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Escaping the Inactivity Trap? The Work Incentive of the Spanish Minimum Income

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Escaping the Inactivity Trap? The Work Incentive of the Spanish Minimum Income¹

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Abstract

The Spanish Minimum Income scheme, introduced in 2020, offers beneficiaries a unique national guaranteed income as a last-resort benefit. However, the scheme's design featured a lack of work incentives for low earners, potentially leading to inactivity traps. To address this flaw the Spanish government introduced an earnings disregard in 2022, enabling beneficiaries to keep all or part of the benefit when their earnings increase up to a certain limit. This paper provides an *ex ante* assessment of this reform, looking into its expected fiscal, distributional and labour market effects using the tax–benefit microsimulation model EUROMOD, and the behavioural labour supply model EUROLAB. Our results show that the reform has the potential to incentivise work for very low earners, particularly lone parents, mainly by promoting part-time employment. The reform and its subsequent employment effects are also expected to slightly reduce inequality and poverty. While this is a step in the right direction, we discuss some avenues for improvement.

JEL codes: H31, I38, J22, C63

Keywords: Minimum income schemes, work incentives, tax–benefit microsimulation, EUROMOD, EUROLAB

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1. Introduction

Minimum Income (MI) protection is widely implemented across the European Union (EU). All EU Member States provide some sort of MI scheme to help guarantee households' living standards, setting an income floor – commonly referred to as guaranteed MI – to meet the most basic economic needs (Coady et al., 2021). Despite their heterogeneous effects across Member States, MI schemes help alleviate the incidence and intensity of poverty (Almeida et al., 2025; Figari et al., 2013) and complement other automatic stabilizers in cushioning the effects of abrupt negative income shocks (Eichhorst et al., 2023), such as the one experienced during the COVID-19 crisis (Gasior et al., 2024). In supporting households' income, however, MI schemes may create financial disincentives to take up jobs or to increase the number of hours worked, just like other out-of-work benefits. The labour supply disincentives potentially introduced by MI schemes are the economic problem on which this paper focuses, by examining a reform of the Spanish MI scheme that aims to incentivize work.

In Spain, a key policy response to mitigate economic vulnerability, particularly during the COVID-19 crisis, was the introduction in 2020 of the *Ingreso Mínimo Vital* (Minimum Vital Income), a nationwide MI scheme. This scheme was designed to, among other purposes, address the shortcomings of pre-existing regional MI schemes managed by the different Autonomous Communities in Spain (Hernández et al., 2022). Despite its importance as a part of Spain's social safety net, the nationwide scheme's design also had limitations (Ayala et al., 2022). Among them was the lack of work incentives for low earners, leading to potential inactivity traps. To address this flaw, the Spanish government revised the MI scheme in September 2022 by introducing an earnings disregard. Before the introduction of the new measure, MI beneficiaries faced a marginal effective tax rate of 100 % up to the guaranteed MI, i.e. every additional euro earned from work would be deducted from the benefit. However, the 2022 reform tapers the benefit withdrawal, allowing beneficiaries who increase their labour earnings up to a certain threshold to keep all or part of the benefit amount. Similar mechanisms to mitigate potential labour supply disincentives exist in many EU MI schemes, including those of Belgium, Estonia, Greece, Italy and Finland (Coady et al., 2021).

In this paper, we use individual microdata representative of Spain's population to provide an *ex ante* assessment of the Spanish nationwide MI reform, examining its fiscal, distributional and labour supply effects. The reform aligns with the principles of 'make work pay' policies, aiming to strike a balance between alleviating poverty and maintaining work incentives (Bargain and Orsini, 2006; Immervoll and Pearson, 2009; Magnani & Piccoli, 2020). This goal is important given Spain's labour market dysfunctionalities (Dolado et al., 2021), including high (long-term) unemployment, elevated rate of fixed-term contracts, involuntary part-time jobs and in-work poverty (Halleröd et al., 2015), all regularly standing above the Euro Area average ⁽²⁾. Moreover, Spanish workers contend with a high rate of atypical jobs, surpassed in the EU only by the rate in Greece (Jara Tamayo and Tumino, 2021). In this context, non-contributory types of social protection such as MI schemes gain importance for sheltering individuals with low attachment to the labour market, compared with unemployment insurance benefits that typically require contribution periods.

⁽²⁾ Based on Eurostat's data from the Labour Force Survey and the EU Statistics on Income and Living Conditions.

How may MI schemes impact recipients' labour supply decisions? Non-working MI recipients face a two-stage labour supply choice that affects their MI eligibility: first, whether to accept a job offer (extensive margin), and, once accepted, how many hours to work (intensive margin). In this paper, we employ the tax-benefit microsimulation model EUROMOD (Sutherland and Figari, 2013), in combination with the behavioural labour supply model EUROLAB (Narazani et al., 2023), to quantify labour supply responses at both these margins. EUROMOD enables the simulation of tax-benefit reforms for all EU countries and the assessment of static and non-behavioural effects of policy changes, often referred to as first-order effects. EUROLAB allows us to estimate individual changes in labour market participation and hours of work in response to a reform, often referred to as second-order effects. EUROLAB relies on EUROMOD to simulate the budget constraint sets for different labour supply alternatives, following the literature on discrete choice labour supply modelling (Aaberge et al., 1995; van Soest, 1995). In addition, EUROLAB allows us to factor in labour demand, with its elasticity affecting employment levels and wage rates at the equilibrium. Both models run on EU Statistics on Income and Living Conditions (EU-SILC) microdata on individuals and households, enabling us to study labour supply responses and distributional effects across different population groups.

Our results show that the work incentive reform is expected to trigger positive labour supply reactions, concentrated in low-income households. In particular, lone parents benefit the most, because of the favourable treatment of the reform. The strongest labour supply responses arise from part-time work, as full-time employment disqualifies most households for the earnings disregard. Taking labour demand into account moderates the employment effects but does not cancel them. While the positive employment effects result in a small revenue increase through slightly higher taxes and social insurance contributions, this increase does not fully counterbalance the expenditure increase. The reform also slightly reduces inequality and poverty. Nonetheless, our estimates should be interpreted as upper bounds, given the existing high non-take-up rate of the nationwide MI scheme, and reflect short-term effects, as the earnings disregard ends two years after its first application.

The paper makes three main contributions. First, to our knowledge, it is the first to provide an assessment of Spain's earnings disregard in the nationwide MI scheme, taking into consideration its expected fiscal, distributional and labour supply effects using microdata representative of Spain's population. Thus, our paper adds to the results of OECD (2023) obtained with hypothetical data. In meeting this objective, it contributes to the literature on tax-benefit policies for preserving work incentives, similarly in essence to existing studies on Spain (Ayala and Paniagua, 2019; Fuenmayor et al., 2024; Labeaga et al., 2008; Oliver and Spadaro, 2017) and on other Member States (Coda Moscarola et al., 2020; Collado et al., 2019; Colombino et al., 2010; Jara and Tumino, 2013). Second, our modelling provides updated estimates of labour supply elasticities for different groups of the Spanish population, estimates that can be used by researchers to calibrate parameters for other policy reforms or in general equilibrium models. To our knowledge, the most recent labour supply elasticity estimates for Spain were produced several years ago (Bargain et al., 2014; Labeaga et al., 2008; Oliver and Spadaro, 2017) and refer to old data (e.g. 2006 EU-SILC data, as in Oliver and Spadaro, 2017). Third, our results can guide policymakers to improve the design of work incentive mechanisms to target the population in need.

The text is organised as follows. Section 2 reviews the related literature on the potential work disincentives associated with MI protection. Section 3 describes the Spanish nationwide MI scheme and its earnings disregard reform. Section 4 explains the modelling tools and Section 5 presents the results. Section 6 concludes.

2. Related literature

Economists have long considered how tax–benefit policies affect individuals’ decisions to work. An ample body of literature explores the labour supply (dis)incentives of a large variety of tax–benefit policies (Coda Moscarola et al., 2020; Lehmus, 2014; Paulus and Peichl, 2009; Prifti et al., 2019). This literature has gained increasing attention since the early 2000s in light of a growing interest in ‘make work pay’ policies (Laun, 2019; Pearson and Scarpetta, 2000). The interest in work-conditional policies stems from the aim to limit design-embedded disincentives created by tax–benefit policies and, ultimately, to reduce unemployment and in-work poverty (Immervoll and Pearson, 2009).

A strand of studies indicates that MI protection can create work disincentives, with tax–benefit microsimulation and structural labour supply modelling revealing that MI schemes often lead to negative labour supply effects (Aaberge and Colombino, 2014). In Italy, a guaranteed MI would cause modest negative labour supply responses and underperform in welfare terms compared with non-means-tested schemes, like basic income (Colombino and Narazani, 2013). Similarly, in France, MI beneficiaries would generally be better off employed, but their income gains and work incentives would be minimal (Gurgand and Margolis, 2008). In Austria, a 2019 reform to reduce MI benefits for families with children and migrants would result in increased labour supply, especially among migrants, although this group has a lower job-finding likelihood due to labour demand bias (Christl and De Poli, 2021).

