Master in Economics — Master Thesis

Self-Employment and Dual-Jobholding: Compositional Shifts in the French Labour Market in Response to the 2018 Microentrepreneurship Reform

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Abstract

In 2018, France doubled the revenue ceiling of the micro-entrepreneur regime, a simplified tax and social-contribution framework aimed mostly at small-scale self-employment. The reform was introduced with the openly stated goal of expanding entrepreneurship and making it easier to scale a business while retaining micro status. This paper studies how it reshaped the composition of the French labour market, expanding entrepreneurship both as a primary occupation and as a secondary activity alongside wage employment, and gradually shifting the profile of who becomes a micro-entrepreneur. Using the Enquête Emploi en Continu over 2015 to 2019, I first show through an interrupted time series design that the quarterly growth rate of solo micro-entrepreneurship roughly quadrupled after the reform and that of hybrid micro-entrepreneurship, micro-entrepreneurs who also hold a primary wage job, increased approximately sixfold, with no evidence of observable compositional bias. Because the abolition of the RSI took effect on the same day, these estimates are best read as a break in trend that coincides with the reform rather than as its isolated effect. As an exploratory exercise, and to interpret these patterns and test alternative reforms, I develop and estimate a static occupational choice model in which workers select among wage employment, dual wage employment, hybrid entrepreneurship, solo entrepreneurship, and unemployment, with four channels driving selection into micro-entrepreneurship: a pecuniary tax discount, a non-pecuniary simplification benefit, a taste for variety, and an income-risk hedge specific to hybrid employment. I recover the preference parameters by two-step GMM on pre-reform moments and validate the model out of sample against the realised reform. It reproduces the sign, the solo-over-hybrid ranking, and the composition of the response, though its calibration is poor and it strongly attenuates the magnitude of the response, so I frame the structural contribution as a cross-reform comparison rather than a measurement of the reform's size. Within the model, comparing the 2018 ceiling to a flat increase in the micro premium calibrated to induce the same entry, I find the ceiling six to nine times more revenue-efficient per induced entrepreneur, and estimate that the two instruments draw entirely different populations: the ceiling pulls in high-turnover, high-ability entrepreneurs in the liberal professions and leads them to expand an existing business, whereas the subsidy draws a far broader cross-section. These findings suggest that expanding simplified regimes for independent work attracts high-ability individuals into entrepreneurship, but may also facilitate some labour substitution away from wage employment.

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1 Introduction

The micro-entrepreneur regime was created in France in 2009 as a simplified gateway into entrepreneurship. It replaces the standard accounting obligations of the régime réel with a flat levy on turnover and markedly lighter reporting requirements, turning the fiscal and social treatment of small independent activity into a single proportional charge. Access is bounded by a turnover ceiling above which an entrepreneur must move to the régime réel. Since its inception the regime has become one of the main entry routes into self-employment in France and has expanded almost continuously, but it has largely drawn in low-earning entrepreneurs, often as a reservation option in the face of unemployment, a profile consistent with the intermediate labour-market state that Boeri et al (2020) document for solo self-employment. In 2018 a reform doubled this ceiling, with the stated aim of making the regime not only more widespread but, more importantly, more valuable to higher-ability entrepreneurs who had previously been constrained by the threshold. This study asks how far that reform succeeded in reshaping the French labour market, and in particular how it altered the composition of who becomes an entrepreneur.

I first establish the empirical response using an interrupted time series design around the 2018-Q1 reform. The design is close in spirit to a regression discontinuity in time: it detects a break at the reform date, but it cannot separate the higher ceiling from the abolition of the RSI, which took effect on the same day and concerned the same workers. I give reasons to believe that this confounder is limited (Section 6.5), but I cannot rule it out, so the estimates are best read as a break in trend that coincides with the reform. Quarterly growth in solo micro-entrepreneurship roughly quadrupled and that of hybrid micro-entrepreneurship rose sixfold, while the intensive-margin response in hours was more muted. Descriptive evidence shows that the entrants drawn by the reform are more positively selected than the pre-reform population, with higher earning potential and, for the most part, better education than their peers in wage work. On the dual-jobholding side, I document that hybrid entrepreneurs, wage workers who also run a business, are the most positively selected of all dual jobholders and that they place a distinctive value on occupational variety, combining a primary and a secondary activity of different natures rather than two of a kind.

The reform was estimated to cost very little, around three million euros, by a report of the French Senate, since it widened access to the existing regime without enlarging its pecuniary advantages or making its tax treatment more generous. To assess whether a near-costless ceiling expansion is in fact an efficient policy, I build and estimate, as an exploratory exercise, a static structural model of occupational choice in which workers select among wage work, dual wage work, hybrid entrepreneurship, solo entrepreneurship, and non-employment. The model lets me compare the realised ceiling reform to a counterfactual instrument, a flat increase in the pecuniary value of the micro regime calibrated to induce the same number of new entrepreneurs. Within the model, I find the ceiling six to nine times more revenue-efficient per induced entrepreneur than the subsidy, with both instruments in fact raising more collected revenue than they forgo, and that the two instruments draw entirely different populations. The ceiling reform pulls in almost exclusively high-turnover, high-ability entrepreneurs concentrated in the liberal professions, the very margin the old threshold constrained, whereas the subsidy spreads broadly across the ability and turnover distribution. The model reproduces the sign, the solo-over-hybrid ranking, and the composition of the realised reform out of sample, but understates its magnitude, so I frame the structural contribution as a comparison across instruments rather than as a measurement of the reform's absolute size. Its calibration is also poor in several other dimensions, which I document in Sections 10 and 12, so these results illustrate the mechanisms at play rather than quantify them.

These findings come with an important qualification. The reform's gains do not come without a cost for the broader labour market, since the same low administrative burden that attracts high-ability entrants can also draw some qualified workers out of wage employment. The reduced form shows the wage-only share declining alongside the micro rise, and the structural model, through the modest net entry it generates, draws part of that entry from wage work. The thesis

does not measure the individual origin of micro entrants directly, since the survey rarely records their prior state, so I treat this substitution as a labour-market-level pattern rather than an identified individual flow.

This study contributes to three strands of the literature. Its primary contribution is to the literature on occupational choice and entrepreneurial selection, which has tended to treat self-employment as a single state that either substitutes for scarce wage work (Boeri et al, 2020; Poschke, 2025) or serves as an outside option that disciplines wage-setting (Amodio et al, 2025). I introduce a Roy-type model that admits an explicit hybrid employment state and identify the drivers of selection into entrepreneurship as a primary occupation and as a side business separately, rather than collapsing them into one. The second contribution is to the literature on dual jobholding, whose canonical treatment still runs primarily through an hours constraint on the primary job (Choe, Oaxaca & Renna, 2018; Lalé, 2025). Alongside that motive, I introduce a portfolio motive specific to hybrid entrepreneurship, an income hedge in which the stable wage job cushions volatile entrepreneurial earnings, mirroring and reversing the gig-as-hedge mechanism of Doucette & Bradford (2019), and I let dual wage-holding and hybrid entrepreneurship coexist as alternative responses to the same constraint. The third contribution is to the literature on the tax and regulatory determinants of self-employment (Arulampalam & Papini, 2023; Tazhitdinova, 2022; Hombert et al, 2014). I extend the closest study to mine, Aghion et al (2025) on the 2009 creation of the auto-entrepreneur regime, to a later reform that targets higher-ability independents through a ceiling rather than a rate, and, distinctively, I use my structural model primarily to compare two policy instruments rather than to evaluate the 2018 reform.

The remainder of the paper is organised as follows. Section 2 describes the institutional context and the 2018 reform, and characterises who micro-entrepreneurs are in France. Section 3 reviews the three literatures the paper engages. Section 4 presents the EEC data, the sample construction, and the occupational classification. Section 5 documents five stylised facts on the composition and selection of micro-entrepreneurs and dual jobholders. Section 6 lays out the interrupted time series strategy and the threats to identification, and Section 7 reports the reduced-form results on both margins. Section 8 develops the structural model, and Section 9 sets out its identification and estimation. Section 10 presents the structural estimates and the out-of-sample validation against the realised reform, Section 11 the policy counterfactual comparing the ceiling to a flat subsidy, and Section 12 concludes.

2 Institutional Context and Presentation of the Reform

The self-employment landscape in France prior to 2008 was already structured around two main tiers. The first is the régime réel, under which taxable income is net business income and entrepreneurs must comply with full accounting and reporting obligations. At the relevant income levels, most practitioners join a centre de gestion agréé (CGA), which assists with bookkeeping and serves as a fiscal guarantor vis-à-vis the tax authority. The second, established in 1999, is the régime micro-fiscal (micro-BIC for commercial and artisanal activities, micro-BNC for liberal professions) under which taxable income is revenue net of a flat abatement rate: 71% for retail sales, 50% for services, and 34% for liberal professions. This regime carries substantially lighter reporting obligations, removing the need to itemise and justify individual costs. Under the régime micro-fiscal alone, however, social contributions were still dictated by the standard travailleur non-salarié (TNS) rules (provisional contributions based on prior-year income, with an annual regularisation and no mechanical link to actual cash received during the year).

The Loi de Modernisation de l'Économie of August 4$^{\text{th}}$ 2008 added a third, super-simplified tier by creating the auto-entrepreneur status. The stated goal was to reduce the administrative burden of business creation and make entrepreneurship more accessible. Concretely, the law introduced the régime micro-social simplifié, available to any entrepreneur eligible for the régime micro-fiscal who chose to register under the auto-entrepreneur status: social contributions are computed as a flat percentage of actual cash revenue, paid monthly or quarterly, with no contribution owed

when no revenue is received, eliminating both the provisional call and the year-end regularisation of the standard TNS track. Subject to a household income ceiling, auto-entrepreneurs could additionally opt for the versement libératoire de l'impôt sur le revenu, merging income tax and social contribution payments into a single periodic filing at a flat rate on gross revenue. Crucially, before 2016 it remained legally possible to be in the régime micro-fiscal without having opted for the auto-entrepreneur status. The auto-entrepreneur status was thus an option available at registration to any entrepreneur eligible for the régime micro-fiscal rather than a standalone regime.

The régime micro-fiscal can be very advantageous relative to the régime réel in a range of situations. For entrepreneurs in high-abatement sectors with relatively low output costs, retail sales in particular at 71%, the flat abatement both reduces the effective income tax base and eliminates the need to hire an accountant, often yielding a lower tax burden at lower administrative cost than the régime réel. This advantage diminishes for liberal professions, where the abatement rate is only 34%, making the saving on accounting fees the more likely motivation for opting out of the régime réel. The régime micro-social adds further predictability: since contributions are a fixed share of cash revenue, cash-flow management is straightforward and downside risk is contained, as nothing is owed when no revenue is received. Thus, whether the micro-social rate is cheaper in absolute terms than the standard TNS regime heavily depends on the cost structure of the entrepreneur. The appeal of the micro-social regime is therefore primarily one of simplicity and risk reduction rather than guaranteed cost savings.

