobility or no access to a network.

The third cluster, only accounting for 10% of the group, presents a distinct profile: married women with at least three children who are the primary earners in their household. They work three to four days per week in low-wage jobs. As the main income providers and with a PTFTR of only 13%, these individuals have a clear financial incentive to increase their working hours. However, their current work pattern suggests that full-time employment might also simply be unfeasible due to the demands of a large family. The fact that they are already working relatively intensively implies that these women may be at or near the limits of what is practically possible, regardless of the incentives in place.

Table 14. Socio-demographic characteristics of individuals with a low PTFTR by cluster

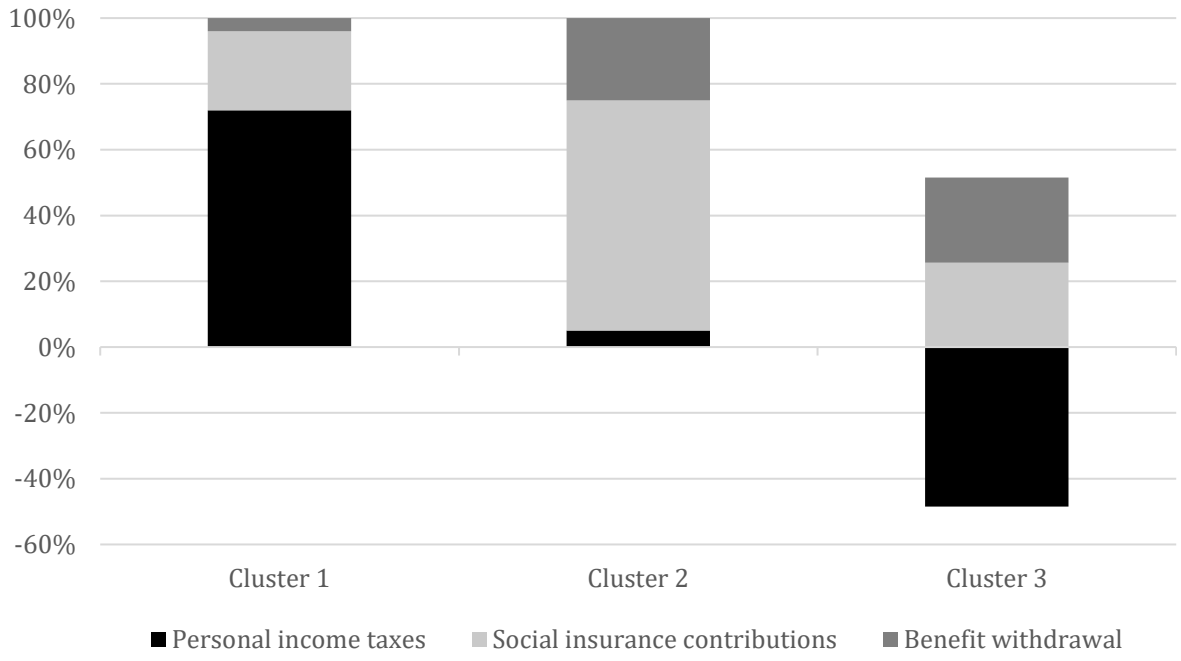
	Cluster 1	**Cluster 2**	**Cluster 3**	**Total**
N	1,402 (27%)	3,732 (63%)	981 (10%)	6,115 (100%)
Average PTR	0.16	0.16	0.13	0.16
Gender				
Female	**65%**	**77%**	**61%**	72%
Male	35%	23%	39%	28%
Level of education				
Missing	31%	38%	34%	36%
Low education	27%	27%	22%	26%
Medium education	33%	28%	27%	29%
High education	9%	7%	17%	9%
Age				
18-24 years	**32%**	5%	0%	12%
25-34 years	**54%**	**26%**	16%	**32%**
35-44 years	12%	**29%**	**53%**	**27%**
45-54 years	2%	**25%**	**29%**	19%
55-64 years	0%	14%	2%	9%
Region				
Brussels	22%	19%	21%	20%
Flanders	42%	45%	45%	44%
Wallonia	35%	36%	34%	35%
Citizenship				
Belgium	**68%**	**65%**	**71%**	66%
EU	21%	18%	13%	18%
Outside of EU	11%	17%	17%	16%

Hourly wage quintile				
Bottom	**94%**	**89%**	**54%**	87%
Lower middle	5%	8%	**21%**	9%
Middle	1%	2%	11%	3%
Higher middle	0%	1%	9%	1%
Top	0%	0%	5%	1%
Number of working hours				
1-2 days per week	**48%**	**52%**	23%	48%
2-3 days per week	35%	32%	31%	33%
3-4 days per week	16%	16%	**46%**	19%
Type of employee				
Blue collar worker	47%	**65%**	**56%**	59%
White collar worker	**53%**	34%	34%	39%
Civil servant	0%	1%	9%	2%
Individual benefit receipt				
No benefits	**97%**	**95%**	**84%**	94%
Interruption allowance	0%	1%	8%	1%
Unemployment benefits (IGU)	1%	2%	4%	2%
Social assistance (SPI)	2%	2%	4%	2%
Individual benefit generosity				
€ 0	90%	71%	3%	69%
€1-€250	6%	11%	0%	8%
€250-€500	4%	9%	0%	6%
>€500	1%	10%	97%	16%
Household benefit generosity				
€ 0	35%	20%	0%	22%
€1-€500	22%	25%	0%	22%
€500-€1000	10%	17%	21%	16%
€1000-€1500	8%	12%	33%	13%
€1500-€2000	7%	12%	21%	11%
€2000-€2500	5%	7%	14%	7%
>€2500	12%	7%	10%	8%
Household type				
Single adult	0%	14%	0%	9%
Single adult with dependent children	0%	6%	19%	5%
Two adults	**54%**	18%	0%	26%
Two adults with dependent children	0%	**50%**	**74%**	39%
Multiple adults	**26%**	6%	0%	11%
Multiple adults with dependent children	19%	6%	7%	10%
Number of dependent children				
0 children	**80%**	38%	0%	45%
1 child	10%	**23%**	0%	18%
2 children	6%	**23%**	0%	17%
3 or more children	4%	16%	**100%**	2%
Marital status				
Missing	0%	5%	6%	0%
Single	28%	33%	41%	19%
Married	25%	33%	44%	56%
Separated, divorced or widowed	47%	30%	9%	25%
Household work intensity				
Single-earner household	20%	46%	**62%**	41%
Dual-earner household	**80%**	**54%**	38%	59%