Another strand of studies - based on *ex post* experimental or quasi-experimental methodology - find more mixed results, often indicating non-significant or modest negative employment effects of MI protection. These studies typically consider both labour supply and demand effects, as well as other factors affecting MI beneficiaries’ employment decisions, such as job seeking clauses or activation policies. For instance, the MI scheme implemented in Italy in 2019 showed no significant labour disincentives, except in provinces with weak labour demand (Busilacchi and Fabbri, 2024), and activation measures limited work disincentives (Maitino et al., 2024). Similarly, Bargain and Doorley (2011) found modest negative employment effects for uneducated single males under the French MI scheme, but no significant effects for more educated individuals.

In response to potential design-embedded monetary disincentives, in-work mechanisms have often been incorporated to MI schemes to allow combining work and benefit receipt. The introduction of an earnings disregard in Finland’s social assistance increased job-taking incentives (Hiilamo and Kautto, 2008), although effects were smaller than expected, possibly due to labour demand shortages. Similarly, Palviainen (2023) observed no significant employment effects on average from the same reform but noted positive outcomes for women. In the Netherlands, an earnings disregard aimed at encouraging single mothers’ participation boosted employment among single immigrant mothers, a group facing particularly weak labour market attachment and rarely targeted by activation policies compared with single native mothers (Knoef and van Ours, 2016).

Regarding the situation in Spain, to our knowledge, studies estimating the employment effects of Spain's MI schemes are scarce. De la Rica and Gorjón (2019), using an *ex post* approach, show that the regional MI scheme of the Basque Country does not delay entry into employment on average, although it does so for specific groups such as young and less educated individuals ⁽³⁾. A simulation of the same MI reform that we analyse in this paper using hypothetical data found that the reform decreases participation tax rates, particularly for taking up part-time jobs (OECD, 2023). More broadly, other studies have assessed the potential labour supply effects of work-conditional policy proposals in Spain. Labeaga et al. (2008) find modest labour supply effects when assessing a set of income tax reforms, including a basic income–flat tax design, due to relatively small labour supply elasticities. Oliver and Spadaro (2017) find a significant increase in female labour supply, particularly among low-income earners as a result of a reform that expands the coverage of an in-work tax credit for mothers with children. In a similar vein, Ayala and Paniagua (2019) show that introducing an in-work tax credit, inspired by Saez's (2002) optimal design of an earned income tax credit, would induce positive labour supply responses, particularly among non-working mothers at the extensive margin, although it would also reduce work intensity from full-time to part-time work. Lastly, Fuenmayor et al. (2024) find a slight increase in labour supply and positive distributional consequences when replacing several non-contributory benefits with a negative income tax in a budget-neutral manner.

3. The Spanish Minimum Income Scheme

The tax–benefit system in Spain is largely decentralised, with many benefits and taxes overseen by the regional governments. When the Spanish national MI scheme was introduced, several regional MI programmes already existed (the *Rentas Mínimas de Inserción*, in Spanish). Looking to strengthen the social safety net of the country in a homogeneous way, the central government implemented the national MI scheme in 2020 (Hernández et al., 2022). In line with the goal of similar schemes in the EU (Almeida et al., 2025; Coady et al., 2021; Figari et al., 2013), Spain's nationwide MI scheme is a last-resort benefit that provides beneficiaries with a unique national guaranteed MI to cover their most basic economic needs.

The national MI scheme is a non-contributory means-tested benefit, and works as a top-up to the level of the guaranteed MI, taking into account the total income of the assessment unit before the benefit. The assessment unit is defined as a subgroup of the household linked by family relationships. Beneficiaries receive a benefit amount equal to the difference between the guaranteed MI amount and their income. The income considered for the means test is the disposable income of the assessment unit, excluding amounts received from regional MI schemes (the regional schemes complement the nationwide MI) and dependency, housing and educational benefits. The guaranteed MI is updated yearly, and in 2023 the amount for a one-person household stood at EUR 6 784.44 per year, increasing with each additional member and for lone parents. The assessment unit's assets are also taken into account, and the upper threshold of asset value for benefit eligibility is equal to three times the yearly guaranteed MI amount for a one-person household (increasing with each additional member), excluding the value of the main residence. For the calculation of the benefit in year t , the means test considers the income and assets of the assessment unit in year $t - 1$. Other eligibility criteria include a minimum age

⁽³⁾ Notably, the Basque Country's MI scheme is recognised as one of the most developed regional MI schemes in Spain, incorporating mechanisms that allow benefit and earnings receipt (Zalakain, 2015).

requirement, legal residence in the country for at least a year, a minimum period living independently and mandatory application to all other benefits to which the potential beneficiary is entitled, and more ⁽⁴⁾.

The initial design of the MI scheme had shortcomings (Ayala et al., 2022), one of which is the focus of this paper: the labour supply disincentive for low-income earners. In particular, the marginal effective tax rate of a MI scheme beneficiary was 100 % up to the guaranteed MI – that is, each additional euro that beneficiaries gained as an employee or self-employed person would be subtracted from the benefit amount. To correct this, in September 2022 the Spanish government introduced an earnings disregard to allow beneficiaries who increase their labour earnings up to a certain threshold to retain all or part of the benefit amount, up to two years after the increase. The spirit of this reform is in line with the available evidence discussed in Sections 1 and 2.

The mechanism works as follows ⁽⁵⁾. Let us define u as the assessment unit, g as the guaranteed MI, y as the total means-tested income, e as earnings, d as the share of earnings to be disregarded, m as the final MI benefit and, finally, t as the year of the earnings. The MI level m in year t for assessment unit u is then calculated as:

$$m_{ut} = g_{ut} - y_{ut-1} + d(e_{ut-1} - e_{ut-2}) \quad (1)$$

Moreover, the share of earnings to be disregarded, d , varies as follows:

$$d = \begin{cases} 100\%, & \text{if } (e_{ut-1} - e_{ut-2}) / g_{ut} < 60\% \\ \alpha, & \text{if } 60\% \leq (e_{ut-1} - e_{ut-2}) / g_{ut} < 100\% \\ 0\%, & \text{if } (e_{ut-1} - e_{ut-2}) / g_{ut} \geq 100\% \end{cases} \quad (2)$$

In particular, MI recipients fully benefit from the earnings disregard if their increase in earnings between $t - 1$ (the income assessment year of the scheme) and $t - 2$ remains below 60 % of the guaranteed MI. Recipients do not benefit at all if said increase surpasses 100 % of the guaranteed MI, and the disregard is applied partially if the increase in earnings falls between 60 % and 100 % of the guaranteed MI. In the latter case, the composition of the assessment unit determines the proportion of the earnings disregard, denoted as α . Three main elements define α : 1) whether household members were working before the earnings increase, in $t - 2$; 2) the presence of children; and 3) if there are children, whether they are looked after by a couple or a lone parent. Table 1 summarises how α varies according to these elements.

Table 1: The values of the proportion of earnings disregard α

	$e_{t-2} = 0$ (not working before the earnings increase)	$e_{t-2} > 0$ (working before the earnings increase)
No children	$\alpha = 30\%$	$\alpha = 20\%$
Parents in a couple	$\alpha = 35\%$	$\alpha = 25\%$
Lone parents	$\alpha = 40\%$	$\alpha = 30\%$

Source: Authors' own creation based on Royal Decree 789/2022.

⁽⁴⁾ For the full description of eligibility criteria and other details of the MI scheme, see EUROMOD's Country report of Spain: <https://euromod-web.jrc.ec.europa.eu/resources/country-reports> (accessed 7 October 2024).

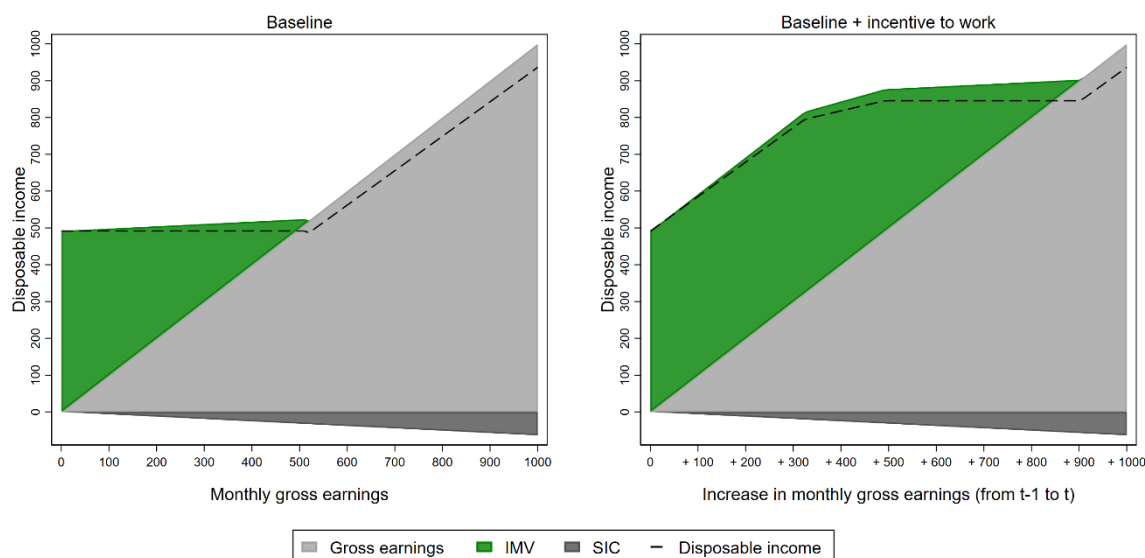
⁽⁵⁾ We have benefited from reading the following article: <https://policy.fedea.net/los-incentivos-al-trabajo-en-el-ingreso-minimo-vital/> (accessed 7 October 2024).