From a labour market perspective, the creation of the auto-entrepreneur status was associated with a sharp boom in firm creation. In 2009, out of 575,000 newly formed companies, around 320,000 were registered under the auto-entrepreneur regime. More broadly, microentrepreneurs accounted for approximately 34% of net job creations outside the agricultural sector among the self-employed between 2009 and 2018.[1] New registrations were concentrated in services, construction, and manufacturing, with the transport sector growing in weight from the mid-2010s in connection with the expansion of platform-mediated gig work. Nonetheless, this rapid expansion was also synonymous with precarity and instability. Indeed, among early entrants, 49% came from unemployment, and survival rates were low, raising genuine concerns around disguised unemployment and involuntary self-employment. These simplified reporting standards also made the regime more susceptible to misreporting, as documented by Aghion et al (2025). Close to half of new auto-entrepreneurs reported null revenue in their first year following the 2008 reform, consistent with the possibility of under-reporting, though genuine start-up delays offer an alternative explanation.

While registration growth was strong during 2009–2011, it slowed and ultimately reversed in the years that followed. The Loi Pinel (loi n°2014-626 du 18 juin 2014, relative à l'artisanat, au commerce et aux très petites entreprises) introduced a set of changes that substantially raised the administrative and financial cost of the status, and formally unified the micro-fiscal and micro-social regimes. Its main provisions were as follows: First, the registration exemption that auto-entrepreneurs had previously enjoyed was abolished and traders were required to register with the Registre du Commerce et des Sociétés (same for craftsmen with the Répertoire des Métiers). Second, auto-entrepreneurs were made liable for the frais de chambres consulaires (CCI and CMA dues) and the cotisation foncière des entreprises, from which they had previously been exempt. Third, and most consequentially for this study, the law mandated the unification of the régime micro-fiscal and the régime micro-social simplifié into a single compulsory régime microentrepreneur. What had previously been an opt-in social contribution track available to micro-fiscal entrepreneurs became, from January 1st 2016, the automatic and mandatory social regime for any entrepreneur below the turnover ceiling, with no option to remain affiliated to the standard TNS track. These provisions took effect progressively between December 2014 and

[1]The auto-entrepreneur regime and its successor, the microentrepreneur regime, are not applicable to agricultural activities as such. An individual active in agriculture may nevertheless register as a microentrepreneur for a separate, non-agricultural activity, but cannot apply the regime to agricultural income.

January 2016, and the cumulative cost increase for jobholders triggered a contraction of around 9% in registrations. INSEE documents a decline of around 9% in micro-entrepreneur creations in 2015, while non-micro firm creation rose simultaneously, consistent with regime substitution rather than a pure demand destruction effect. Registration growth did resume thereafter, though at a more moderate pace than the 2009–2013 boom.

The 2018 reform, however, was passed with the explicit goal of expanding the availability of the microentrepreneurship regime and enabling people who are already in this regime to develop their activities without losing their status. It was voted within the scope of the loi de finance 2018 and reshapes the landscape of microentrepreneurship in at least four separate ways. Firstly, the eligibility thresholds were doubled. They went from 33,200 € to 70,000 € in annual revenue for services and other activities with the BNC classification, and from 82,800 € to 170,000 € for sale activities falling under the BIC classification.[2] This chapter of the reform is the most important one and is at the core of the structural model I use in this paper to provide additional quantitative evidence on the impact of the reform. Another important aspect of the reform, also centred on the long-term viability of this status, is the revision of the conditions for exiting it. While exceeding the threshold in a single year meant an immediate exit from the micro regime prior to the reform, the post-reform rules introduce a two-year tolerance. Now, an entrepreneur must exceed the threshold for two years in a row to lose eligibility, instead of losing it instantly as was the case before the reform. This forward-looking aspect is not explicitly modeled in this paper due to the limited data availability on transition rates and the short panel nature of the Enquête Emploi but is worth exploring for further research. Lastly, the reform introduces a clear decoupling of VAT exemption from the micro regime and expands the scope of the versement libératoire. Regarding VAT, the franchise threshold was not raised in parallel with the micro regime thresholds, creating a zone between the old and new micro thresholds in which entrepreneurs qualify for the micro regime but are no longer automatically exempt from VAT. This does introduce some heterogeneity in who has an interest in becoming a microentrepreneur before the reform compared to after, but the short panel data makes distinguishing between VAT-sensitive and VAT-insensitive sectors too unreliable for systematic identification. As regards the versement libératoire, its eligibility has always been conditional on a household income ceiling as well as a turnover ceiling. The reform left the household income ceiling unchanged while doubling the turnover threshold, meaning that some entrepreneurs newly eligible for the micro regime after 2018 can access the versement libératoire (those with modest household income but mid-range turnover), while others cannot (those with the same turnover but high household income). Like the VAT side of the reform, this may bias my estimates for the pecuniary value of self-employment pre versus post reform.

Regarding the cost of the reform, the threshold doubling was expected to weigh little on public finances, since it widened access to the regime without lowering any rate, which is the reading the structural model later confirms. This reflects the fact that this reform was primarily viewed as a way to draw in (or maintain) high-ability entrepreneurs by pushing towards expanding administrative simplification, rather than by presenting them with a genuine tax reduction per se. Non-pecuniary benefits of entrepreneurship are therefore the most important determinants of microentrepreneurship around this reform, which is why my approach focuses on identifying and quantifying those specific channels rather than prioritising potential tax optimization motives.

Aside from the reform, it is worth characterising who microentrepreneurs are in France and how they differ from other socio-professional categories. As described above for the pre-2018 period, microentrepreneurs are mostly active in the service sectors (48% in 2022) followed by health and commerce. The transport industry has seen the fastest growth among those, with 53% growth between 2017 and 2021, the period of interest. Their revenues are also very dispersed with a ratio of 1:8 between the lowest and highest microentrepreneur revenues, which is twice the

[2]The threshold was already slowly drifting upward prior to the reform in line with inflation, but the increase remained small and nowhere near as abrupt. The new thresholds were applied retroactively to the fiscal year 2017: entrepreneurs who exceeded the old ceiling but remained below the new one in 2017 retained their micro status, even though the law was passed in late December 2017.

dispersion observed for other non-salaried categories who are themselves more prone to income risk than the wage employed. Their revenues are also strongly massed about 0 and average revenues for microentrepreneurs tend to be smaller. The recent revenue trend does however seem to favour them more than regular self-employed: microentrepreneur revenues went up by 6.1% in 2019 while they fell by 2.1% for other independents. This is consistent with the idea that the 2018 reform primarily targets microentrepreneurs, or would-be entrepreneurs, who stand on the higher end of the ability spectrum and are likely to be drawn by the increased flexibility offered by this regime for the same revenue. I provide additional evidence in this direction in Section 5, where within-cell selection patterns confirm that post-reform entrants are more positively selected than the pre-reform population based on education and revenue.

Another notion that is closely tied to that of microentrepreneur in France is the notion of pluriactivité or multiple jobholding in the English literature. Pluriactivité in French sometimes has different definitions amongst institutional sources. For the sake of clarity, I adopt throughout this paper the definition most often used by INSEE, which is that of people who have either more than one professional activity or more than one employer. This definition incorporates both people who have more than one wage job and people who may have a wage job and a self-employed job. When the auto-entrepreneur status was created, 57% of new entrants exercised this activity as a secondary job rather than as their primary occupation. Out of those 57%, around 56% did so in complement with wage employment, while the rest used it to supplement their retirement income.[3] I shall refer to those mixing a wage job and a microentrepreneur job as hybrid microentrepreneurs throughout this paper. This category is essential to understand the diversity of motivations amongst people who choose to become microentrepreneurs and is at the centre of what the structural model in this paper studies by accounting for three main separate motives: the hours constraint motive, which is common in the dual jobholding literature, notably for dual wage employment (Lalé, 2025), and two portfolio diversification motives (preference for heterogeneity and aversion to labour income risk). Although this category of microentrepreneurs weighs relatively less as a share of total microentrepreneurs as the number of single entrepreneurs expanded more in absolute terms, it remains a distinguishing feature when comparing it to the rest of the self-employed population. For instance in 2022, 10% of classic non-salaried workers were pluriactive against 30% of microentrepreneurs (INSEE, 2022). The diversity of sectors amongst pluriactive microentrepreneurs is also significant, although they still tend to be overrepresented in some sectors such as health and social action or transport and warehousing. Lastly, amongst hybrid entrepreneurs, non-salaried revenues are lower than for monoactive workers (although there are some exceptions), with the volume of salaried work being strongly linked to the level of non-salaried revenue and the sector of SE activity. In sum, hybrid microentrepreneurs are a fast-growing category of pluriactives and are increasingly dominant in some sectors. However, they grow at a slower pace than their monoactive counterparts, which may convey the impression that microentrepreneurs are moving away from it when absolute counts suggest otherwise.

3 Literature Review

A sizable share of the literature on self-employment studies settings where it emerges as a response to labour market frictions, and the picture that emerges from it is consistent: self-employment tends to absorb workers whom the wage sector serves poorly. In emerging economies, Poschke (2025) shows through a search and matching model that poor match quality and high job destruction rates push workers into self-employment as an outside option to failed job search, worsening the average quality of both wage matches and self-employment projects in the process. Amodio et al (2025), looking at Peru, reach a complementary conclusion through a general equilibrium Roy model, in which self-employment disciplines employer wage-setting by serving as an outside option in concentrated labour markets. In developed economies, Boeri et al (2020)

[3]This corresponds to approximately 32% of all new entrants combining wage employment and auto-entrepreneurship, and 25% combining it with retirement income.

document much the same profile from comparable labour survey data for the United Kingdom, Italy, and the United States, characterising solo self-employment as an intermediate state between wage employment and unemployment: solo self-employed workers enter disproportionately from unemployment, are systematically underemployed and liquidity-constrained, and cite flexibility as their main reason for staying. What these settings share is that self-employment stands in for something the worker would rather have, scarce wage work in the first two cases, a lost job in the third, so the selection they identify runs from the bottom of the wage distribution. The population I study sits at the other end. The 2018 reform raises the turnover ceiling of a simplified regime precisely to reach workers with genuine entrepreneurial earning potential, and the descriptive evidence in Section 5 confirms that the entrants it draws are more positively selected than the pre-reform population. The question I tackle is, thus, complementary to what was discussed above as I study who is pulled into self-employment when the margin being relaxed is not a shortage of wage jobs but a cap on how far a business can grow.