Employment income of other household members				
€0	20%	46%	**62%**	41%
€1-€500	8%	8%	14%	8%
€500-€1000	6%	6%	9%	6%
€1000-€2000	16%	14%	11%	14%
€2000-€3000	18%	15%	2%	15%
>€3000	**32%**	12%	2%	16%
Benefit receipt of other household members				
No benefits	**42%**	**51%**	**59%**	49%
Social assistance benefits	3%	2%	3%	2%
Unemployment benefits	14%	13%	11%	13%
Interruption allowance	1%	1%	2%	1%
Sickness or disability benefits	13%	16%	17%	15%
Pension benefits	8%	5%	0%	5%
Combination of benefits	19%	12%	9%	14%

Source: Own calculations based on BELMOD and administrative data. *Note*: Weighted percentages, unweighted N.

Figure 8. Decomposition of low PTFTRs into contributing factors (%) by cluster



Source: Own calculations based on BELMOD and administrative data.

4.3. The poverty trap

4.3.1. How pervasive are poverty traps really?

People may be discouraged from working because if the associated financial gain is too limited, but more broadly, they also may be discouraged if work does not provide a viable route out of poverty. This is referred to as the poverty trap, which is a situation in which individuals or households remain poor even after taking up work or increasing their work effort. In this final section, we examine whether full-time employment actually serves as an pathway out of poverty.

Table 15 presents the share of individuals in our non-working sample who are (not) at risk of poverty both in their current situation and under a counterfactual scenario in which they would work full-time. Poverty is measured using the standard at-risk-of poverty threshold, which is defined as 60% of median equivalised household income. We keep the poverty line fixed, which allows for a straightforward interpretation of the differences in poverty rates between baseline and counterfactual. In our sample, 54% of those who are not working are also living in poverty. However, after making the transition to full-time work, only 0.6% would remain in poverty. These findings confirm that full-time employment, in most cases, indeed is an effective route out of poverty. Although it is important to note that we are assuming predicted full-time earnings, which exceed the minimum wage for most. The picture may look very different for part-time employment or minimum wage jobs, where net earnings are substantially lower.

Table 15. At-risk-of-poverty matrix for transition from not-working to working full-time

		Poor when working full-time?		
		No	**Yes**	***Total***
Poor when not-working?	**No**	45.9%	0.1%	*46.0%*
	Yes	53.5%	0.5%	*54.0%*
	Total	*99.4%*	*0.6%*	*100.0%*

Source: Own calculations based on BELMOD and administrative data.

Table 16 presents the same poverty matrix for the individuals currently working part-time. In this group, only 6.6% are at risk of poverty in the baseline. After moving into full-time work, this number drops to only 0.6%. Again, transitioning to full-time appears to substantially reduce poverty. Poverty traps, at least when considering full-time work, are thus not widespread in Belgium. For the vast majority of individuals, full-time work would lift them out of poverty.

Table 16. At-risk-of-poverty matrix for transition from working part-time to working full-time

		Poor when working full-time?		
		No	**Yes**	***Total***
Poor when working part-time?	**No**	92.7%	0.0%	*92.7%*
	Yes	6.6%	0.6%	*7.2%*
	Total	*99.4%*	*0.6%*	*100.0%*

Source: Own calculations based on BELMOD and administrative data.

5. Conclusion

5.1. Discussion

This paper set out to reassess how pervasive and important dependency and poverty traps really are. For that purpose we have looked at Belgium, a country characterized by comparatively low employment rates on the one hand and comparatively high labour taxation and generous out of work benefits on the other hand. As such it is a prime case to study the role of financial incentives in explaining work outcomes. Using rich administrative data for Belgium, we have simulated participation tax rates (PTR) across the non-working population and part-time to full-time tax rates (PTFTR) across the part-time working population. Our findings challenge the dominant narrative about widespread dependency and poverty traps in both the public and policy discourse. In reality, we find that only 6% of those not-working and 2% of those working part-time face strong financial disincentives to take up full-time work, as defined by having a PTR or PTFTR above 75%.

Interestingly, our average PTR of 47% is considerably lower than those reported in earlier studies. Most compute PTRs based on either stylised profiles or the entire working-age population, assuming receipt of unemployment or social assistance benefits for everyone in the out-of-work scenario. In contrast, our analysis focused specifically on those who are actually not in work, of which a significant share receives little or no income replacement benefits. This is not to suggest that the Belgian tax-benefit system suddenly performs particularly well across the board or from a cross-country comparative perspective. Nevertheless, it is not obviously the case that individuals in Belgium are systematically trapped into inactivity or part-time work for reasons of facing a sizeable financial disincentive.