Notably, two years after the first increase in earnings, $d = 0$, and thus Equation (1) simply turns into:

$$m_{ut+3} = g_{ut+3} - y_{ut+2} \quad (3)$$

In Section 4, we discuss the modelling of the MI scheme and the earnings disregard reform in EUROMOD, including limitations and caveats. In the rest of this section, we illustrate the reform using the EUROMOD Hypothetical Household Tool ⁽⁶⁾. Figure 1 depicts a single-adult household receiving the nationwide MI scheme with no earnings before the reform. The left-hand panel shows the pre-reform monthly disposable income, while the right-hand panel shows the situation after the reform. Specifically, the incentive to work removes the existing 100 % marginal effective tax rate up to approximately EUR 500 per month of disposable income. Post-reform, the rate varies from 0 % (up to about EUR 800 per month) to 100 % (at around EUR 840 per month), with an intermediate step of 70 %. Figure 1 helps us to grasp the mechanics of the reform, which eliminates the potential work disincentive for very low earners but also retains some disincentive at higher income levels. The intermediate transition step featuring a marginal tax rate of 70 % spans a short range of about EUR 40 per month.

Figure 1: Net monthly disposable income of a single adult before and after the reform



Note: the left (right) hand panel represents the situation of a single adult household with no labour income before (after) the reform is implemented. Amounts are expressed in monthly terms. IMV stands for *Ingreso Mínimo Vital*; SIC for Social Insurance Contributions.

Source: Authors' own creation based on EUROMOD I6.39+.

4. Modelling approach

The empirical strategy used in this study involves two steps: (1) modelling the reform in the tax-benefit microsimulation model EUROMOD; and (2) assessing the labour supply effects using the behavioural model

⁽⁶⁾ This extension of EUROMOD enables us to assess the effects of a reform based on synthetic data on households with predefined characteristics. This tool helps, on the one hand, to verify that the modelling works as intended and, on the other hand, to provide an intuitive representation of the work incentive (Hufkens et al., 2019).

EUROLAB. Both models run on the EU-SILC as underlying data. These steps and data are described in the following subsections.

4.1. EUROMOD

To simulate the work incentive reform of the Spanish MI scheme, we use EUROMOD in conjunction with the EU-SILC and EUROLAB. EUROMOD is the tax–benefit microsimulation model for the EU ⁽⁷⁾. It simulates the main direct taxes and benefits in place for households in all Member States, enabling us to simulate the potential impact of policy reforms on household incomes. EUROMOD is a static ⁽⁸⁾, non-behavioural model ⁽⁹⁾. The latter prevents us from estimating labour market reactions to a given reform, and to that end we also utilise the behavioural labour supply–demand model EUROLAB, which we describe in Section 4.2. The policy simulations of EUROMOD and EUROLAB are based on the EU-SILC, a harmonised dataset with a cross-sectional and longitudinal structure that deals with income, social exclusion and living conditions, covering all Member States. The EU-SILC also includes individuals’ demographic and socioeconomic characteristics such as gender, age, marital status and parenthood, education and labour market status. In this paper we use the 2022 EU-SILC cross-sectional dataset on Spain, adapted to be used with EUROMOD ⁽¹⁰⁾.

The public version of EUROMOD includes the simulation of the nationwide MI scheme but faces four main limitations. First, due to insufficient information in EUROMOD’s EU-SILC-based microdata, some eligibility conditions cannot be simulated. For instance, legal residence duration, independent living status for individuals under 30 years of age, and benefit application status are missing from the data. Second, the EU-SILC lacks assets data, which are necessary to simulate the assets test. To address this, EUROMOD capitalises investment and rental income – which are reported in the survey – with the average monthly interest rate of deposits and the average return of property rental, respectively ⁽¹¹⁾. Third, the income and assets tests of the MI in year t are performed on the value of these variables in $t - 1$, as mentioned in Section 3, but EUROMOD’s EU-SILC-based microdata also lacks information on individuals’ past income (and assets). Consequently, the calculations occur contemporaneously, meaning that the MI for an assessment unit u in t is computed based on the relevant income received in the same year. Fourth, a substantial proportion of eligible households did not claim the MI – a non-take-up share of 56 % according to the Independent Authority for Fiscal Responsibility (2024) ⁽¹²⁾. The likely impact of the first, second and fourth limitations is the overestimation of the effects of the MI, both in terms of the number of beneficiaries and the total expenditure. Additionally, the responses to the work incentive reform introduced in 2022 will be overestimated too. However, the sign of the effect of the third limitation –

⁽⁷⁾ The EUROMOD model is maintained and developed by the European Commission’s Joint Research Centre. For further details on the model, visit <https://euromod-web.jrc.ec.europa.eu/> (accessed 7 October 2024).

⁽⁸⁾ ‘Static’ means that demographic and socioeconomic characteristics are not adapted over time, which applies for instance to age, education or number of children. Monetary variables, however, are uprated by different indices in accordance with the nature of each variable to account for the time discrepancy between the year of the income data and the year of the policy simulations.

⁽⁹⁾ ‘Non-behavioural’ means that the reactions of agents to a given reform are not simulated, and only ‘morning-after’ effects are produced by the model.

⁽¹⁰⁾ The income reference period of EU-SILC 2022 is 2021. Uprating factors are used to account for the discrepancy between the income reference period and the year of the simulations (2023).

⁽¹¹⁾ The corresponding data are obtained from the European Central Bank and the Bank of Spain, respectively. Capitalising incomes is arguably insufficient, as it does not account for assets without explicit returns, like non-rented properties.

⁽¹²⁾ While calibrating EUROMOD to match the total simulated beneficiaries with official statistics is feasible (and it is actually the default in the model), this is achieved by selecting a random share of eligible units as final beneficiaries to match official statistics. For this paper we assume full take-up to avoid randomising subsequent labour supply responses by selecting only a subgroup of beneficiaries.

regarding the contemporaneous calculations – is unclear but likely to be small. Overall, we believe that these caveats do not prevent us from estimating the labour supply response to the MI reform, since the direction of the estimate will not be affected, only its magnitude⁽¹³⁾. Therefore, our estimates are to be interpreted as upper bounds, providing informative insights in the case of the full implementation of the MI scheme.

Additionally, modelling the work incentive reform in EUROMOD requires further information on one key factor: potential income. To estimate the potential rise in earnings for MI beneficiaries if they increase their labour supply following the reform, we turn to EUROLAB. Section 4.2 describes in detail how the EUROLAB model serves this purpose and others in the study, and Section 4.3 describes the modelling of the reform.

4.2. EUROLAB

The behavioural labour supply–demand model EUROLAB, as fully explained in Narazani et al. (2023)⁽¹⁴⁾, relies on a large body of literature on discrete choice modelling (Aaberge et al., 1995; van Soest, 1995). Under the principle of random utility maximisation (McFadden, 1974), discrete choice analysis assumes that households choose the option with the maximum utility for them from a set of mutually exclusive and collectively exhaustive alternatives. Specifically, households are assumed to face a range of alternatives that include market jobs (employment) and non-market activities (non-participation). The EUROLAB model uses EUROMOD to construct the counterfactual budget constraint for each alternative of the choice set.

Formally, households choose within a set of alternatives Ω , where each alternative is characterised by a number of working hours and wage rates (H, w) . When the alternative is a market job, then H can take four possible values in the ranges (6–18), (19–31), (32–44) and (44–57). If the alternative is a non-market activity (non-participation), then $H = w = 0$. In what follows, we use the index j to identify the different types of alternatives. The utility attained by household i when choosing the alternative j is assumed to be the sum of deterministic part $V(\cdot)$ and an unexplained component ε_{ij} , where $\varepsilon \sim \text{Gumbel}(0,1)$ is a random variable that represents unobserved factors affecting utility. The assumption of the Gumbel distribution for the random component ε_{ij} leads to the following probability that household i is willing to accept an alternative of type j (Aaberge et al., 1995):

$$P_{ik} = \frac{\exp\{V(C_{ik}, T - h_k; \gamma_i) + D'_{ik} \delta_i\}}{\sum_{j \in \Omega} \exp\{V(C_{ij}, T - h_j; \gamma_i) + D'_{ij} \delta_i\}} \quad (4)$$

$V(\cdot)$ depends on disposable income C , leisure $T - h$ and a set of parameters that represent the preferences of the household. More specifically, the following statements hold.