Turning from why self-employment absorbs workers to why they choose it, a second body of work within developed-country settings isolates the non-pecuniary returns that make entrepreneurship attractive on its own terms. Hurst & Pugsley (2011) argue that these benefits, flexibility, autonomy, being one's own boss, are a quantitatively important part of total self-employment compensation, and that ignoring them biases upward standard estimates of the entrepreneurial risk-return tradeoff. Flexibility is the component that recurs most. Lim (2017), studying the labour supply of mothers in the United States, estimates that women with preschool-aged children value the flexibility bundle of self-employment at roughly \$7,400 per year, about 25% of their average wage earnings. My structural model carries this channel directly, through a disutility-scaling parameter $\gamma < 1$ that lowers the marginal cost of self-employed relative to wage hours, standing in for the greater schedule flexibility of running one's own business. Hurst & Pugsley make a second point that matters as much for my approach: heterogeneity in these tastes is itself a major source of variation in occupational outcomes, so that treating the full spread of self-employment income as pure risk overstates the risk actually borne. Dillon and Stanton (2017) reach a similar conclusion from a dynamic entry model with Bayesian learning, recovering a large average disutility of self-employment alongside wide dispersion across individuals, and adding a learning motive whereby wage employment serves as a fallback while people discover their entrepreneurial ability. My framework is static and so leaves that learning channel aside, but it takes on board the heterogeneity in ability across occupations that both papers stress, which I capture through a bivariate lognormal ability distribution in the manner of Amodio et al. Where this literature treats self-employment as a single state that competes with or leads into wage work, I split it into pure self-employment and hybrid wage-plus-self-employment, and I quantify the pecuniary and non-pecuniary returns to each within one discrete-choice model fitted to French data. The hybrid state is what the monolithic treatment cannot represent: it lets a risk-averse worker with strong absolute ability keep a wage job precisely in order to hedge the income risk of the business, a margin the existing occupational-choice literature largely sets aside.

That hedging margin places my work in a second strand, on dual jobholding and hybrid entrepreneurship. The canonical framework here is Choe, Oaxaca & Renna (2018), who build a unified model of single and dual jobholding on a Stone-Geary utility function, partitioning workers into six regimes according to whether they hold one or two jobs and whether they are over-employed, under-employed, or unconstrained on the primary job. Estimated on the British Household Panel Survey through regime-specific labour supply equations tied together by a multinomial logit selection correction with unobserved heterogeneity, the model yields two results I lean on. Second-job labour supply elasticities are much larger than first-job elasticities, but fall substantially once selection and unobserved heterogeneity are accounted for, so that naïve estimates of second-job responsiveness are badly biased; and cross-wage effects are unambiguously negative, a 10% rise in the primary wage cutting second-job hours by 3.6 hours for unconstrained dual jobholders, which marks the two jobs as substitutes rather than complements. I build on this directly but widen the set of job types. Like Choe et al I develop both a constrained model with

exogenous primary wage hours and an unconstrained model in which all hours are chosen, and I extend the framework in two directions: the secondary activity can be self-employment rather than wage work, which changes its hours flexibility, risk profile, and regulatory treatment, and the choice sits inside a structure where workers weigh secondary wage work against secondary entrepreneurship as competing dual-employment strategies. On the dual-wage side specifically, Lalé (2025) builds a Mortensen-Pissarides search model on US data and finds the flow cost of a second job sizable, some 16 to 18% of average monthly earnings, evidence of a strong baseline distaste for dual wage-holding, though one the gig economy is eroding. With Kostyshyna (2022) he studies the tripling of multiple jobholding in Canada from the mid-1970s to the late 2010s and shows that, while economic motives remain the main stated reason, more flexible primary-job schedules have been the key enabler of the rise. I take these frameworks further by making job types heterogeneous, which generates dual-employment motives that combine hours constraints, a preference for flexibility, and risk-driven portfolio diversification.

The last of these motives connects my work to the literature on hybrid entrepreneurship proper, where a wage job and a business are held together. Theoretically, Benitez, Bonilla & Vergara (2024) study how income risk shapes a hybrid entrepreneur's time allocation and show that, under CRRA preferences, self-employment risk can trigger a precautionary shift of time toward entrepreneurship once prudence is high enough, with the threshold rising when entrepreneurship is a multiplicative rather than additive source of risk. Empirically, Doucette & Bradford (2019) test whether standard moonlighting motives survive in a gig-economy setting and find risk diversification to be gendered: women reporting less predictable primary-job income devote more hours to gig work, consistent with the gig job hedging wage income risk. My mechanism is the mirror image. Here the secondary activity carries the risk and the primary wage job supplies the stable base, so the hybrid state combines a taste for flexibility with a hedge against entrepreneurial volatility rather than against wage volatility. I also trace both the intensive and extensive margin responses to a concrete reform, an exercise the hybrid-entrepreneurship literature above rarely undertakes.

The third and final strand concerns the tax, regulatory, and risk determinants of entry into self-employment and dual jobholding, and it is where my policy question ultimately sits. For dual wage holders the focus is on how hours and participation respond to taxation. On the intensive margin, Choe, Oaxaca & Renna (2020), extending their own Stone-Geary model, show that higher marginal tax rates cut primary-job hours but raise secondary-job hours, with the second-job elasticity four to five times the first-job one and strongest among constrained workers, for whom the second job is the main adjustment margin when primary hours are fixed. On the extensive margin, Tazhitdinova (2022) uses Germany's 2003 Hartz II reform to show that secondary jobholding roughly tripled over seven years without a fall in primary earnings, a genuine rise in total hours rather than substitution, driven mainly by hours constraints and with participation elasticities far higher for secondary than primary jobs. My paper complements these by studying a reform aimed primarily at the non-pecuniary side of self-employment and by tracking both margins for single and dual jobholders at once.

A related literature turns from taxation to the wider institutional environment, and in particular to how the safety net priced around self-employment shapes entry. Audoly (2025) documents two risks specific to the self-employed, markedly higher within-spell earnings volatility and non-trivial direct flows into unemployment, and shows that extending US unemployment insurance to them would raise unemployment by making self-employment less attractive net of contributions. Choi (2024) finds the same for gig workers, whom more generous unemployment insurance discourages because they and UI-eligible unemployed workers are close substitutes. In the French setting, Hombert et al (2014) study the 2002 *Plan d'Aide au Retour à l'Emploi*, which let new entrepreneurs keep their unemployment benefits for three years against business failure, and find entry up by 25%, concentrated among workers facing the largest income loss from failure, which underlines how much downside protection matters for able but risk-averse individuals. Rather than an external insurance scheme, I model hybrid employment as the worker's own hedge, a stable wage income held alongside the business to offset its volatility.

Closest to my object is the work on taxation and self-employment entry itself. Arulampalam & Papini (2023) exploit the Norwegian dual income tax and find that greater tax convexity deters entry and encourages exit, so that taxation bites mainly on the selection margin. In the French context, Aghion et al (2025) quantify how the 2008 creation of the *auto-entrepreneur* regime altered independents' behaviour: through a bunching design they document substantial substitution between self-employed and employed work near the eligibility threshold, with sizable hidden employment as individuals report wage-like income as self-employment income below the cap, which they attribute to a strong taste for administrative simplicity, worth up to 495 euros a year, together with an evasion motive that the regime's light reporting enables. I build on this and extend it twice over. First, I study a later reform, the 2018 threshold doubling, in a setting where micro-entrepreneurship has already grown for years and the aim is to attract new, higher-ability profiles rather than to shift behaviour at the threshold. Second, I widen the extensive margin to selection into micro-entrepreneurship from wage employment, dual wage employment, and unemployment alike. I report interrupted-time-series estimates of both the intensive and extensive margin responses, which the concurrent reforms render conservative, a lower bound on the true effect, and I use the structural model to separate the pecuniary (τ) and non-pecuniary ($S_H - S_L$) channels behind the observed changes.

4 Data

4.1 Sample Construction

I use data from the French Labour Force Survey (*Enquête Emploi en Continu*), conducted by INSEE. The survey is a rotating short panel: in each quarter, a cohort of approximately $N/6$ individuals enters the sample and is surveyed for six consecutive quarters, after which it exits and is replaced by a new cohort. Denoting the total number of individuals in the sample at any point by N and the number of rotation periods by $z = 6$, an individual i entering in quarter t is observed for quarters $t, t+1, \ldots, t+5$, and the combination of overlapping cohorts produces a panel in which $H = (T-1) \cdot N/z + N$ individuals are partially observed across T quarters. This structure is a substantial challenge for identification and empirical estimates as short individual spells make it difficult to identify clean transitions across occupational states, and quarter-to-quarter autocorrelation in outcomes is strong since most individuals do not change professional status within six quarters. I detail my strategy for dealing with the latter issue in section 6.

My broadest sample spans the second quarter of 2014 to the fourth quarter of 2019. The starting date is dictated by the micro-entrepreneur identifier variable (`autoent`), which is ill-defined before 2014Q2, and by the fact that French overseas territories were not surveyed prior to 2014. The end date excludes the year 2020 to avoid picking up confounding trends attributable to the onset of the Covid-19 pandemic. This yields 560,555 unique respondents. For the empirical analyses, I take a more restrictive window starting in 2015Q1 to net out the short-run effects of the *Loi Pinel*, which temporarily depressed micro-entrepreneur registration rates as described in Section 2. This brings the sample to 500,222 unique individuals over 2015Q1–2019Q4.

I then apply a series of filters, summarised in Table 1, and weight all observations using the `extri` sampling weights provided by INSEE.

Table 1: Sample construction for 2015Q1–2019Q4

#	Filter (cumulative; each row applies in addition to all prior filters)	Person-quarters	Unique ids
0	Raw panel	2,004,334	500,222
1	+ non-missing `age`	2,004,334	500,222
2	+ `age` $\in [15, 65)$	1,471,624	384,151
3	+ non-missing `extri`	1,471,624	384,151
4	+ `acteu` $= 1$	924,250	256,038
5	+ drop AZ sector	895,740	249,008
6	+ classifiable type	878,828	244,591

The age restriction excludes individuals who are either too young to be active or old enough to be earning a pension, making them less comparable to the rest of the panel. I then restrict the sample to employed individuals (excluding the unemployed) so that each professional category can be expressed as a share of working actives. While this restriction is relaxed when estimating the structural model, which accounts for transitions from and to unemployment, I maintain it in the empirical analyses to avoid any upward bias induced by the concomitant downward trend in unemployment over 2016–2019, which may reflect policies unrelated to the reform. I drop individuals active in the agricultural sector in either their primary or secondary job, since agricultural activities cannot be exercised under the micro-entrepreneur regime. Lastly, I remove workers who hold more than one secondary job, to obtain a clean classification for dual jobholders, and I filter out individuals whose occupational status cannot be determined with certainty.[4]

4.2 Outcome variables: extensive margin

The *Enquête Emploi* provides detailed information on professional occupations including secondary activities. Since individuals are polled every quarter regarding their professional status, this information is substantially more reliable than the income fields, which are recorded only in the first and last quarter of each individual's spell. I construct two categorical classification variables from the survey's employment status, multi-activity, and micro-entrepreneur identifiers.[5]

The first, `indep_type`, classifies all independents (excluding salaried CEOs) into: Wage only, Independent only, Wage + Wage, Wage + Independent, Independent + Wage, and Independent + Independent. The second, `micro_type`, restricts attention to micro-entrepreneurs specifically, with analogous categories. Since micro-entrepreneurs are by definition a subset of independents, "Wage + Micro" and "Micro only" are subsets of "Wage + Independent" and "Independent only" respectively.