That said, the design of the tax-benefit system is crucial in shaping work incentives, and can lead to very different outcomes depending on individual and household characteristics. A closer evaluation of two key 'make work pay' policy instruments in Belgium highlights the inherent trade-offs involved.

Belgium has two in-work benefit schemes that are explicitly designed to facilitate the transition into part-time work by allowing benefit recipients to retain part of their benefit after taking up work, being the socio-professional integration (SPI) exemption and the income-guarantee allowance (IGU). These measures effectively strengthen incentives to take up part-time work. However, because these benefits are withdrawn as people increase their hours, they also create substantial disincentives to move from part-time to full-time work. In other words, what solves a problem at one margin can create a new one at the other.

As most modern welfare states, Belgium also has tax relief on low wages, called the workbonus. To prevent individuals from reducing their number of hours worked in order to qualify, this tax advantage is not based on total income. Instead, it is calculated on an hourly basis, substantially strengthening incentives at both margins. In fact, while studies for other countries find that those with the lowest incomes face the weakest work incentives, our results suggest that in Belgium, thanks to the workbonus, this group actually has some of the strongest financial incentives to work both at the extensive and intensive margin. Yet, here too, trade-offs emerge. As the workbonus is still paid at relatively high wage levels, its gradual phase-out may reduce the net financial gain from wage increase for those higher up the earnings distribution. Furthermore, its impact on poverty is limited as overall budget of the workbonus is modest and much of it flows to households in the middle of the income distribution.

Taken together, our findings confirm just how delicate a balancing act it is to design a tax-benefit system that performs optimally in terms of work incentives, both at the extensive and intensive margin, as well as poverty reduction.

Our cluster analysis adds another layer to the picture. Although the individuals facing low incentives to work are a diverse group, one profile consistently stands out: single mothers. They account for nearly half of those with high PTRs and PTFTRs. And this is true even before taking childcare costs into account, which would weaken their already fragile work incentives even more. Given that single mothers record one of the highest poverty risks in society, are highly responsive to financial work incentives *and* have more than doubled in number in recent decades, they should be a key focus for policy makers' attention.

Sometimes, however, the line between the profiles of those with high and low incentives can also be surprisingly thin, with a single feature such as benefit receipt, the presence of children or earnings potential tipping the balance. The fact that there are certain profiles, such as those with a migration background or care responsibilities, showing up on both ends of the spectrum suggests that for some there may be another overarching reason for not working full-time that goes beyond the realm of financial incentives.

Our analysis thus also reminds us that financial incentives alone, while important, do not fully explain individuals' participation in the labour market. Many individuals also face structural barriers to employment, regardless of their willingness to work. These can include, among others, limited access to affordable childcare or transport, health problems, lack of qualifications or experience, non-recognition of foreign degrees, no access to a network or personalised support, discrimination, scarring effect of long-term unemployment or insufficient knowledge of the language. All these together determine the extent to which individuals are able to work, or their employability, and are a crucial piece of the puzzle too. Most individuals actually face a combination of at least two structural barriers related to work readiness, work availability and work incentives (Fernandez et al., 2020; Fernandez et al., 2016; Immervoll et al., 2019). A narrow focus on work incentives is therefore unlikely, on its own, to produce the desired effect on overall employment. In short, our findings call for a more nuanced policy discourse: one that truly enables people to work, not just expects them to.

5.2. Limitations

We conclude by reflecting on some of the limitations of our study, many of which are shared by other studies on financial work incentives. While these limitations are important to acknowledge, they also open up promising avenues for future research.

First, our analysis focuses exclusively on monetary income components, being wages, taxes and benefits. Yet, in practice, some individuals also risk losing their non-monetary benefits when they take up work or increase their working hours, including social housing, reduced utility tariffs, subsidized health care or free public transport. These in-kind advantages can carry substantial value, particularly for low-income households (Paulus et al., 2010; Verbist & Grabka, 2017). Their withdrawal may thus significantly alter the financial gain from employment. Similarly, there are certain costs associated with working, such as the childcare or commuting expenses, that are not accounted for in our calculations. As mentioned before, they can also weigh on an individual's incentive to work, especially for certain groups such as single parents or second earners (Frederickx et al., 2025; Immervoll & Barber, 2006).

Second, our simulations assume that people transition into standard and stable full-time employment, an assumption that might not hold true for everyone. Especially those furthest from the labour market often cycle in and out of precarious and atypical forms of employment (Carpentier et al., 2017; Scott et al., 2004). This introduces uncertainty, income volatility and timing issues in their lives, which can highly affect both actual and perceived incentives to work (Millar & Whiteford, 2020; Trlifajová & Hurrle, 2019).

This also ties in with a broader critique of the entire literature on financial incentive to work, which is still based on the assumption of the homo economicus. In reality, many individuals have only a limited understanding of how the tax-benefit system operates and may struggle to assess the financial consequences of entering or increasing work (Babcock et al., 2012). Moreover, people tend to overvalue potential losses relative to gains, which may lead them to avoid taking up work simply because of the perceived risk of losing their current benefits (Kahneman & Tversky, 1979). These psychological biases are difficult to capture in microsimulation models such as ours, but are central to understanding the real-world situation nonetheless.