$C_{ij} = \tau(w_{ij}h_j, I_i)$ = net available income computed according to the tax–benefit rule τ as a function of labour income $w_{ij}h_j$ and other exogenous income I_i .

T = total available time; $T - h$ = leisure.

⁽¹³⁾ We have carried out an alternative simulation with a random non-take-up adjustment and found that, as expected, the sign of the effect remains unchanged and only the magnitude is reduced. In Section 5.3 we discuss these alternative results.

⁽¹⁴⁾ See Narazani et al. (2025) for a recent application of the model in a different setting.

γ_i = vector of parameters that characterise the preferences of the household.

D'_{ij} = vectors of (0, 1) dummy variables. Their elements are associated with specific types of alternatives. The standard interpretation is that they capture the effects of unobserved features of (some of) the alternatives j . The starting assumption is that the different types of alternatives are in general not equally available.

δ_i = vector of parameters related to D'_{ij} dummy variables.

For $V(\cdot)$, EUROLAB uses a quadratic specification in income and leisure, where the preference parameters assigned to linear terms, such as income and leisure, are allowed to differ by certain individual and household characteristics. These characteristics include age, the number of children aged 0–3 years, the number of children aged 3–6 years, the total number of children and household size. Leisure is also interacted with two dummy variables: one indicating whether the decision-making unit is a migrant to take into account labour market integration constraints, and another one indicating whether the unit holds a mortgage liability to control for financial constraints.

4.3. Simulation of the work incentive reform

To simulate the work incentive reform, we tailor EUROLAB in two ways: first, we include an additional interaction with leisure for MI beneficiaries. This adjustment helps to capture beneficiaries' preferences for leisure before the reform is implemented. Second, we exploit the variation in estimated earnings for different labour supply choices to allow the simulation of the earnings disregard. Leveraging the EUROLAB model, which constructs counterfactual budget constraints for different labour supply alternatives, we can estimate the potential income gains of MI beneficiaries and thereby trigger the simulation of the earnings disregard.

Specifically, consider an individual who reported no earnings in the previous year. When simulating the counterfactual choice of a non-market job (equivalent to zero hours of work), the model computes the same MI level before and after the earnings disregard. However, when for the same individual the model simulates a counterfactual choice related to market jobs (e.g. part-time or full-time employment), the MI amount may change in the presence of the earnings disregard, compared with the situation where no earnings disregard is in place (whether it changes, and to what extent, will depend on the level of income attained now by this individual). Specifically, the MI amount may not diminish (or may do so only partially) with the earnings disregard, and so the disposable income may increase.

Formally, the work incentive reform introduced in the MI scheme leads to a new tax-transfer rule τ^1 and, therefore, a new household disposable income $C_{ij} = \tau^1(w_{ij}h_j, I_i)$. This change in household disposable income affects the probability of taking a job, leading to what is often referred to as the second-round effect, which represents changes in the desired number of working hours and the activity/inactivity status. The number of people willing to work (the labour supply) will change. The new aggregate labour supply AS^1 can be computed as follows:

$$AS^1 = \sum_i \sum_h P(\tau^1(w_{ij}h_j, I_i), T - h_j; \gamma, \delta) \quad (5)$$

However, the second-round labour supply effects do not consider the demand side of the labour market, which plays a crucial role in determining employment levels. Depending on the elasticity of the labour demand, changes in labour supply may translate into a different employment level when the labour market reaches a new equilibrium. Market equilibrium requires that the number of available jobs be equal to the new desired labour supply, and therefore the number of available jobs will also have to change.

To take into account labour demand, the EUROLAB model adopts a partial equilibrium model, proposed by Colombino (2013) and recently revised by Narazani and Colombino (2021). It exploits the link between the dummies' coefficients and the number of jobs available on the market in order to take labour market equilibrium conditions into account. Colombino (2013) shows that the coefficient related to the participation dummy can be expressed as a function of the total number of jobs, $\delta = \ln J + a$ where J = the total number of market jobs (corresponding to $D_1 = 1$) available in the opportunity set, and a is a constant that represents other unobserved factors affecting the relative desirability of the participation alternative. Assuming that the EU-SILC data represent a labour market equilibrium, that is, the number of employed people is equal to the number of available market jobs (J), and further assuming that the total number of jobs changes proportionally by e^v , leading to a new labour demand $J(v) = Je^v$, where v is a parameter to be determined in equilibrium, we can write $\delta(v)$ as the new corresponding value of δ :

$$\delta(v) = \ln(Je^v) + A = \ln J + a + v = \delta + v \quad (6)$$

We further assume a constant-elasticity labour demand $J = Kw^{-\eta}$ where w is the mean of the wage rates distribution, K is a constant and η is the (absolute) elasticity of labour demand, equal to 0.5. Using Equation (6) we get the new value of the mean wage as a function of pre-reform mean wage w :

$$w(v) = K^{1/\eta}(Je^v)^{-1/\eta} = K^{1/\eta}J^{-1/\eta}e^{-v/\eta} = we^{-v/\eta} \quad (7)$$

The new values of $\delta(v)$, given in Equation (6), and $w(v)$, given in Equation (7), determine the new values of income:

$$C_{ij}(v) = \tau(w_{ij}(v)h_j, s_j, e_j, I_i)$$

and the new choice probabilities:

$$P_{ik}(v) = \frac{\exp\{V(C_{ik}(v), T - h_k; \gamma_i) + D'_{ik}\delta_i(v)\}}{\sum_{j \in \Omega} \exp\{V(C_{ij}(v), T - h_j; \gamma_i) + D'_{ij}\delta_i(v)\}}$$

Given these new choice probabilities, the desired labour supply AS^2 under the policy rule τ^1 and the adjustment parameter v can be given as $AS^2 = \sum_i \sum_h P(\tau^1(w_{ij}(v)h_j, I_i), T - h_j; \gamma, \delta(v))$ ⁽¹⁵⁾.

Then the equilibrium value v^* is such that:

$$AS^2 = \sum_i \sum_h P(\tau^1(w_{ij}(v)h_j, I_i), T - h_j; \gamma, \delta(v)) = J(v^*) \quad (8)$$

⁽¹⁵⁾ $w_i(v)$ denotes the wage rate of household i in the distribution with mean $w(v)$.

where the left-hand side (AS^2) represents the total desired labour supply in terms of the number of jobs that households are willing to accept. The right-hand side ($J(v^*)$) represents the available jobs, or labour demand. Note that the adjustment to the number of jobs through a change in the level of the wage rates is a movement along the labour demand curve. The equilibrium simulation requires finding, typically through an iterative procedure, the value v^* that satisfies Equation (8).

5. Results

In this section, we report our main results. First, we describe the characteristics of the labour supply sample (Section 5.1), and then, we show the estimated labour supply elasticities (Section 5.2). Next, we report and discuss the labour supply responses to the introduction of the earnings disregard (Section 5.3), as well as its budgetary and distributional effects (Section 5.4).

5.1. Summary statistics of the labour supply sample

The sample selected for the examination of potential labour supply changes is detailed in Table 2. It consists of households headed by either partners in couples or single individuals, all aged between 20 and 65 years. Moreover, we include employed and non-employed individuals, excluding from the latter category those who are non-employed because they are students or pensioners. As a result of the selection criteria, the sample consists of 20 069 individuals, comprising 10 226 individuals in couples and 9 843 single women and men. Out of this sample, 950 observations (approximately 5 % of the total labour supply sample) are identified as eligible to receive Spain's nationwide MI scheme ⁽¹⁶⁾.

Table 2: Labour supply sample distribution across household types

	All individuals		MI beneficiaries	
	Obs.	Weighted	Obs.	Weighted
Couples	10 226	8 001 575	224	196 301
Single women	5 063	3 700 055	414	322 355
Single men	4 780	4 071 588	312	261 389
Total	20 069	15 773 218	950	780 046

Note: The 'single' categories also include coupled individuals whose partners are excluded from the endogenous labour supply sample because they fall into the categories of retirees, pensioners or students. Obs. refers to observations.

Source: Authors' own creation based on EUROMOD I6.39+ and EUROLAB in combination with EU-SILC data.

Table 3 illustrates some sociodemographic characteristics of the labour supply sample. The left-hand column shows the main summary statistics for MI beneficiaries, while the right-hand column does so for the remaining individuals in the sample. The composition of MI beneficiaries in terms of gender, age and number of children is relatively similar to that of the remainder of the sample, although there is a slightly lower presence of children in MI beneficiaries' households. This is also reflected in the average household size, which is relatively small for MI beneficiaries (2.58) compared with the rest of the sample (2.99). In addition, the average number of migrants is slightly lower among MI beneficiaries than among the other individuals.