The four outcome variables I use to quantify the extensive margin response to the reform are the shares of Wage + Independent, Wage + Micro, Independent only, and Micro only in the working active population. Detailed counts are provided in Table 2. As the quarterly counts for pluriactive individuals whose main job is independent/microentrepreneurs are too low (917 unique individuals for Indep. + Wage, 623 for Indep. + Indep. in the broader classification), I exclude these categories from my outcomes of interest.

[4]For instance, I exclude individuals who declare themselves as pluriactive but who answer negatively to both having multiple professional activities and having multiple employers.

[5]Specifically, I combine information from `stc` (main job status), `plract` (multi-activity flag), `uneprof` (single-employer flag), `statuts2`–`statuts4` (secondary job statuses), `autoent` and `autoenta`–`c` (micro-entrepreneur flags), and `nbtemp` (number of employers). The detailed construction rules are provided in Appendix A.

Table 2: Distribution of occupational categories

	`indep_type`		`micro_type`	
Category	Person-qtr	Unique ids	Person-qtr	Unique ids
Wage only	759,716	215,341	759,716	215,341
Independent/Micro only	77,631	21,896	18,895	6,093
Wage + Wage	31,031	10,104	31,031	10,104
Wage + Indep./Micro	6,094	2,123	4,124	1,436
Indep./Micro + Wage	2,423	917	1,022	429
Indep./Micro + Indep./Micro	1,841	623	448	172
NA / unclassifiable	17,004	7,470	80,504	24,136
Total	**895,740**	**249,008**	**895,740**	**249,008**

The large difference in unclassifiable observations between the two classifications (17,004 vs. 80,504 person-quarters) reflects the fact that `micro_type` imposes a stricter requirement: an independent must be positively identified as a micro-entrepreneur (via the `autoent` flag) to be classified, whereas `indep_type` only requires that the individual be identified as an independent worker regardless of regime. Consequently, the 63,500 additional NA observations under `micro_type` consist almost entirely of independents whose micro-entrepreneur status cannot be determined from the survey variables. To compute shares amongst working active, I take the whole working active population sample described in table 1 for the denominator. This includes people who cannot be classified strictly by one or both categorical variables in order to avoid selection issues when comparing coefficients for the share of independents and for the share of microentrepreneurs.

4.3 Outcome variables: intensive margin

The survey data on hours worked is detailed for both primary and secondary occupations. I compute two outcome variables: the number of hours worked per week on the primary job, measured by the variable `hhc` which is reported by every employed respondent including the self-employed, and the number of hours worked per week on the secondary job (where applicable), obtained as the difference between total weekly hours across all professional activities (`nbtot`) and primary hours. Both variables are continuous and non-response is low (below 4%) regardless of occupational category.

4.4 Income variables

Income variables in the *Enquête Emploi* suffer from several issues. Entrepreneurial income is subject to significant non-response among micro-entrepreneurs, it is not measured with the same level of granularity depending on whether the revenue concerns a primary or secondary activity, and misreporting/underreporting is difficult to assess. This justifies walking away from a bunching design, as the one proposed by Aghion et al (2025), and adopting an interrupted time series design instead.

The main-job wage variable `salmee` and the secondary-job wage variable `salsee` are continuous and reported alternately as net or gross (flagged by `typsal` and `typsec` respectively). The vast majority of respondents declare net amounts (approximately 90% for `salmee` across all wage-employed categories, 95% for `salsee` in dual wage configurations, and 90% for `salsee` in hybrid entrepreneurship configurations). Because the structural model in Section 9 reasons natively on gross earnings, I harmonise both variables to gross by un-deducting the relevant contribution wedge from the net-reported majority and leaving the gross-reported minority as declared. The wedges used here include only employee or self-employed social contributions, income tax is excluded in line with the treatment of τ_W and κ_s^m throughout the paper (see footnote in Section 8.3),

and operating costs and abatement are likewise excluded since they are not part of the EEC's net-of-contributions reporting convention.[6] For wage earnings,

$$\text{salmee_gross} = \begin{cases} \dfrac{\text{salmee}}{1-\tau_{\text{soc}}} & \text{if } \texttt{typsal} = 1 \text{ (net)} \\ \text{salmee} & \text{if } \texttt{typsal} = 2 \text{ (gross)}, \end{cases}$$

with $\tau_{\text{soc}} = 21.45\%$ (URSSAF private-sector schedule, CSS Art. L136-8; see the calibrated parameter τ_W in Section 9.3). The same rule applies to `salsee` in dual wage configurations. For hybrid micro-entrepreneur secondary income (`salsee` when the worker is in a Wage + Micro configuration), the wedge is the sector-specific micro contribution rate $\kappa^m_{s,i}$ as defined in appendix H: 12.8% for BIC retail-vente activities (NAF Section G), 22.0% for BIC prestation-services activities, 22.0% for liberal-BNC professions under SSI, and 22.2% for liberal-BNC professions under CIPAV (URSSAF micro-entrepreneur schedule). For hybrid entrepreneurs under régime réel the wedge on the secondary income is the effective TNS contribution rate $\kappa^r_s = 45\%$, applied uniformly across sectors.

Lastly, to approximate the annual gross revenue of entrepreneurs who run their business as a primary activity, I rely on the categorical variable `revent`, which reports this amount in brackets. `revent` is intended as gross turnover (chiffre d'affaires) by the survey design and carries no net/gross flag, so no harmonisation is applied. The bracketed amount is used as declared, with the bracket midpoint serving as the working value in the structural identification.

Table 3: Revenue variable non-response by occupational category

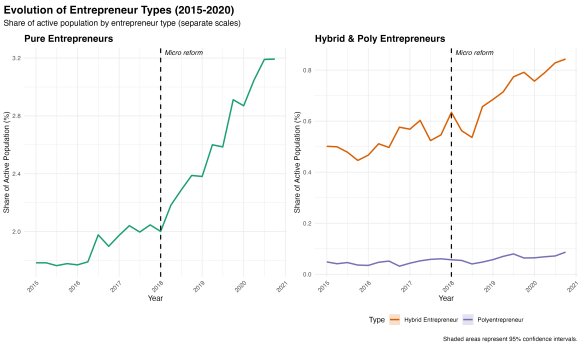
Variable	Category	Non-response
`salmee`	Wage only	19.1%
	Wage + Wage	18.0%
	Wage + Indep.	17.4%
	Wage + Micro	16.5%
`salsee`	Wage + Wage	31.4%
	Wage + Indep.	22.5%
	Wage + Micro	22.9%
`revent`	Independent only	18.3%
	Micro only	16.9%

Notes: `salmee` is the main-job wage, `salsee` is the secondary-job wage, and `revent` is non-salaried revenue. Each variable is only applicable to the categories listed.

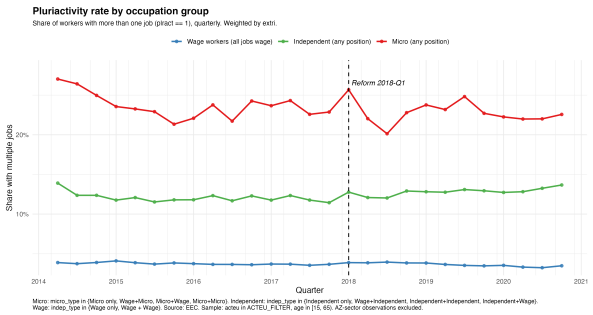
[6] For hybrid entrepreneurs reporting net `salsee`, the variable captures take-home compensation from operating the secondary activity rather than the activity's chiffre d'affaires. The contribution gross-up recovers an object intermediate between take-home and turnover, since it does not gross up for operating costs (which the entrepreneur pays out of personal income rather than reporting separately). I treat this gross-up as a measurement approximation to align WSE with the model's turnover-based productivity object. The resulting overstatement of WSE gross earnings is concentrated in cost-intensive sectors (BIC retail) and is bounded by the small size of the gross-reported WSE subset (approximately 0.06% of the active sample).

5 Descriptive Statistics

5.1 Stylized Fact 1: Microentrepreneurship has been steadily expanding since 2016 and remains closely associated with pluriactivity



(a) Share of each entrepreneur type over time

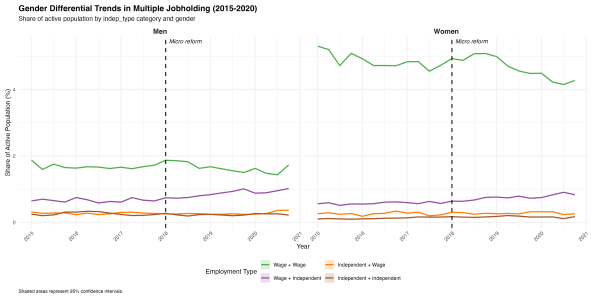


(b) Pluriactivity rate by occupation group

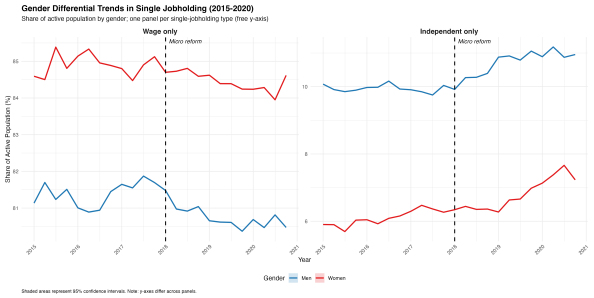
Figure 1: Entrepreneurship and pluriactivity trends (2014–2021)

Looking at Figure 1a, the share of workers whose primary occupation is an independent business (and who do not cumulate it with another activity) has risen markedly since 2016, with a +1.6 pp increase in five years. This upward trend accelerated sharply in 2018, coinciding with the reform, as I demonstrate more rigorously in the next section. Independents nonetheless remain a small minority compared to single wage jobholders, who account for roughly 83% of working actives in 2016. The wage-only share, however, dropped by −1.1 pp after 2018. Given that unemployment also decreased over this period, this gives some credence to a potential reallocation from wage employment toward self-employment.