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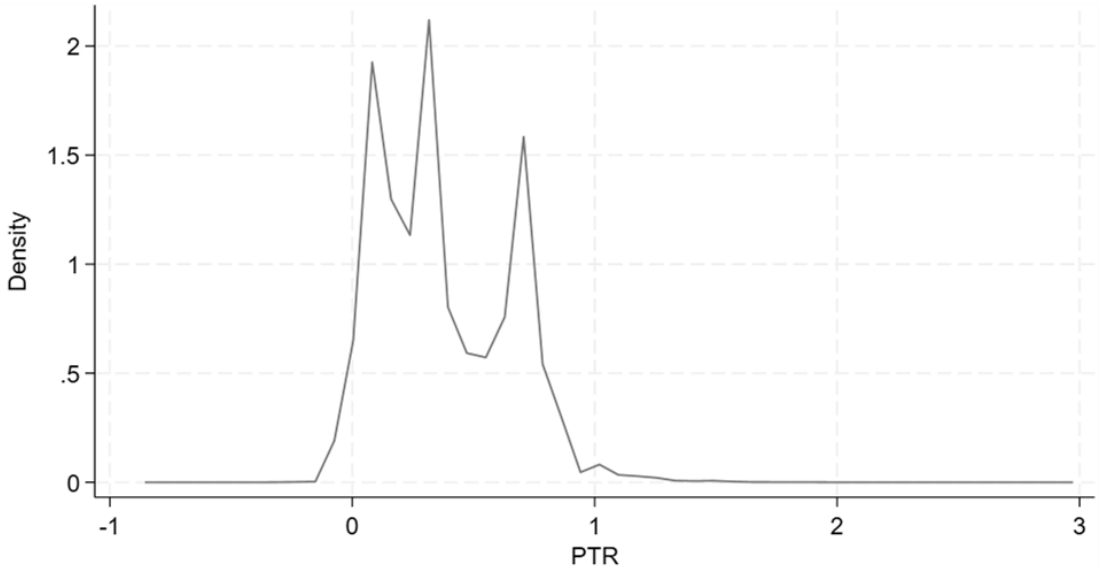
Appendix

Figure A 1. Kernel density plot of PTR at the minimum wage



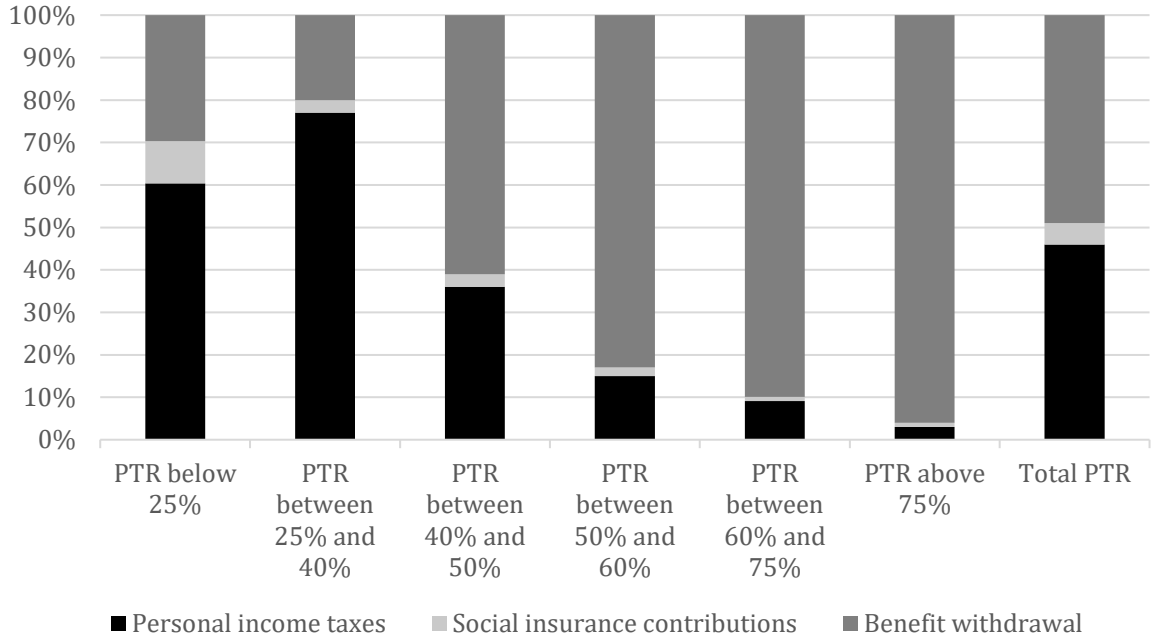
Source: Own calculations based on BELMOD and administrative data. *Note*: We assume now that all individuals enter work at the statutory minimum wage in Belgium.

Table A 1. Share of individuals facing low work incentives by PTR threshold at the minimum wage

Threshold	Relative frequency (%)
PTR above 65%	24.8%
PTR above 70%	11.5%
PTR above 75%	7.3%
PTR above 80%	5.0%
PTR above 85%	3.4%
PTR above 90%	1.9%

Source: Own calculations based on BELMOD and administrative data. *Note*: Weighted percentages.

Figure A 2. Decomposition of PTR into contributing factors (%) by PTR level at the minimum wage



Source: Own calculations based on BELMOD and administrative data.