⁽¹⁶⁾ The sample of MI beneficiaries may be deemed small, particularly when disaggregating by certain characteristics. For that reason, our estimates should be treated cautiously. Future research may wish to consider the availability and use of administrative microdata.

Table 3: Sociodemographic characteristics of the labour supply sample

		MI beneficiaries	Remainder of the sample
Number of children	0	0.52	0.48
	1	0.23	0.24
	2	0.16	0.24
	3+	0.09	0.04
Gender	Female	0.55	0.5
Age	Less than 24 years	0.03	0.01
	24–40 years	0.25	0.26
	41–65 years	0.72	0.73
Work	Average working hours (per week)	9.13	34.27
	Employment rate	29 %	89 %
Work intensity	Very low	0.70	0.08
	Low	0.08	0.02
	Medium	0.04	0.08
	High	0.09	0.13
	Very high	0.09	0.69
Household	Size	2.58	2.99
	Income decile	1.19	6.37
	Migration status (1: migrant; 2: native)	1.76	1.94
Education level	Low	0.62	0.28
	Middle	0.23	0.23
	High	0.14	0.49

Notes: The employment rate is defined as the share of individuals reporting positive working hours and positive employment income with respect to the sample. Work intensity is measured as the ratio of the total number of months that all working-age household members have worked during the income year and the total number of months the same household members theoretically could have worked in the same period. Education levels are defined as 'low' (primary education or less), medium (secondary education) and high (tertiary education). Income deciles are constructed based on disposable household income equivalised using the OECD equivalence scale. Migration status is defined based on information on country of birth reported in the EU-SILC data.

Source: Authors' own creation based on EUROMOD I6.39+ and EUROLAB in combination with EU-SILC data.

The most notable differences, however, concern MI beneficiaries' work patterns and education levels. Some 70 % of MI beneficiaries experience very low work intensity, as opposed to only 1 % of the remainder of the sample, and the average working hours of MI beneficiaries are only 9 hours per week, compared with 34 hours per week for the rest of the sample. Furthermore, only 30 % of MI beneficiaries are considered employed, as opposed to 89 % of the rest of the sample. MI beneficiaries typically have lower education levels, with 62 % showing low educational attainment compared with 29 % of the remainder of the sample. These work and education patterns are reflected in the location of MI beneficiaries in the income distribution, with MI beneficiaries predominantly placed in the first decile, while the remaining individuals are on average located around the sixth decile.

5.2. Labour supply elasticities

Upon the estimation of the parameters characterising preferences for labour and income among households (¹⁷), we compute the wage elasticities by increasing gross wages by 1 %, calculating the probability of each

⁽¹⁷⁾ These parameters are estimated separately for three types of households – couples, single women and single men – and are available in the Working Paper version (Cruces et al., 2024).

labour supply choice and aggregating the labour supply responses. Tables 4 and 5 present the elasticities of total working hours and participation for men and women, categorised by household type. Total working hours elasticities reflect the overall responsiveness of labour supply to wage changes, while participation elasticities, or extensive margin elasticities, measure how likely individuals are to participate in the labour market. The difference between these two measures is the intensive margin elasticity, which captures changes in working hours for those already participating in the labour market. Notably, in Table 4, we consider two types of elasticities for couples: direct elasticities and cross-elasticities. The direct values pertain to individuals' labour supply changes in response to wage changes, while cross-values pertain to individuals' labour supply changes based on their partners' wage changes. In Table 5, we also split the elasticities depending on the presence of children in the household.

Table 4: Wage labour supply elasticities by household type and gender

			Total elasticity	Participation elasticity
Couples	Men	Direct	0.152	0.122
		Cross	- 0.028	- 0.019
	Women	Direct	0.241	0.164
		Cross	0.0082	0.0079
Singles	Men		0.138	0.120
	Women		0.224	0.166
Total			0.188	0.142

Source: Authors' own creation based on EUROMOD I6.39+ and EUROLAB in combination with EU-SILC data.

Table 5: Wage labour supply elasticities by household type, gender and presence of children

			Total elasticity	Participation elasticity
Couples	Men	With children	0.120	0.091
		Without children	0.206	0.172
	Women	With children	0.232	0.155
		Without children	0.255	0.178
Singles	Men	With children	0.112	0.088
		Without children	0.149	0.133
	Women	With children	0.216	0.157
		Without children	0.228	0.171

Source: Authors' own creation based on EUROMOD I6.39+ and EUROLAB in combination with EU-SILC data.

The average total elasticity is 0.188, with women typically showing higher values than men, a result that aligns with most existing evidence (Bargain and Peichl, 2016). The small difference between total elasticities and participation elasticities suggests that most labour supply adjustments in Spain occur at the extensive margin, meaning that changes in labour force participation are more responsive to wage changes than to changes in working hours. This finding also aligns with existing evidence suggesting that the extensive margin dominates the intensive one (Bargain et al., 2014). For couples, both men and women exhibit positive direct elasticities (0.152 for men, 0.241 for women). In addition, men's working hours and participation are negatively affected by their partners' wages, although only slightly, while women's working hours and participation are minimally but positively affected by their partners' wages. This finding is in line with the cross-elasticities reported for Spain in Oliver and Spadaro (2017). In contrast, singles (both men and women) have slightly lower labour supply

elasticities (0.138 for men, 0.224 for women). Overall, singles are less responsive in terms of working hours than couples, a similar finding to that of Labeaga et al. (2008).

Among couples, men with children have a lower total elasticity (0.120) than men without children (0.206). Women without children have the highest total elasticity (0.255) among all groups. For singles, the pattern is similar: men with children (0.112) and women with children (0.149) have lower elasticities than those without children (0.216 for men, 0.228 for women). Overall, parents tend to have lower elasticities, indicating that the presence of children reduces responsiveness to wage changes. This result, however, is in contrast to existing studies that estimate elasticities for women with children to be higher than those for women and men without children (Bargain and Peichl, 2016; Mastrogiacomo et al., 2017). One explanation for that may be that the parents included in our analysis are observed to work more than their counterparts without children (as shown in Table 7 below, column 'Baseline'), a variable that is used as a denominator in the elasticity formula. Moreover, the presence of children and the responsibility to spend care hours with them leave less time available and, consequently, may lead to less responsiveness to wage increases.

Note, however, that our estimates based on 2022 EU-SILC data may not directly align with earlier research by Bargain and Peichl (2016) or García and Suárez (2003), which used data collected before 2010 and in 1994, respectively. As Bargain and Peichl (2016) emphasise, it is essential to consider temporal changes and broader contextual factors when analysing labour supply elasticities. In the Spanish context, our results are generally consistent with those of Labeaga et al. (2008) and Oliver and Spadaro (2017), despite their studies using data from the 1990s and 2006, respectively. More recent studies focusing on the labour supply effects of tax-benefit reforms in Spain (Ayala and Paniagua, 2019; Fuenmayor et al., 2024) unfortunately do not report specific elasticity values for comparison.

5.3. Estimated labour supply responses

We now compute the expected labour supply responses to the introduction of the earnings disregard. Table 6 shows these responses, disaggregated by (equivalised disposable) income quintiles for the whole labour supply sample (i.e. not only for MI beneficiaries). Our results suggest that individuals at the lower end of the income distribution are the primary beneficiaries in terms of labour supply incentives. Specifically, women are expected to increase their labour market participation more than men are (by 2.61 % and 1.79 % respectively). The impact on working hours appears slightly lower, with hours increasing by 2.09 % and 1.58 % for women and men respectively. This concentrated response in the bottom quintile naturally aligns with the targeted approach of Spain's nationwide MI scheme.

Table 6: Estimated labour supply changes by gender and income quintiles, full labour supply sample

Gender	Quintile	Hours of work			Participation		
		Baseline	Reform	% change from baseline	Baseline	Reform	% change from baseline
Men	1	27.198	27.628	1.58	0.677	0.690	1.79
	2	36.065	36.065	0.00	0.887	0.887	0.00
	3	37.063	37.063	0.00	0.913	0.913	0.00
	4	37.400	37.400	0.00	0.920	0.920	0.00
	5	38.910	38.910	0.00	0.943	0.943	0.00
Women	1	21.009	21.449	2.09	0.612	0.628	2.61
	2	28.978	28.980	0.01	0.815	0.815	0.01
	3	30.893	30.893	0.00	0.862	0.862	0.00
	4	32.613	32.613	0.00	0.894	0.894	0.00
	5	35.053	35.053	0.00	0.928	0.928	0.00
All		33.292	33.357	0.20	0.862	0.864	0.24

Notes: Income quintiles are constructed based on equivalised disposable income under the baseline. The OECD-modified scale is used to equalise income.

Source: Authors' own creation based on EUROMOD I6.39+ and EUROLAB in combination with EU-SILC data.