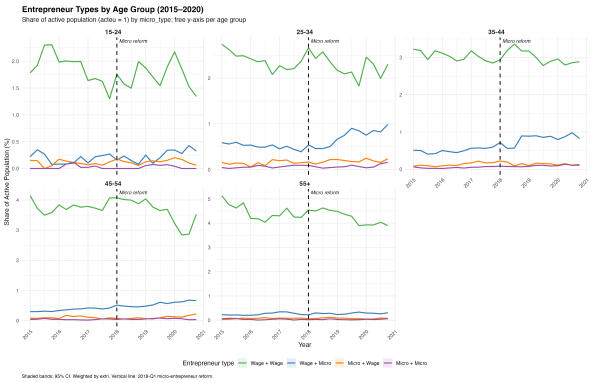
Looking at pluriactives with at least one active business (Figure 1b), the trends are comparable though of lesser magnitude. Hybrid entrepreneurs (workers combining a wage job and a business) show a strong upward trend, with their share of the active population nearly doubling between 2016 and 2021. Polyentrepreneurs (workers with two or more businesses and no wage job) show a slight increase after 2018 but consistently represent less than 0.1% of working actives. Conversely, the share of dual wage holders has been declining since 2015, even though it remains the dominant form of dual jobholding in France at roughly 3% of working actives. Reallocation is harder to defend for dual jobholders, however, since overall pluriactivity rates have been mildly declining over this period. Despite this, the share of pluriactives among micro-entrepreneurs is much higher (around 20%) than for other job types (less than 5% for the wage-employed), and this gap has evolved little over the period. This motivates treating hybrid entrepreneurship as a structurally distinct occupational state rather than a residual category.



(a) Share of each entrepreneur type over time, by gender



(b) Share of single jobholders, by gender



(c) Share of each entrepreneur type over time, by age group

Figure 2: Heterogeneity in entrepreneurship trends by gender and age

Breaking down these figures by gender (Figure 2) reveals that the aggregate trends are broadly homogeneous across genders, with two notable exceptions pertaining to dual jobholding. First, dual jobholding is much more prevalent among women. Second, hybrid entrepreneurship represents a much greater share of male pluriactives than of female pluriactives. These patterns are consistent when disaggregating by age group: the fastest growth in hybrid entrepreneurship rates post-reform is observed among men aged 25–54, which aligns with the idea of a gendered phenomenon which targets primarily young to middle aged men who wish to start a business or develop a new one and were hesitant to do so prior to the reform.

5.2 Stylized Fact 2: Occupational states select on markedly different populations, with hybrid entrepreneurs being the most positively selected

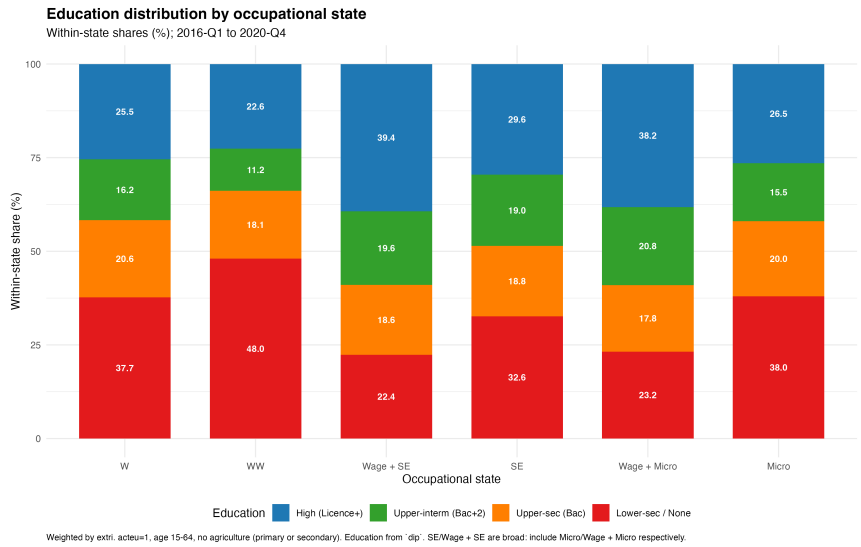


Figure 3: Educational attainment shares by job state

Looking at educational attainment across job states (Figure 3), hybrid entrepreneurs are consistently better educated, on average, than other jobholders, including their single-jobholding counterparts. Dual wage holders, by contrast, exhibit the worst overall educational attainment among all working actives. This suggests fundamentally different selection mechanisms: hybrid entrepreneurship appears to be an elective, high-ability choice, while dual wage holding appears to be a constrained, low-wage one. This difference is central to why my model treats these two dual-employment states as distinct and assigns them separate hours and disutility structures. Among single jobholders, entrepreneurs exhibit a distinctive bimodal education pattern, with strong representation at both ends of the spectrum, consistent with the greater ability dispersion that my model accommodates through the variance parameter $\sigma^2_{SE} > \sigma^2_W$.

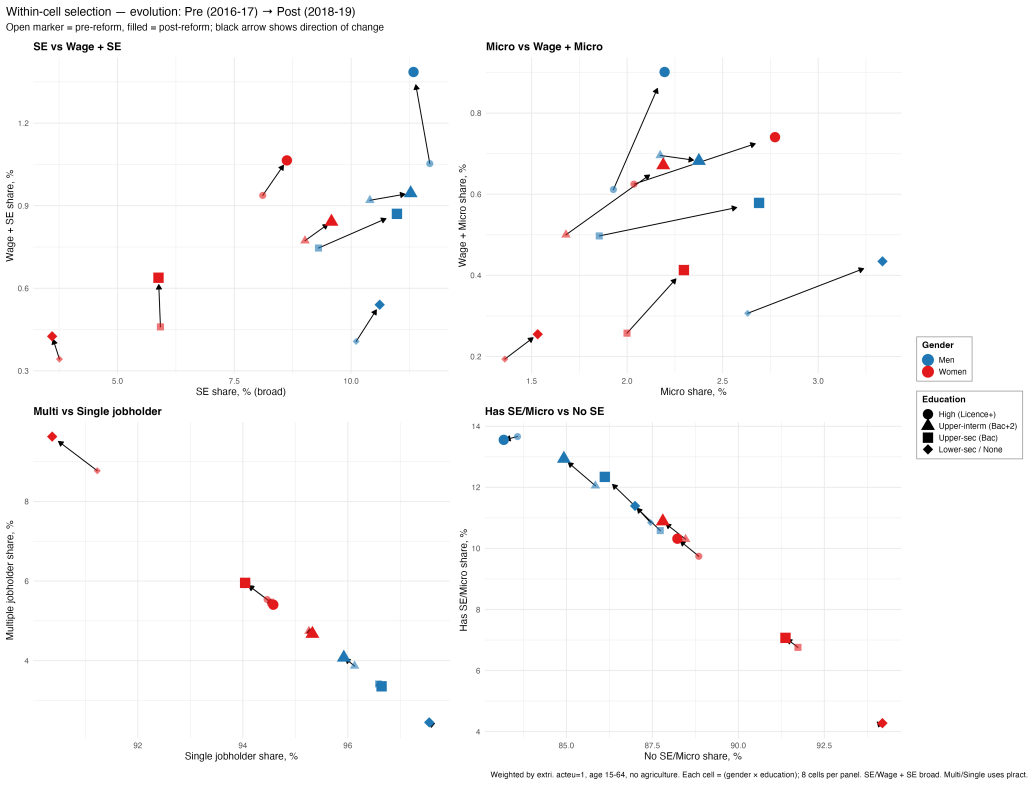


Figure 4: Evolution of within-cell selection pre- and post-reform, by gender and education level

Figure 4 shows that positive selection into entrepreneurship has maintained itself post-reform, but the way entrepreneurship takeup has evolved depends on gender and education level. Two main patterns emerge.

First, when looking at hybrid entrepreneurs, the increase in takeup is driven by highly educated men who were already the best represented in this category. Comparatively, takeup for this job state among their low-educated counterparts only moved slightly upward following the reform. For women the picture is somewhat more mixed : although the most educated women are also the best represented in this category for their gender, growth in this category is split fairly evenly between the low skilled and second most skilled women. On the whole positive selection based on education did go up slightly on average for this category but there appears to be genuine composition effects. Secondly, I observe a fairly different picture for primary entrepreneurship. While selection in this category is definitely much more positive amongst women after the reform, there is the exact opposite phenomenon for men for whom growth is strongest amongst the less educated. This, admittedly, makes the trend more nuanced, although there is still a noticeable growth in the absolute share of well-educated men who become primary entrepreneurs.

Looking at entrepreneurship rates more broadly, a higher level of educational attainment is closely associated with the opening of a business, whether as a side occupation or as the main one. This remains true after the reform. Similarly, in line with the evidence presented above, being male is a strong predictor of entrepreneurship regardless of educational attainment, before and after the reform.

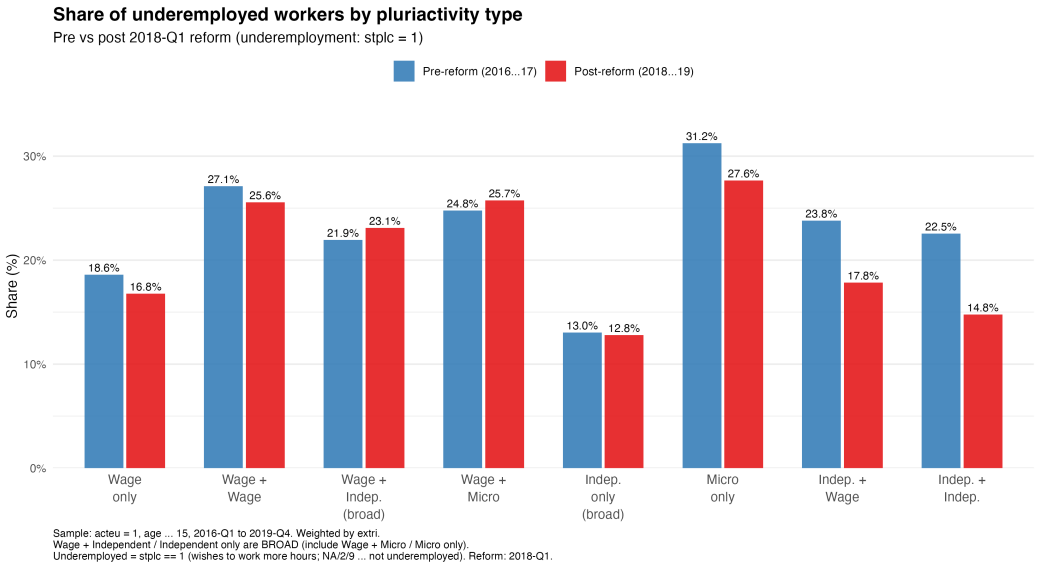


Figure 5: Share of workers wishing to work more hours (`stplc` = 1), by occupation (pre- versus post-reform)