Table A 2. Distribution of the net change in disposable household income upon transition from not-working to working full-time at the minimum wage

Net change in disposable household income from not-working to working	Relative frequency (%)
Loss	1,4%
Gain between €1 and €500	4,1%
Gain between €500 and €1000	24,3%
Gain between €1000 and €1500	18,3%
Gain between €1500 and €2000	33,6%
Gain above €2000	18,2%

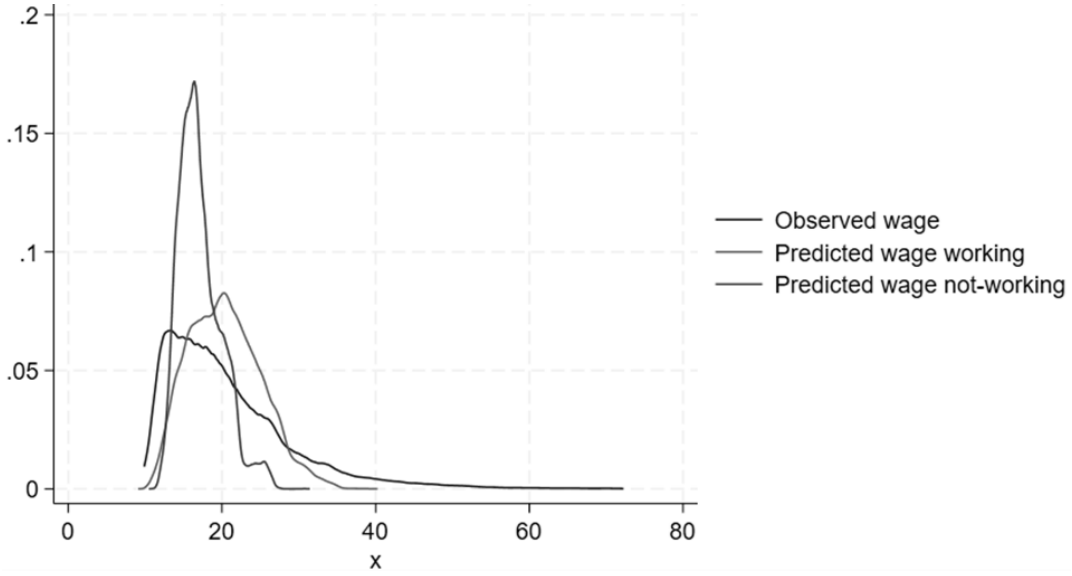
Source: Own calculations based on BELMOD and administrative data.

Table A 3. Average net gain in disposable household income upon transition from not-working to working full-time at the minimum wage

Average monthly net gain in disposable household income from not-working to working		
By benefit status	No benefit	€1.800
	Unemployment benefit	€928
	Social assistance	€837
By household type	Single adult	€1.164
	Single parent	€981
	Couple	€1.514
	Couple with children	€1.451

Source: Own calculations based on BELMOD and administrative data.

Figure A 3. Kernel density plot of observed and predicted wages



Source: Own calculations based on BELMOD and administrative data.

Table A 4. Heckman selection earnings equation for men

	Coefficient	Std. error	p>|z|
Hourly wage regression			
Age	0.017	0.000	0.000
Age^2	-0.000	0.000	0.000
(Primary education)	0.074	0.004	0.000
Lower secondary education	-	-	-
Upper secondary education	0.114	0.004	0.000
Post secondary education	0.301	0.004	0.000
Missing level of education	0.095	0.004	0.000
(Belgian citizenship)	-	-	-
Missing migrant status	-0.122	0.023	0.000
EU citizenship	0.033	0.003	0.000
Citizenship from outside EU	-0.048	-0.004	0.000
(Brussels)	-	-	-
Flanders	0.021	0.003	0.000
Wallonia	-0.003	0.003	0.272
(Private blue collar contract)	-	-	-
Private white collar contract	-0.012	0.008	0.163
Public contract	0.185	0.008	0.000
Public statutory contract	0.086	0.009	0.000
Other contract	0.214	0.009	0.000
Nace 1	-0.249	0.010	0.000
Nace 2	0.078	0.022	0.000
Nace 3	0.099	0.003	0.000
Nace 4	0.219	0.008	0.000
Nace 5	-0.032	0.006	0.000
Nace 6	0.044	0.003	0.000
Nace 7	-0.083	0.003	0.000
Nace 8	-0.093	0.003	0.000
Nace 9	-0.121	0.004	0.000
Nace 10	0.032	0.004	0.000
Nace 11	0.114	0.005	0.000
Nace 12	-0.124	0.010	0.000
Nace 13	-0.004	0.004	0.366
(Nace 14)	-	-	-
Nace 15	-0.046	0.004	0.000
Nace 16	-0.015	0.004	0.000
Nace 17	-0.108	0.004	0.000
Nace 18	-0.064	0.006	0.000
Nace 19	-0.085	0.006	0.000
Nace 20	-0.398	0.034	0.000
Nace 21	-0.014	0.023	0.538
Constant	2.252	0.013	0.000
Employment regression			
Age	0.075	0.003	0.000
Age^2	-0.001	0.000	0.000
(Primary education)	-	-	-
Lower secondary education	0.149	0.157	0.000
Upper secondary education	0.270	0.015	0.000
Post secondary education	0.243	0.015	0.000
Missing level of education	-0.206	0.016	0.000
(Belgian citizenship)	-	-	-

Missing migrant status	-0.215	0.074	0.004
EU citizenship	-0.619	0.011	0.000
Citizenship from outside EU	-0.356	0.013	0.000
Regional unemployment rate	-8.484	0.116	0.000
Presence of partner	0.300	0.009	0.000
Number of children below 3y	0.060	0.010	0.000
Number of children between 3y and 6y	-0.011	0.009	0.182
Number of children above 6y	0.006	0.003	0.073
Other income in household	0.118	0.007	0.000
Employment income of other individuals in household	0.132	0.003	0.000
Social assistance benefit receipt	-0.818	0.018	0.000
Unemployment benefit receipt	-0.480	0.010	0.000
Constant	-0.026	0.047	0.584
Parameters			
Rho	-0.292	0.008	
Sigma	0.295	0.001	
Lambda	-0.086	0.003	

Source: Own calculations based on BELMOD and administrative data. *Note*: Wald test of independent equations (rho = 0): chi2(1) = 686.26 with probability > chi2 = 0.0000.