Labour supply responses by gender and household type for the whole labour supply sample (Table 7), indicate positive outcomes across all household types considered, with lone mothers experiencing the most substantial increases in participation rates (2 %) and working hours (1.58 %). These more substantial behavioural responses are understandable given the reform's specific features in aid of families with children, particularly lone parents (recall that the share of earnings disregard increases in such cases). For lone fathers, the responses are more modest, with a 0.62 % increase in participation rate and a 0.55 % increase in working hours while couples without children exhibit less pronounced reactions. Overall, parents tend to show greater labour supply responses than individuals without children, even though labour supply elasticities of the former are shown to be higher than those of the latter group. These labour supply responses can be considered relatively modest, which might be partially explained by the limited coverage of Spain's nationwide MI scheme, and therefore of the reform. In fact, the behavioural responses computed for the limited sample of MI beneficiaries (Table 10, in the Annex) are quite substantial, with increases in participation rates reaching 29 % for fathers and 26 % for lone mothers, while partnered mothers show a more modest increase (12 %). However, these relative changes should be interpreted in light of the very low participation rates and working hours of MI beneficiaries before, and in fact still after, the reform.

Table 7: Estimated labour supply changes by gender and household type, full labour supply sample

Gender	Household type	Hours of work			Participation		
		Baseline	Reform	% change from baseline	Baseline	Reform	% change from baseline
Men	In couple – with children	37.450	37.564	0.31	0.913	0.916	0.34
	In couple – without children	35.216	35.230	0.04	0.869	0.870	0.05
	Single – with children	36.288	36.487	0.55	0.883	0.889	0.62
	Single – without children	34.035	34.061	0.08	0.842	0.843	0.11
	All	35.909	35.974	0.18	0.882	0.883	0.21
Women	In couple – with children	30.971	30.997	0.09	0.859	0.860	0.10
	In couple – without children	30.124	30.134	0.03	0.834	0.834	0.04
	Single – with children	27.933	28.374	1.58	0.761	0.776	2.00
	Single – without children	31.129	31.239	0.35	0.838	0.842	0.53
	All	30.548	30.614	0.22	0.841	0.843	0.29

Notes: Children are defined as the sons or daughters of the decision-making unit. They are not older than 18 years or, if older, they are in education.

Source: Authors' own creation based on EUROMOD I6.39+ and EUROLAB in combination with EU-SILC data.

Distinguishing the changes in participation by part- and full-time employment (Table 8), we find a higher preference for part-time work, compared with the situation prior to the reform, in order to avoid surpassing the threshold of the MI means test, which would render them non-eligible to receive the benefit. Single parents working part-time show the strongest reaction, with 2.76 % and 5.34 % increases, respectively. Among other individuals working part-time, single women without children (1.90 %) and fathers in couples (1.67 %) show particularly pronounced responses. The fact that fathers in couples display a stronger reaction than women in couples could be explained by the intrahousehold allocation of tasks, with women typically bearing childcare responsibilities (García-Mainar et al., 2011). However, these increases are not substantial in absolute terms, given for instance the very low participation rates of men working part-time. Regarding individuals working full-time, we observe that single parents show the strongest reaction – a pattern we consistently observe for this type of household.

Table 8: Estimated labour supply changes by gender, household and employment type, full labour supply sample

Gender	Household type	Participation					
		Part-time employment			Full-time employment		
		Baseline	Reform	% change from baseline	Baseline	Reform	% change from baseline
Men	In couple – with children	0.035	0.035	1.67	0.878	0.881	0.29
	In couple – without children	0.041	0.041	0.55	0.828	0.828	0.03
	Single – with children	0.035	0.036	2.76	0.848	0.853	0.53
	Single – without children	0.048	0.048	0.90	0.795	0.795	0.06
	All	0.040	0.040	1.12	0.842	0.843	0.16
Women	In couple – with children	0.211	0.211	0.24	0.631	0.631	0.06
	In couple – without children	0.208	0.208	0.10	0.616	0.616	0.02
	Single – with children	0.170	0.179	5.34	0.578	0.584	1.03
	Single – without children	0.174	0.177	1.90	0.649	0.650	0.16
	All	0.200	0.201	0.77	0.627	0.627	0.13

Notes: Children are defined as the sons or daughters of the decision-making unit. They are not older than 18 years or, if older, they are in education.

Source: Authors' own creation based on EUROMOD I6.39+ and EUROLAB in combination with EU-SILC data.

Furthermore, as explained in Section 4.1, it is important to note that our simulation of the reform assumes full implementation of the MI scheme, in particular in terms of a 100 % take-up of the benefit. However, official statistics estimate a 56 % non-take-up share (Independent Authority for Fiscal Responsibility, 2024). In order to assess the effects of our assumption of full take-up, we have also run an alternative simulation with random calibration, meaning that we randomly pick beneficiaries from the set of eligible households until we reach 44 %. We resort to random calibration because we lack information on which households did not take up the benefit, and even though it is not ideal, random calibration should not be problematic at the aggregate level. Specifically, in the alternative simulation, women in the first quintile of income increase labour market participation by 1.48 % (compared with 2.61 % in the full take-up model), and men in the same quintile do so by 0.91 % (1.79 % assuming full take-up). The impact on working hours is lower too; in the first quintile, women's hours increase by 1.18 % in the alternative simulation versus 2.09 % with full take-up, and men's hours increase by 0.81 % versus 1.58 % respectively. Therefore, we emphasise that our main results indicate the sign of the response but should be considered upper bounds, providing informative insights on potential effects in the case of full implementation of the MI scheme.

All the results thus far take a labour supply perspective. However, their impact ultimately depends on the availability of jobs in the labour market – this is, the extent to which supply is met by demand. Using EUROLAB, we also measure potential changes in employment by considering the labour market's demand side. In short, we assume a labour demand elasticity of 0.5 (Lichter et al., 2015) and calculate the change in average wages that aligns with a new labour market equilibrium following the introduction of the MI scheme reform. As already shown, the reform is expected to increase the labour supply of MI beneficiaries, thus shifting the desired labour supply curve to the right and resulting in a 0.24 % increase in total employment (Table 6). However, to ensure

consistency between available jobs and desired labour supply, adjustments are made along the demand curve and wage rate such that wages decrease slightly (by 0.44 %), reducing the final employment increase to 0.22 %.

5.4. Budgetary and distributional effects

Finally, we report the effects of the reform and the subsequent estimated labour supply changes in budgetary and distributional terms. In budgetary terms, our estimates indicate a slight increase in revenue (0.04 %), due to households paying more direct taxes and social insurance contributions in response to the positive employment effects. However, this revenue increase does not counterbalance the increase in expenditure, naturally leading to a decrease in net revenue of around – 0.54 % with respect to the baseline. In addition, we look at some distributional indicators, namely the Gini coefficient and the at-risk-of-poverty (AROP) rates and gaps, as reported in Table 9. The reform is expected to slightly decrease inequality, as measured through the Gini coefficient, and (in-work) poverty, as measured through the AROP rate and the AROP gap ⁽¹⁸⁾. Reductions in (in-work) AROP rates are more pronounced when the poverty threshold is set at 40 % of the median equivalised disposable income, in line with the fact that Spain’s nationwide guaranteed MI levels are more closely aligned with this lower threshold.

Table 9: Estimated distributional effects

Indicator	Baseline	Reform	Diff. from baseline
Gini coefficient	0.313	0.311	– 0.002
AROP rate (%)			
60 % poverty threshold	19.304	19.105	– 0.199
40 % poverty threshold	6.078	5.769	– 0.309
In-work AROP rate (%)			
60 % poverty threshold	8.676	8.633	– 0.043
40 % poverty threshold	2.251	2.089	– 0.162
AROP gap (%)			
60 % poverty threshold	5.045	4.854	– 0.191
40 % poverty threshold	1.237	1.120	– 0.117
In-work AROP gap (%)			
60 % poverty threshold	3.730	3.554	– 0.176
40 % poverty threshold	2.251	2.089	– 0.162

Notes: The Gini coefficient measures inequality on a scale from 0 to 1, with higher values indicating greater inequality. The AROP rate measures poverty incidence, representing the share of the population with incomes below the poverty threshold. The AROP gap measures poverty intensity, showing the mean shortfall in income from the poverty threshold, as a percentage of the poverty threshold. Poverty thresholds are set at either 40 % or 60 % of the median equivalised disposable income and are anchored to the baseline. In-work poverty refers to individuals that are both employed and at risk of poverty. Diff., difference.

Source: Authors’ own creation based on EUROMOD I6.39+ and EUROLAB in combination with EU-SILC data.

⁽¹⁸⁾ Note that the distributional indicators are already underestimated at baseline relative to EU-SILC data, mainly due to the assumption of full take-up.

6. Conclusions

This paper studies employment responses to a reform of the Spanish MI scheme introducing an income disregard. This reform allows beneficiaries who increase their labour earnings to retain all or part of the MI benefit by disregarding these earnings when performing the MI income test, potentially removing a disincentive to work in the previous policy design.