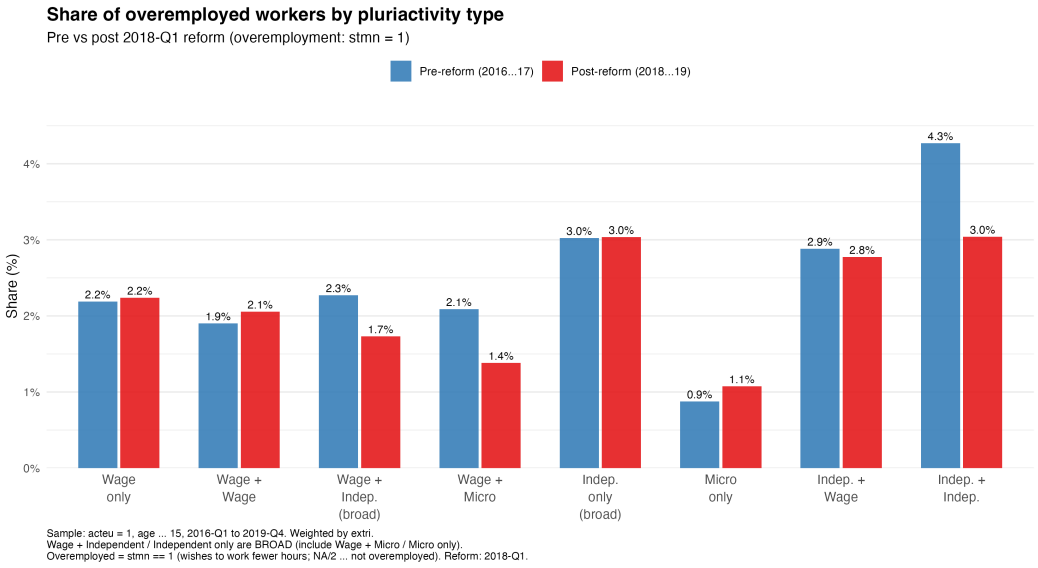


Figure 6: Share of workers wishing to work fewer hours (`stmn` = 1), by occupation (pre- versus post-reform)

Figures 5 and 6 present the two sides of hour constraints across occupational categories. The first uses `stplc` = 1 (wishes to work more hours with a corresponding increase in pay) and the second uses `stmn` = 1 (wishes to work fewer hours with a corresponding decrease in pay). The most striking feature is the asymmetry between the two: underemployment rates range from 13% to 31% depending on the category, while overemployment rates remain below 4.5% everywhere. This asymmetry is consistent with the French institutional environment, where the 35-hour legal workweek and collective bargaining agreements constrain hours from above, making overemployment a comparatively rare outcome.

On the underemployment side, solo micro-entrepreneurs report the highest rates of any category (31.2% pre-reform, 27.6% post-reform), followed closely by dual wage holders (27.1% to 25.6%) and hybrid micro-entrepreneurs (24.8% to 25.7%). The decline for solo micro-entrepreneurs is the largest across all categories and is consistent with the threshold increase enabling them to

develop their activity and increase their labour supply without losing micro status. By contrast, hybrid micro-entrepreneurs show near-stability in their underemployment rate, suggesting that the reform did not substantially alleviate the desire for additional hours among this group. This may reflect the fact that the binding constraint for hybrid entrepreneurs lies on the wage side of their employment, where institutional rigidities (fixed-hours contracts, collective agreements) limit adjustment regardless of the entrepreneurial regime. Among single jobholders, independent workers exhibit the lowest underemployment rate (13.0% pre-reform, 12.8% post-reform), consistent with hours flexibility being a key non-pecuniary benefit of self-employment.

On the overemployment side, rates are uniformly low but the cross-category pattern is informative. Hybrid micro-entrepreneurs show the sharpest decline (2.1% to 1.4%), which may indicate that the reform enabled some previously overemployed hybrid workers to rebalance their time allocation away from their wage job and toward entrepreneurship. Solo micro-entrepreneurs, by contrast, see a slight increase (0.9% to 1.1%), potentially reflecting that the higher threshold attracted entrants who work longer hours and are more likely to feel overextended. Independent workers (broad) are the most overemployed single-jobholder category at 3.0%, stable across periods, which is consistent with the absence of institutional hours caps for the self-employed.

Across the full range of dual jobholders, hybrid entrepreneurs are less underemployed than dual wage holders (24.8% versus 27.1% pre-reform) while marginally more overemployed (2.1% versus 1.9%). This is coherent with what my model posits for multiple jobholders: the self-employed can choose their hours more freely than in a wage employment setting through the absence of a minimum hours floor $\underline{h}$ on entrepreneurial work, which reduces both upward and downward hour-constraint pressures.

From a modeling perspective, I consider both the over and underemployed as constrained while others are considered as unconstrained (neither). Following the approach of Choe, Oaxaca & Renna (2018), who partition workers into six regimes based on an analogous hours-satisfaction question in the British Household Panel Survey, I use this classification to determine, for each individual, whether indirect utility in wage-related states (W, WW, WSE) should be computed using observed primary hours as exogenous (constrained model) or using optimally chosen primary hours (unconstrained model). I shall describe this hybrid approach in more detail in section 9.

5.3 Stylized Fact 3: Taste for heterogeneity varies markedly among dual jobholders

Table 4: Share of dual jobholders with matching primary and secondary job characteristics

Variable / Period	n total	n used	Unweighted	Weighted (extri)
Wage + Wage				
Sector — Pre	23,267	21,366	77.16%	75.95%
Sector — Post	16,755	15,533	77.94%	77.20%
CSP — Pre	23,267	23,267	63.84%	63.31%
CSP — Post	16,755	16,755	64.86%	64.72%
Wage + Independent				
Sector — Pre	4,198	4,198	30.51%	30.66%
Sector — Post	3,957	3,957	29.42%	30.45%
CSP — Pre	4,198	4,198	14.05%	14.04%
CSP — Post	3,957	3,957	13.60%	14.56%
Wage + Micro				
Sector — Pre	2,751	2,751	28.75%	28.41%
Sector — Post	2,798	2,798	29.41%	30.76%
CSP — Pre	2,751	2,751	13.16%	12.80%
CSP — Post	2,798	2,798	12.76%	14.04%

Share of person-quarters with the same code on primary and secondary job. Rows where either field is missing (NA or empty) are dropped from the denominator. Wage + Wage and Wage + Independent are taken from `indep_type`, Wage + Micro from `micro_type`. AZ-sector observations excluded on either primary or secondary side.

Table 4 shows that the correspondence between primary and secondary jobs, measured either by sector or by socio-professional category, is much lower for hybrid entrepreneurs than for dual wage holders with the gap reaching up to 50 pp for sector matching. This is consistent with hybrid entrepreneurs having a strong taste for heterogeneity in their occupational portfolio, which likely plays a significant role in their decision to combine wage and entrepreneurial work. In the language of my model, this taste is captured by the variety parameter $\phi < 1$, which lowers the disutility of entrepreneurial hours in the hybrid state relative to pure self-employment, tilting dual jobholders from WW toward WSE. The separate parameter γ governs the disutility of entrepreneurial work as such and is identified off participation rather than off this matching gap. In comparison, dual wage pluriactives tend to be primarily driven by economic and hour-constraint motives, which also exist among hybrid entrepreneurs but to a lesser extent.

Table 5: Wage + Micro: sector (NAF-10) ranking, pre-reform

Rank	Primary job (n=2,751)			Secondary job (n=2,751)		
	Category	n	%	Category	n	%
1	OQ Public admin., education, health	1,060	38.5%	RU Other services	616	22.4%
2	GI Trade, transport, hospitality	524	19.0%	OQ Public admin., education, health	579	21.0%
3	BE Industry (manuf., extractive, util.)	334	12.1%	MN Specialised & admin services	471	17.1%
4	MN Specialised & admin services	269	9.8%	GI Trade, transport, hospitality	444	16.1%
5	RU Other services	224	8.1%	BE Industry (manuf., extractive, util.)	227	8.3%
6	JZ Information & communication	135	4.9%	FZ Construction	189	6.9%
7	FZ Construction	112	4.1%	JZ Information & communication	174	6.3%
8	KZ Finance & insurance	46	1.7%	LZ Real estate	35	1.3%
9	LZ Real estate	42	1.5%	KZ Finance & insurance	15	0.5%
10	00 00	5	0.2%	00 00	1	0.0%

Table 6: Wage + Micro: sector (NAF-10) ranking, post-reform

Rank	Primary job (n=2,798)			Secondary job (n=2,798)		
	Category	n	%	Category	n	%
1	OQ Public admin., education, health	981	35.1%	RU Other services	632	22.6%
2	GI Trade, transport, hospitality	548	19.6%	OQ Public admin., education, health	571	20.4%
3	MN Specialised & admin services	358	12.8%	GI Trade, transport, hospitality	485	17.3%
4	BE Industry (manuf., extractive, util.)	321	11.5%	MN Specialised & admin services	435	15.5%
5	RU Other services	274	9.8%	JZ Information & communication	242	8.6%
6	JZ Information & communication	143	5.1%	BE Industry (manuf., extractive, util.)	203	7.3%
7	FZ Construction	90	3.2%	FZ Construction	148	5.3%
8	KZ Finance & insurance	52	1.9%	LZ Real estate	52	1.9%
9	LZ Real estate	25	0.9%	KZ Finance & insurance	26	0.9%
10	00 00	6	0.2%	00 00	4	0.1%

A closer look at the sectoral composition of hybrid micro-entrepreneurs (Tables 5 and 6) reveals somewhat more heterogeneity among secondary jobs compared to primary jobs. Whereas primary jobs are concentrated in health, education, transport, and industry, secondary jobs tend to focus more on the service sector and on administrative functions. The most notable post-reform evolution is the rise of the information and communication industry among secondary jobs (from 6.3% to 8.6%), while industry-based side businesses recede slightly. This is suggestive evidence that the reform drew in individuals in more qualified sectors and with a higher earning potential for a given number of hours. The socio-professional category results, reported in Appendix D for conciseness, are less clear-cut but do show a rise in intermediate professions for secondary jobs, which is broadly consistent with this evidence.