Table A 5. Heckman selection earnings equation for women

	Coefficient	**Std. error**	**p>|z|**
Hourly wage regression			
Age	0.012	0.000	0.000
Age^2	-0.000	0.000	0.000
(Primary education)	0.026	0.004	0.000
Lower secondary education	-	-	-
Upper secondary education	0.081	0.004	0.000
Post secondary education	0.288	0.004	0.000
Missing level of education	0.111	0.004	0.000
(Belgian citizenship)	-	-	-
Missing migrant status	-0.125	0.026	0.000
EU citizenship	0.014	0.003	0.000
Citizenship from outside EU	-0.023	0.004	0.000
(Brussels)	-	-	-
Flanders	-0.024	0.002	0.000
Wallonia	-0.037	0.002	0.000
(Private blue collar contract)	-	-	-
Private white collar contract	-0.159	0.007	0.000
Public contract	0.077	0.007	0.000
Public statutory contract	0.052	0.007	0.000
Other contract	0.173	0.007	0.000
Nace 1	-0.097	0.012	0.000
Nace 2	0.203	0.047	0.000
Nace 3	0.164	0.003	0.000
Nace 4	0.258	0.011	0.000
Nace 5	0.157	0.011	0.000
Nace 6	0.017	0.006	0.005
Nace 7	-0.063	0.003	0.000
Nace 8	0.095	0.004	0.000
Nace 9	0.078	0.004	0.000

Nace 10	0.163	0.005	0.000
Nace 11	0.182	0.004	0.000
Nace 12	-0.009	0.008	0.254
Nace 13	0.075	0.003	0.000
(Nace 14)	-	-	-
Nace 15	0.056	0.003	0.000
Nace 16	0.086	0.003	0.000
Nace 17	0.092	0.002	0.000
Nace 18	0.046	0.005	0.000
Nace 19	0.059	0.004	0.000
Nace 20	-0.207	0.015	0.000
Nace 21	0.149	0.020	0.000
Constant	2.287	0.012	0.000
Employment regression			
Age	0.144	0.002	0.000
Age^2	-0.002	0.000	0.000
(Primary education)	-	-	-
Lower secondary education	0.268	0.014	0.000
Upper secondary education	0.579	0.013	0.000
Post secondary education	0.986	0.013	0.000
Missing level of education	0.017	0.014	0.222
(Belgian citizenship)	-	-	-
Missing migrant status	-0.450	0.080	0.000
EU citizenship	-0.431	0.010	0.000
Citizenship from outside EU	-0.788	0.012	0.000
Regional unemployment rate	-5.665	0.099	0.000
Presence of partner	-0.111	0.008	0.000
Number of children below 3y	-0.235	0.008	0.000
Number of children between 3y and 6y	-0.183	0.007	0.000
Number of children above 6y	-0.131	0.003	0.000
Other income in household	-0.088	0.006	0.000
Employment income of other individuals in household	0.054	0.002	0.000
Social assistance benefit receipt	-0.867	0.017	0.000
Unemployment benefit receipt	-0.377	0.011	0.000
Constant	-1.464	0.046	0.000
Parameters			
Rho	-0.2356	0.0099	
Sigma	0.2521	0.0005	
Lambda	-0.0593	0.0026	

Source: Own calculations based on BELMOD and administrative data. *Note*: Wald test of independent equations (rho = 0): chi2(1) = 388.01 with probability > chi2 = 0.0000.

Table A 6. Distribution of the net change in disposable household income upon transition from not-working to working full-time at the predicted wage

Net change in disposable household income from not-working to working	Relative frequency (%)
Loss	0.8%
Gain between €1 and €500	1.6%
Gain between €500 and €1000	13.2%
Gain between €1000 and €1500	17.8%
Gain between €1500 and €2000	28.5%
Gain above €2000	38.1%

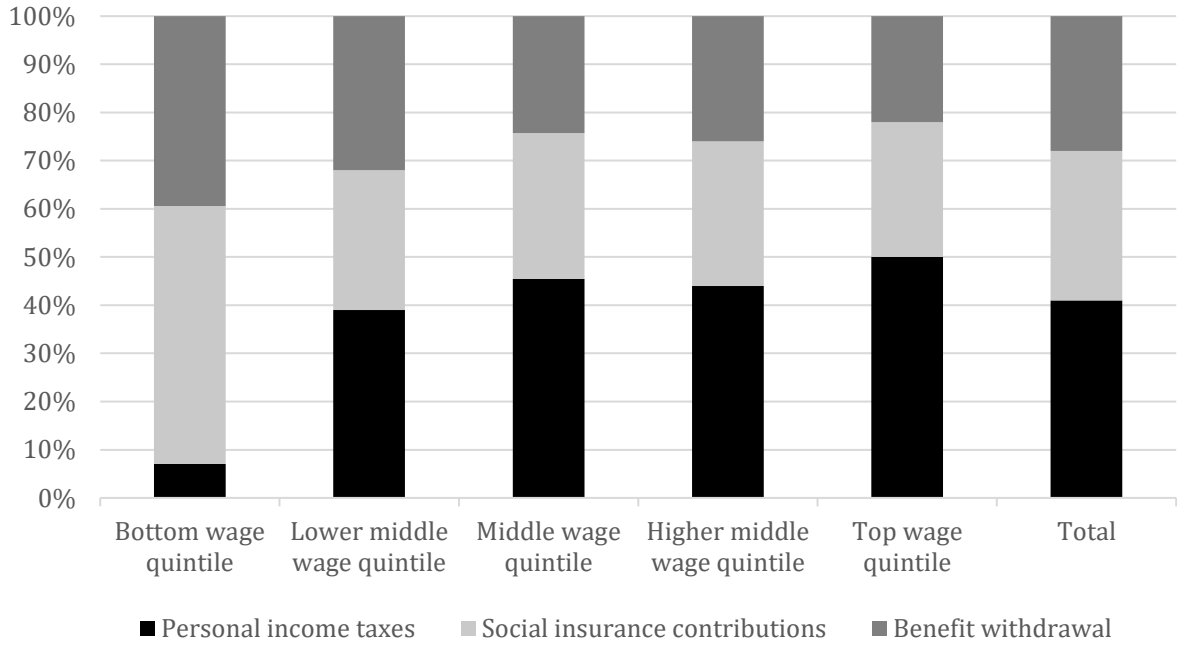
Source: Own calculations based on BELMOD and administrative data.