We provide an *ex ante* evaluation of this reform, focusing mainly on its potential labour supply effects. We use the tax–benefit microsimulation model EUROMOD alongside the behavioural labour supply discrete choice model EUROLAB, to set up a framework that enables us to estimate labour supply responses. These models are used in combination with the EU-SILC, which provides microdata representative of Spain’s population, to estimate the parameters characterising the heterogeneous preferences for work and leisure among Spanish households and compute labour supply elasticities across different population groups. In line with the existing literature, we find relatively modest labour supply elasticities on average, with most labour supply adjustments occurring at the extensive margin. Women exhibit higher elasticities than men. Contrary to other studies, we do not find higher labour supply elasticities for parents than for individuals without children.

Our results show positive labour supply responses in response to the MI reform, concentrated at the lowest part of the income distribution, consistent with the targets of the MI scheme. We find that women’s labour supply reactions are larger than those of men, with lone parents, especially lone mothers, experiencing considerable increases in employment and working hours. The reform reduces the incentive to not work at all mainly by encouraging part-time work. The likely reason for this is that full-time jobs would make workers surpass the threshold of the income test of the MI scheme, making them ineligible for the benefit. Taking labour demand into account moderates the employment effects, given that the increase in supply may not be fully matched by the market. The positive employment effects trigger a small revenue increase due to slightly higher taxes and social insurance contributions, which nevertheless does not offset the expenditure increase brought on by the benefit. From a distributional perspective, the reform has positive but limited effects, slightly reducing inequality and poverty.

Our research naturally faces some limitations. First, MI schemes’ eligibility rules are complex, involving several conditions that cannot be accurately simulated with survey data such as the EU-SILC (e.g. assets tests). While we effectively utilise the available data, we acknowledge that simulation errors may lead to an overestimation of MI support and, therefore, of the effects of the work incentive. Moreover, high non-take-up rates impede an accurate identification of the real beneficiaries and also influence the magnitude of our estimations. Second, our calculations take place contemporaneously, whereas Spain’s nationwide MI scheme and the earnings disregard are computed based on income from previous years. In practice, MI beneficiaries need to anticipate the expected effect of the reform in response to today’s increased labour supply, and hence the effects will become noticeable only after some time. We are, however, not able to factor in considerations of a dynamic nature – meaning that we assume beneficiaries to rationally anticipate the effects of the work incentive. Third, by design the work incentive ends after two years, yet we only estimate the immediate effect, namely in the roll-out year. The two-year time frame may be considered relatively short, with some individuals potentially

returning to their initial situations prior to the work incentive if their integration into the labour market is not fully achieved in that time frame. We do not deal with potential long-term effects in our analysis.

Nonetheless, we believe that important policy implications can be derived from our study. First, our results suggest that the work incentive reform is a step in the right direction, eliminating the existing 100 % marginal effective tax rates in some situations. The reform aligns with comparable mechanisms existing in other Member States and features specific rules to incentivise the labour supply of beneficiaries moving from unemployment to employment, and of families with children, particularly lone parents. Second, while the reform increases the labour supply of MI beneficiaries, it mainly does so through the promotion of part-time employment. As long as working part-time is the preferred option for the beneficiaries (e.g. for childcare reasons), this might not be interpreted as a negative outcome. However, involuntary part-time work is considerably widespread in Spain, particularly among women, and transitions from part-time to full-time work do not always take place, especially when individuals accumulate long spells of part-time work (Gorjón et al., 2021; Kyrrä et al., 2019). Additional policies, namely active labour market policies, are needed to ensure that beneficiaries fully integrate into the labour market, increasing their chances of finding better jobs and avoiding stagnation in low-quality employment (Blázquez et al., 2019). Third, the scheme is only targeted at existing MI beneficiaries, although its coverage remains far from its full potential (Independent Authority for Fiscal Responsibility, 2024). Extending the work incentive to all potential low-income workers, regardless of their status as today's MI beneficiaries, might broaden the coverage of MI protection and further reduce in-work poverty.

Future work might consider the simulation of reforms that expand the current reach of the work incentive, for instance, by including other low-income earners beyond current MI beneficiaries, or by increasing the threshold of the earnings disregard. Additionally, as more recent income data encompassing information on MI beneficiaries become available, future research could evaluate the reform on an *ex post* basis, providing a comparison with our *ex ante* estimates. Ideally, *ex post* evaluations would also track MI beneficiaries over time, after the work incentive ends, to assess the long-term success of the reform in terms of labour market integration.

References

- Aaberge, R., & Colombino, U. (2014). Labour Supply Models. In *Handbook of Microsimulation Modelling* (Vol. 293, pp. 167–221). Emerald Group Publishing Limited.
- Aaberge, R., Dagsvik, J. K., & Strøm, S. (1995). Labor Supply Responses and Welfare Effects of Tax Reforms. *The Scandinavian Journal of Economics*, 97(4), 635–659. JSTOR.
- Almeida, V., De Poli, S., & Hernández, A. (2025). The Role of Minimum Income Schemes in Poverty Alleviation in the European Union. *Review of Income and Wealth*, 71(1), e12728.
- Ayala, L., Jurado Málaga, A., & Pérez Mayo, A. J. (2022). El ingreso mínimo vital: Adecuación y cobertura. *Papeles de Economía Española*, 172, 155–169.
- Ayala, L., & Paniagua, M. (2019). The impact of tax benefits on female labor supply and income distribution in Spain. *Review of Economics of the Household*, 17(3), 1025–1048.
- Bargain, O., & Doorley, K. (2011). Caught in the trap? Welfare's disincentive and the labor supply of single men. *Journal of Public Economics*, 95(9), 1096–1110.

- Bargain, O., & Orsini, K. (2006). In-work policies in Europe: Killing two birds with one stone? *Labour Economics*, 13(6), 667–697.
- Bargain, O., Orsini, K., & Peichl, A. (2014). Comparing Labor Supply Elasticities in Europe and the United States. *Journal of Human Resources*, 49(3), 723.
- Bargain, O., & Peichl, A. (2016). Own-wage labor supply elasticities: Variation across time and estimation methods. *IZA Journal of Labor Economics*, 5(1), 10.
- Blázquez, M., Herrarte, A., & Sáez, F. (2019). Training and job search assistance programmes in Spain: The case of long-term unemployed. *Journal of Policy Modeling*, 41(2), 316–335.
- Busilacchi, G., & Fabbri, A. (2024). Does the unemployment trap still exist? The case of the Italian minimum income scheme. *Social Policy & Administration*, 58(5), 750–770.
- Christl, M., & De Poli, S. (2021). Trapped in inactivity? Social assistance and labour supply in Austria. *Empirica*, 48(3), 661–696.
- Coady, M. D., Jahan, S., Shang, B., & Matsumoto, R. (2021). *Guaranteed Minimum Income Schemes in Europe: Landscape and Design*. IMF Working Papers 2021/179.
- Coda Moscarola, F., Colombino, U., Figari, F., & Locatelli, M. (2020). Shifting taxes away from labour enhances equity and fiscal efficiency. *Journal of Policy Modeling*, 42(2), 367–384.
- Collado, D., Cantillon, B., Van den Bosch, K., Goedemé, T., & Vandelannoote, D. (2019). The End of Cheap Talk About Poverty Reduction: The Cost of Closing the Poverty Gap While Maintaining Work Incentives. In B. Cantillon, T. Goedemé, & J. Hills (Eds.), *Decent Incomes for All: Improving Policies in Europe*, pp. 223–244. Oxford University Press.
- Colombino, U. (2013). A new equilibrium simulation procedure with discrete choice models. *International Journal of Microsimulation*, 6(3), 25–49.
- Colombino, U., Locatelli, M., Narazani, E., & O’Donoghue, C. (2010). Alternative Basic Income Mechanisms: An Evaluation Exercise With a Microeconomic Model. *Basic Income Studies*, 5(1).
- Colombino, U., & Narazani, E. (2013). Designing a Universal Income Support Mechanism for Italy: An Exploratory Tour. *Basic Income Studies*, 8(1), 1–17.
- Cruces, H., Hernández-Martín, A., Narazani, E. (2024). *Overcoming the Inactivity Trap in Spain: The Work Incentive Reform of the Ingreso Mínimo Vital*. European Commission, Seville, JRC139944.
- De La Rica, S., & Gorjón, L. (2019). Assessing the impact of a minimum income scheme: The Basque Country case. *SERIEs*, 10(3), 251–280.
- Dolado, J. J., Felgueroso, F., & Jimeno, J. F. (2021). Past, present and future of the Spanish labour market: When the pandemic meets the megatrends. *Applied Economic Analysis*, 29(85), 21–41.
- Eichhorst, W., Krause-Pilatus, A., Marx, P., Dolls, M., & Lay, M. (2023). *Minimum Income Support Systems as Elements of Crisis Resilience in Europe* (IZA Discussion Papers No. 16066). Institute of Labor Economics (IZA).
- Figari, F., Matsaganis, M., & Sutherland, H. (2013). Are European social safety nets tight enough? Coverage and adequacy of Minimum Income schemes in 14 EU countries. *International Journal of Social Welfare*, 22(1), 3–14.
- Fuenmayor, A., Granell, R., & Savall, T. (2024). Labour supply responses to a negative income tax in Spain. *Journal of Policy Modeling*, 46(6), 1274–1287.
- García, J., & Suárez, M. J. (2003). Female labour supply and income taxation in Spain: The importance of behavioural assumptions and unobserved heterogeneity specification. *Hacienda Pública Española / Review of Public Economics*, 1, 9–27.
- García-Mainar, I., Molina, J. A., & and, V. M. M. (2011). Gender Differences in Childcare: Time Allocation in Five European Countries. *Feminist Economics*, 17(1), 119–150.
- Gasior, K., Jara, H. X., & Makovec, M. (2024). Assessing the effectiveness of social protection measures in mitigating COVID-19-related income shocks in the European union. *Economic Analysis and Policy*, 83, 583–605.
- Gorjón, L., Osés, A., de la Rica, S. and Villar, A. (2021), *The long-lasting scar of bad jobs in the Spanish labour market*, ISEAK Working Paper 2021/3, Initiative for Socio-economic Analysis and Knowledge, Bilbao.