5.4 Stylized Fact 4: Entrepreneurial income is substantially more dispersed than wage income and markedly more right-tailed

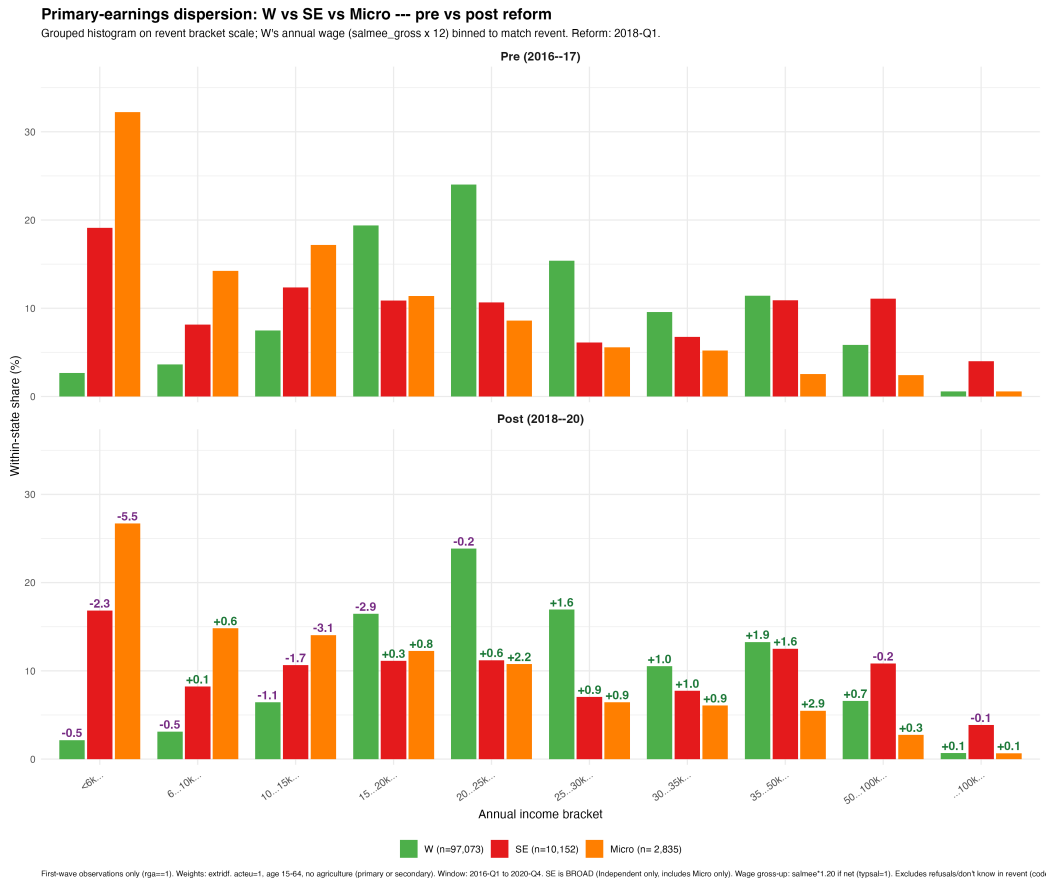


Figure 7: Primary earnings distribution by occupation (in brackets, pre- versus post-reform)

The wage distribution for the wage-employed (Figure 7) is concentrated in the 15–35k€ range, which accounts for more than half of observations. Tails are thin, with fewer than 3% earning less than 6k€ and fewer than 1% earning above 100k€. The distribution of entrepreneurial earnings is very different: the standard deviation is much higher as the probability mass is distributed relatively evenly across the middle brackets (6–50k€), giving the distribution a flat shape with thick tails. The micro-entrepreneur distribution, in particular, is heavily left-tailed, with many micro-entrepreneurs declaring null revenue. This is consistent with the phenomenon of disguised unemployment described in Section 2, which is well documented as being specific to micro-entrepreneurs.

Regarding the post-reform evolution, the earnings distribution for micro-entrepreneurs exhibits a markedly thicker right tail. The fastest growth is measured for the 35–50k€ brackets, which is particularly relevant in the context of this reform since the pre-reform revenue threshold for the service sector (the most represented among micro-entrepreneurs) lies just below this interval at 33,200€. This is likely a lower-bound estimate of the distributional impact on income, as more granular revenue data is unfortunately unavailable.

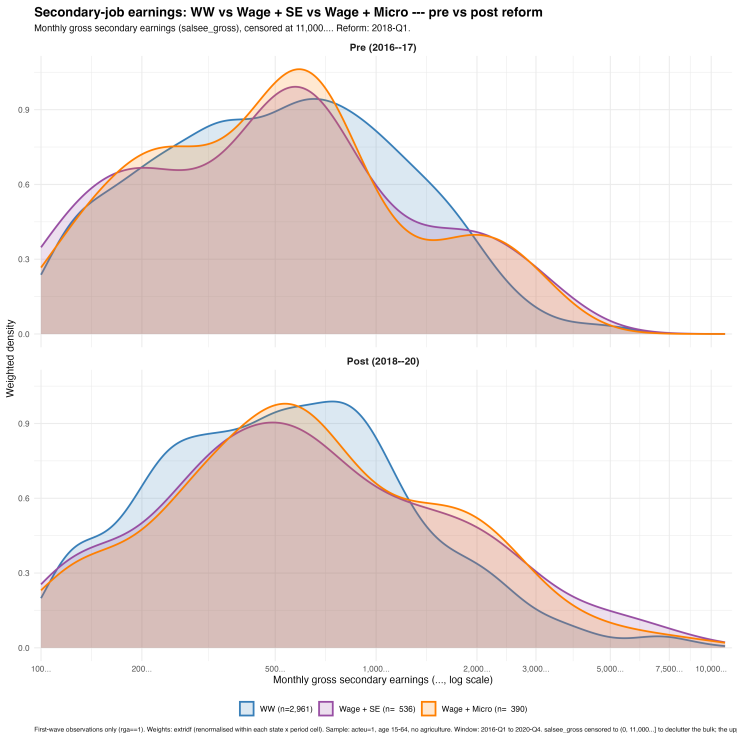


Figure 8: Secondary earnings distribution (pre- versus post-reform)

Looking at secondary earnings (Figure 8), self-employment earnings still appear more dispersed than wage earnings, although this distinction is less sharp than in the primary earnings case. The probability mass on low earnings is substantially greater for secondary wage earnings compared to their primary equivalent, while the right tail is substantially thinner. On the side of self-employment earnings, the figure shows a rightward shift of the secondary monthly earnings distribution for hybrid micro-entrepreneurs that is comparable in direction to the one described above for primary entrepreneurial earnings. Surprisingly, this increase is most salient between 1,000–2,000€, where the reform has no direct relevance. It may be that this reflects underreporting or involuntary misreporting, but I cannot distinguish these channels from available data alone. Nonetheless, the probability mass for monthly entrepreneurial income of 2,800€ or more does rise as well, which is consistent with the idea that the reform attracted individuals with high earning potential who may benefit directly from the threshold increase.[7]

[7] Some micro-entrepreneurs declare monthly revenue that would place them above the threshold even prior to the reform. This is likely due to the fact that respondents are polled only in the first and last quarter, which implies that this amount may fluctuate significantly around the declared baseline.

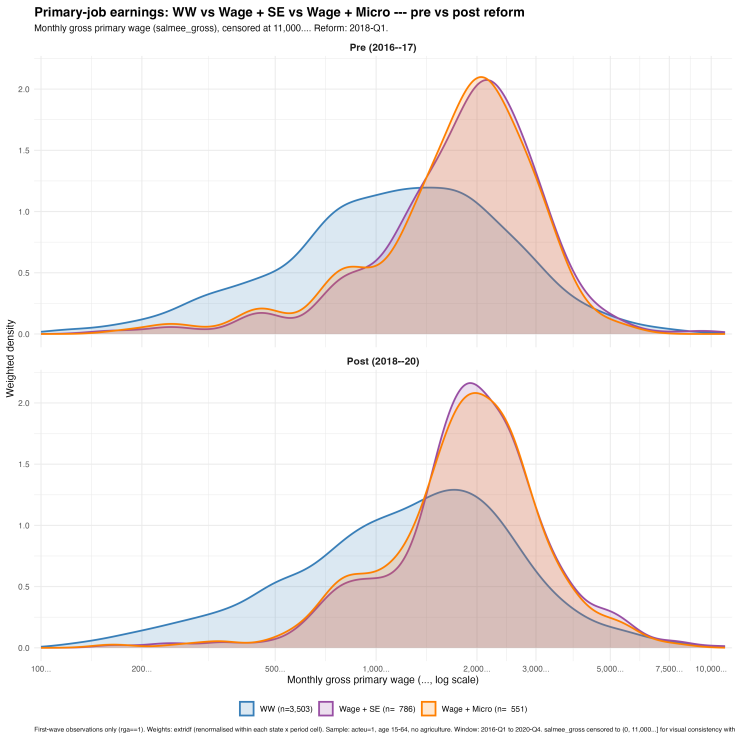


Figure 9: Primary wage earnings distribution for dual jobholders (pre- versus post-reform)

Reassuringly, I do not observe a concomitant leftward shift in reported primary wage earnings (Figure 9), which would suggest an increase in hidden employment as described by Aghion et al (2025). To ensure that neither result is an artifact of kernel smoothing, I report these distributions in the form of bar charts in Appendix E.

The greater dispersion of entrepreneurial income relative to wage income, both in primary and secondary earnings, directly motivates the risk structure in my model: the within-person entrepreneurial revenue variance σ_y^2 captures this excess volatility and is a key driver of the hedging motive for hybrid employment.

5.5 Stylized Fact 5: Occupational states are highly persistent in the short run and post-reform growth is concentrated among first-observed micro-entrepreneurs

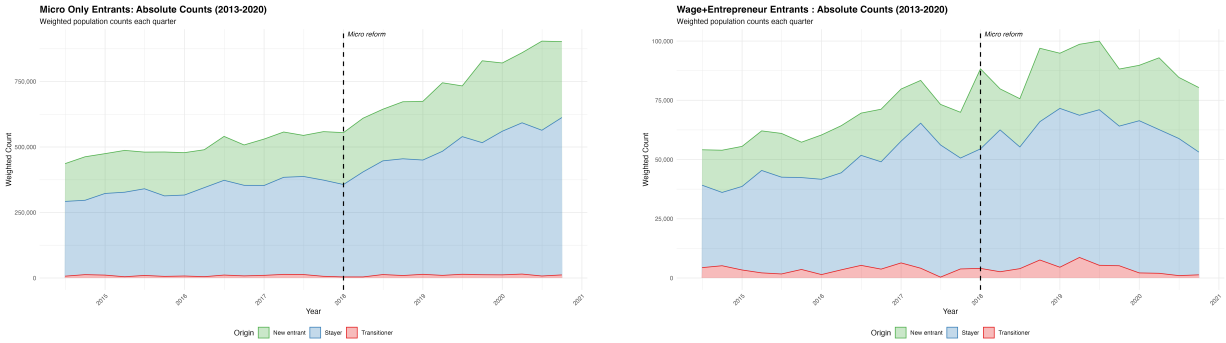
Table 7: Employment state transitions, pre- and post-reform (`micro_type` classification, including unemployment)

	From \ To	Wage only	Wage + Wage	Wage + Micro	Micro only	Unemployed
Pre-reform	Wage only	225,097	1,150	122	53	4,243
	Wage + Wage	675	8,603	11	3	102
	Wage + Micro	64	2	1,028	23	9
	Micro only	54	0	3	4,960	128
	Unemployed	5,691	98	12	203	16,296
	Total	**231,581**	**9,853**	**1,176**	**5,242**	**20,778**
Post-reform	Wage only	235,348	1,085	153	78	4,342
	Wage + Wage	693	9,013	13	6	115
	Wage + Micro	78	5	1,288	36	13
	Micro only	54	1	4	6,847	114
	Unemployed	5,537	98	9	245	16,584
	Total	**241,710**	**10,202**	**1,467**	**7,212**	**21,168**

Notes: Counts summed across each window's quarters. Rows = state in previous quarter, columns = state in current quarter. Pre = 2016Q1–2017Q4, Post = 2018Q1–2019Q4. Classification based on `micro_type`, AZ-sector observations excluded.