Table A 7. Average net gain in disposable household income upon transition from not-working to working full-time at the predicted wage

Average monthly net gain in disposable household income from not-working to working		
By hourly wage quintile	Bottom	€1,562
	Lower middle	€1,630
	Middle	€1,689
	Higher middle	€1,846
	Top	€2,207
By benefit status	No benefit	€2,125
	Unemployment benefit	€1,302
	Social assistance	€1,166
By household type	Single adult	€1,501
	Single parent	€1,206
	Couple	€1,877
	Couple with children	€1,785

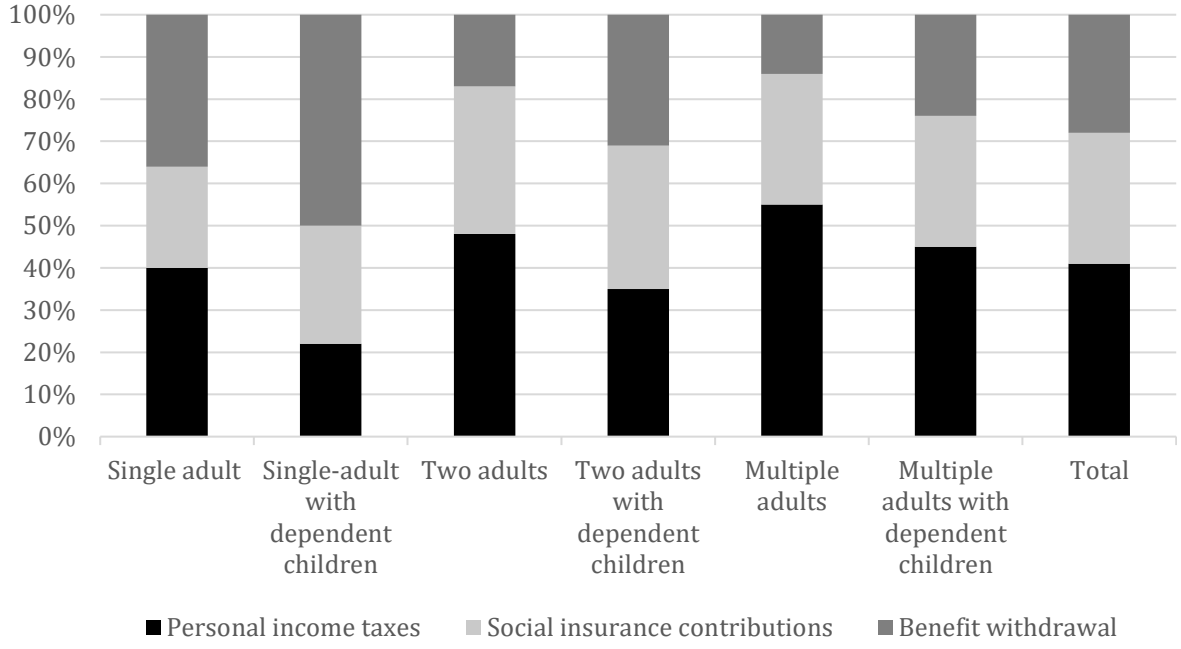
Source: Own calculations based on BELMOD and administrative data.

Figure A 4. Decomposition of PTR into contributing factors (%) by predicted wage quintile



Source: Own calculations based on BELMOD and administrative data.

Figure A 5. Decomposition of PTR into contributing factors (%) by household type



Source: Own calculations based on BELMOD and administrative data.

Table A 8. Distribution of the net change in disposable household income upon transition from working part-time to working full-time

Net change in disposable household income from working part-time to working full-time	Relative frequency (%)
Loss	0.2%
Gain between €1 and €250	3.7%
Gain between €250 and €500	28.8%
Gain between €500 and €1000	42.1%
Gain between €1000 and €1500	17.9%
Gain above €1500	7.1%