- Gurgand, M., & Margolis, D. N. (2008). Does work pay in France? Monetary incentives, hours constraints, and the guaranteed minimum income. *Journal of Public Economics*, 92(7), 1669–1697.
- Halleröd, B., Ekbrand, H., & Bengtsson, M. (2015). In-work poverty and labour market trajectories: Poverty risks among the working population in 22 European countries. *Journal of European Social Policy*, 25(5), 473–488.
- Hernández, A., Picos, F., & Riscado, S. (2022). Moving towards fairer regional minimum income schemes in Spain. *Journal of European Social Policy*, 32(4), 452–466.
- Hiilamo, H., & and, M. K. (2009). Does income disregard work? *Journal of Comparative Social Welfare*, 25(1), 3–16.
- Hufkens, T., Goedemé, T., Gasior, K., Leventi, C., Manios, K., Rastrigina, O., Recchia, P., Sutherland, H., Van Mechelen, N., & Verbist, G. (2019). The Hypothetical Household Tool (HHoT) in EUROMOD: a new instrument for comparative research on tax-benefit policies in Europe. *International Journal of Microsimulation*, 12(3), 68–85.
- Independent Authority for Fiscal Responsibility (2024), ‘Third opinion on the minimum income scheme’, authority website, 10 July, accessed 23 July 2024, <https://www.airef.es/en/centro-documental/opinions-centro-documental/third-opinion-on-the-minimum-income-scheme/>.
- Immervoll, H., & Pearson, M. (2009). *A Good Time for Making Work Pay? Taking Stock of In-Work Benefits and Related Measures across the OECD* (IZA Policy Paper No. 3). Institute for the Study of Labor (IZA).
- Jara, H. X., & Tumino, A. (2013). Tax-benefit systems, income distribution and work incentives in the European Union. *International Journal of Microsimulation*, 6(1), 27–62.
- Jara Tamayo, H. X., & Tumino, A. (2021). Atypical Work and Unemployment Protection in Europe*. *JCMS: Journal of Common Market Studies*, 59(3), 535–555.
- Knoef, M., & van Ours, J. C. (2016). How to stimulate single mothers on welfare to find a job: Evidence from a policy experiment. *Journal of Population Economics*, 29(4), 1025–1061.
- Kyyrä, T., Arranz, J. M., & García-Serrano, C. (2019). Does subsidized part-time employment help unemployed workers to find full-time employment? *Labour Economics*, 56, 68–83.
- Labeaga, J. M., Oliver, X., & Spadaro, A. (2008). Discrete choice models of labour supply, behavioural microsimulation and the Spanish tax reforms. *The Journal of Economic Inequality*, 6(3), 247–273.
- Laun, L. (2019). *In-work benefits across Europe* (No. 2019:16; Working Paper Series). IFAU - Institute for Evaluation of Labour Market and Education Policy.
- Lehmus, M. (2014). Distributional and employment effects of labour tax changes in Finland. *Journal of Policy Modeling*, 36(1), 107–120.
- Lichter, A., Peichl, A., & Siegloch, S. (2015). The own-wage elasticity of labor demand: A meta-regression analysis. *European Economic Review*, 80, 94–119.
- Magnani, R., & Piccoli, L. (2020). Universal basic income with flat tax reform in France. *Journal of Policy Modeling*, 42(2), 235–249.
- Maitino, M. L., Mariani, M., Patacchini, V., Ravagli, L., & Sciclone, N. (2024). The Employment Effects of the Italian Minimum Guaranteed Income Scheme Reddito di Cittadinanza. *Italian Economic Journal*, 10(2), 649–681.
- Mastrogiacomo, M., Bosch, N. M., Gielen, M. D. A. C., & Jongen, E. L. W. (2017). Heterogeneity in Labour Supply Responses: Evidence from a Major Tax Reform. *Oxford Bulletin of Economics and Statistics*, 79(5), 769–796.
- McFadden, D. (1974). The measurement of urban travel demand. *Journal of Public Economics*, 3(4), 303–328.
- Narazani, E., Agúndez, A., Christl, M., & Figari, F. (2025) Increased childcare to promote mothers’ employment in selected EU countries. *Journal of Policy Modeling*, 1-20.
- Narazani, E., & Colombino, U. (2021). *Modelling sector-specific employment shocks with EUROLAB, a multidimensional behavioural model* (JRC Working Papers on Taxation and Structural Reforms No. 09/2021). European Commission, Joint Research Centre (JRC).
- Narazani, E., Colombino, U., & Palma, B. (2023). EUROLAB: A Multidimensional Labour Supply-Demand Model for EU Countries. *International Journal of Microsimulation*, 16(3), 49–76.
- OECD (2023), *Boosting Social Inclusion in Spain – Improving pathways and co-ordination of services*, OECD Publishing, Paris.

Oliver, X., & Spadaro, A. (2017). Active Welfare State Policies and Labour Supply in Spain. *Hacienda Pública Española / Review of Public Economics*, 222(3), 9–41.

Palviainen, H. (2023). Incentivizing last-resort social assistance clients: Evidence from a Finnish policy experiment. *International Tax and Public Finance*, 30(1), 1–19.

Paulus, A., & Peichl, A. (2009). Effects of flat tax reforms in Western Europe. *Journal of Policy Modeling*, 31(5), 620–636.

Pearson, M., & Scarpetta, S. (2000). An overview: What do we know about policies to make work pay? *Oecd Economic Studies*, 31(1), 12–24.

Prifti, E., Estruch, E., Daidone, S., & Davis, B. (2019). How much is too much: Does the size of income support transfers affect labor supply? *Journal of Policy Modeling*, 41(1), 179–196.

Saez, E. (2002). Optimal Income Transfer Programs: Intensive versus Extensive Labor Supply Responses. *The Quarterly Journal of Economics*, 117(3), 1039–1073.

Sutherland, H., & Figari, F. (2013). EUROMOD: The European Union tax-benefit microsimulation model. *International Journal of Microsimulation*, 6(1), 4–26.

van Soest, A. (1995). Structural Models of Family Labor Supply: A Discrete Choice Approach. *The Journal of Human Resources*, 30(1), 63–88. JSTOR.

Zalakain, J. (2015). El papel de los sistemas de garantía de ingresos en el abordaje de la pobreza en el empleo: La experiencia del País Vasco. *Lan Harremanak - Revista de Relaciones Laborales*, 0(31).

Annex

Table 10: Estimated labour supply changes by gender and household type, sample of MI beneficiaries

Gender	Household type	Hours of work			Participation		
		Baseline	Reform	% change from baseline	Baseline	Reform	% change from baseline
Men	In couple – with children	9.777	12.586	28.73	0.265	0.341	28.71
	In couple – without children	5.729	6.275	9.53	0.160	0.178	11.22
	Single – with children	10.317	13.379	29.67	0.285	0.369	29.39
	Single – without children	9.282	9.676	4.24	0.253	0.267	5.17
	All	8.935	10.390	16.28	0.244	0.285	16.79
Women	In couple – with children	6.882	7.732	12.35	0.248	0.277	11.59
	In couple – without children	6.737	7.166	6.38	0.246	0.262	6.27
	Single – with children	8.727	10.997	26.01	0.290	0.369	26.90
	Single – without children	10.311	11.358	10.16	0.338	0.380	12.49
	All	8.638	9.847	14.00	0.293	0.337	15.02
	All	8.775	10.097	15.07	0.270	0.313	15.75

Notes: Children are defined as the sons or daughters of the decision-making unit. They are not older than 17 years or, if older, they are in education.

Source: Authors' own creation based on EUROMOD I6.39+ and EUROLAB in combination with EU-SILC data.