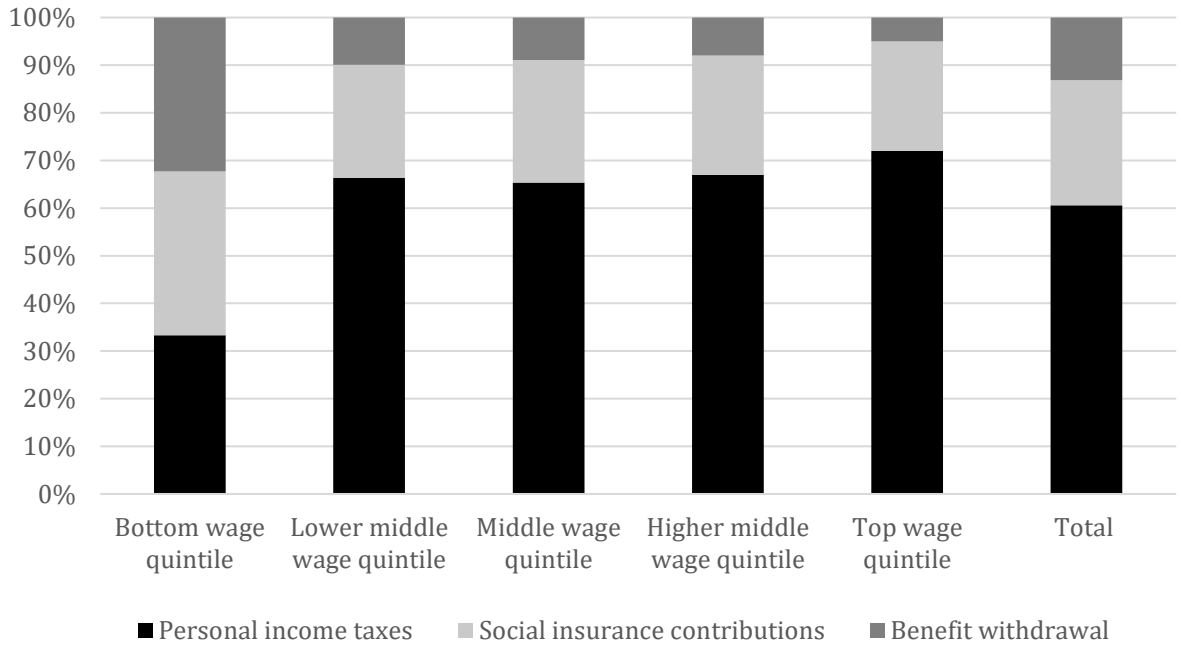
Source: Own calculations based on BELMOD and administrative data.

Table A 9. Average net gain in disposable household income upon transition from working part-time to working full-time

Average monthly net gain in disposable household income from working part-time to working full-time		
By hourly wage quintile	Bottom	€742
	Lower middle	€655
	Middle	€635
	Higher middle	€707
	Top	€1,257
By benefit type	No benefits	€847
	Interruption allowance	€985
	Unemployment benefits (IGU)	€837
	Social assistance (SPI)	€738
By household type	Single adult	€930
	Single parent	€723
	Couple	€865
	Couple with children	€875

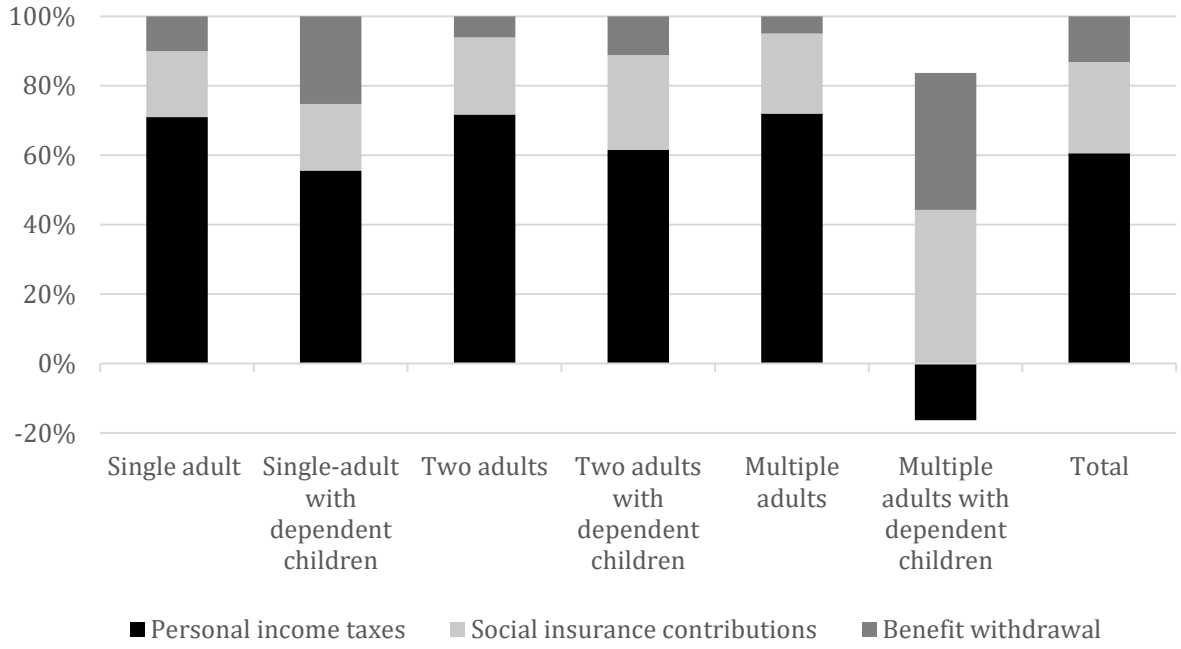
Source: Own calculations based on BELMOD and administrative data.

Figure A 6. Decomposition of PTFTR into contributing factors (%) by wage quintile



Source: Own calculations based on BELMOD and administrative data.

Figure A 7. Decomposition of PTFTR into contributing factors (%) by household type



Source: Own calculations based on BELMOD and administrative data.