Table 7 shows very high persistence of each job state, with quarterly retention rates firmly above 90% for all categories. Since individuals are only observed for six consecutive quarters, it is not possible to determine whether transitions are genuinely rare or simply occur over horizons longer than the panel can capture. This high persistence is precisely what motivates the static equilibrium approach in my model, rather than attempting to identify learning or dynamic selection from short-run transitions, the model is designed to match the observed shares of each occupational state and their response to the reform.

Looking at the transitions that can be identified, most entries into solo micro-entrepreneurship come from unemployment or from single wage employment. The picture is somewhat different for hybrid entrepreneurs, who primarily transition from single wage employment or from operating a single business. The diagonal growth between the pre- and post-reform windows is striking: the number of stayers in Micro only grew by 38% and in Wage + Micro by 25.3%, compared to 4.6–4.8% for wage-only and dual wage states. This confirms that the reform had a meaningful extensive margin effect concentrated on the entrepreneurial states.



(a) Entry and exit counts: Micro only

(b) Entry and exit counts: Wage + Micro

Figure 10: Decomposition of post-reform growth into new entrants and transitions

A more detailed look (Figure 10) shows that the post-reform increase stems primarily from new individuals entering the survey already in this job state, for whom the data does not provide prior job history (as it is the first time they are polled). Transition volumes are more meaningful for hybrid entrepreneurs than for solo entrepreneurs, as can be expected, but they do not seem to rise markedly in the aftermath of the reform. Because the survey records no prior state for these first-observed individuals, their origin (wage work, another business, or non-employment) cannot be identified here.

6 Empirical Strategy

This section presents the econometric specifications used to estimate the reform's effects on both the extensive and intensive margins. All models exploit the timing of the 2018-Q1 reform in an interrupted time series (ITS) framework. I first describe the aggregate-level design, which operates on quarterly weighted shares and means, and then turn to the individual-level specifications, which allow me to control for observable characteristics and test for composition effects. Results are presented jointly in Section 7.

6.1 Aggregate ITS: extensive margin

For each target category c, I estimate the following ITS regression on quarterly aggregate shares:

$$Y_{c,t} \;=\; \alpha_c + \beta_{1,c}\, T_t + \beta_{2,c}\, D_t + \beta_{3,c}\, P_t + \sum_{q=2}^{4} \delta_{q,c}\, \mathbf{1}\{Q_t = q\} + \varepsilon_{c,t}, \tag{1}$$

where $t \in \{1, \ldots, T\}$ indexes the calendar quarter (with $t = 1$ for 2015-Q1) and c indexes the target job state (Wage + Micro, Micro only, etc.). Let $T^* = 13$ denote the index of the reform quarter (2018-Q1).[8] $D_t \equiv \mathbf{1}\{t \geq T^*\}$ is a binary indicator for whether the quarter falls on or after the reform, and $P_t \equiv D_t \cdot (T_t - T^*)$ captures the post-reform slope change. The outcome $Y_{c,t}$ is the survey-weighted share of the active population in category c at quarter t:

$$Y_{c,t} = 100 \times \frac{\sum_{i \in c,t} w_{i,t}}{\sum_{i \in t} w_{i,t}}, \tag{2}$$

where the denominator is the full active population, i indexes individual respondents, and $w_{i,t}$ is the `extri` weight for individual i at time t. Lastly, $\mathbf{1}\{Q_t = q\}$ are quarter dummies with $q \in \{2, 3, 4\}$ to absorb seasonal variation.

The conditional mean in (1) is fitted by OLS with Newey–West HAC standard errors (Newey & West, 1987). The latter corrects for serial correlation induced by the rotating panel structure of

[8] The reform was passed in late December 2017 and took effect on January 1st, 2018.

the survey. As each cohort is polled for 6 consecutive quarters, I set the bandwidth to $L = 5$, since observations at least 6 quarters apart can safely be assumed to be uncorrelated. Robustness tests with alternative bandwidths ($L \in \{3, 7\}$) are reported in Appendix B and support this choice. The displayed pre- and post-reform trends are derived directly from the fitted coefficients:

$$\widehat{Y}_{c,t}^{\text{pre}} = \widehat{\alpha}_c + \widehat{\beta}_{1,c}\, T_t \qquad (t < T^*)$$
$$\widehat{Y}_{c,t}^{\text{post}} = \widehat{\alpha}_c + \widehat{\beta}_{1,c}\, T_t + \widehat{\beta}_{2,c} + \widehat{\beta}_{3,c}\, P_t \qquad (t \geq T^*).$$

6.2 Aggregate ITS: intensive margin

The specification is identical to (1) except for the outcome variable, which is now the weighted mean of hours worked rather than a population share:

$$\bar{h}_{c,t} \;=\; \alpha_c + \beta_{1,c}\, T_t + \beta_{2,c}\, D_t + \beta_{3,c}\, P_t + \sum_{q=2}^{4} \delta_{q,c}\, \mathbf{1}\{Q_t = q\} + \varepsilon_{c,t}, \tag{3}$$

where

$$\bar{h}_{c,t} = \frac{\sum_{i \in S_{c,t}} w_{i,t}\, h_{i,t}}{\sum_{i \in S_{c,t}} w_{i,t}}$$

and $S_{c,t}$ is the set of individuals satisfying the relevant sample filter (target category c, valid hours response) in quarter t. The estimator and bandwidth are the same as above.

6.3 Individual-level ITS: extensive margin

To complement the aggregate findings and study heterogeneity in personal characteristics, I estimate individual-level models. This enables me to check for composition effects, which could induce a bias in the aggregate estimates, and to determine whether specific subgroups responded more strongly to the reform. Let $y_{i,t} \in \{0, 1\}$ indicate whether individual i is in the target job state at time t. I estimate three nested models:

$$\text{(M1)} \;\; \eta_{i,t} = \beta_0 + \beta_1 T_t + \beta_2 D_t + \beta_3 P_t + \sum_{q=2}^{4} \delta_q \mathbf{1}\{Q_t = q\} \tag{4}$$

$$\text{(M2)} \;\; \eta_{i,t} = [\text{M1}] \;+\; \gamma^\top X_{i,t}^{\text{dem}} \tag{5}$$

$$\text{(M3)} \;\; \eta_{i,t} = [\text{M2}] \;+\; \theta^\top X_{i,t}^{\text{pro}}, \tag{6}$$

with $X_{i,t}^{\text{dem}} = \{$education level, number of children, gender, age, age$^2\}$ and $X_{i,t}^{\text{pro}} = \{$underemployment dummy, s

As the outcome is binary, I use a logit specification with $\eta_{i,t} \equiv \log(\frac{P(y_{i,t}=1)}{1-P(y_{i,t}=1)})$ as the linear predictor on the log-odds scale. Model (M2) adds demographic controls, and Model (M3) further adds professional situation controls. Each model is a weighted binomial logit using the `extri` weights normalised to a mean of 1. To adjust for within-individual serial correlation, I use cluster-robust sandwich standard errors at the individual level (`sandwich::vcovCL`, HC0, cluster = `individual_id`). I also report in Appendix C a fourth specification that interacts P_t with each of the Model (M3) covariates to test for heterogeneity of the post-reform slope change.

6.4 Individual-level ITS: intensive margin

As the outcome is continuous (primary or secondary hours worked), I use weighted OLS with cluster-robust sandwich standard errors at the individual level:

$$h_{i,t} = \beta_0 + \beta_1 T_t + \beta_2 D_t + \beta_3 P_t + \sum_{q=2}^{4} \delta_q \mathbf{1}\{Q_t = q\} + \gamma^\top X_{i,t}^{\text{dem}} + \theta^\top X_{i,t}^{\text{pro}} + u_{i,t}. \tag{7}$$

As with the logit models, I report the pre-reform quarterly drift in mean hours ($\hat{\beta}_1$), the level shift at the reform ($\hat{\beta}_2$), and the change in slope after 2018-Q1 ($\hat{\beta}_3$).

6.5 Threats to identification

The central identifying assumption of the ITS design is that no other shock coinciding with 2018-Q1 would have produced a comparable break in trend. Three concurrent reforms deserve explicit discussion, as each could in principle confound the estimated effects of the threshold doubling.

The first is the abolition of the *Régime Social des Indépendants* (RSI) and the progressive integration of independent workers into the general social security system (*Sécurité Sociale des Indépendants*, SSI). The legal suppression of the RSI took effect on 1 January 2018 (the same date as the threshold reform), with a transition period running through 2018–2019 and completion by early 2020. Under the new arrangement, administration of health insurance, retirement, and social contributions was progressively transferred to the general-regime bodies (CPAM, Carsat, URSSAF), without an immediate regime-specific jump in contribution rates. This reform is best interpreted as a gradual reduction in administrative hassle, fixed costs, and possibly perceived background risk for all independents, not only micro-entrepreneurs. To the extent that it facilitated entry into or persistence in self-employment independently of the threshold change, ignoring it could lead to an overestimate of the extensive-margin effects attributable to the 2018 micro reform. However, the gradual nature of the RSI transition, with most administrative changes phased in over two years, makes it unlikely to produce a sharp break in trend at 2018-Q1 of the kind captured by the ITS level shift and slope change.

The second is the *Loi PACTE* (*loi relative à la croissance et la transformation des entreprises*), enacted on 22 May 2019 with effects mainly from 2019 onward. The law simplified firm-size thresholds around 11, 50, and 250 employees, removed several legacy thresholds (notably the 20-employee threshold), and introduced a rule whereby certain obligations apply only after crossing a threshold for five consecutive years. These provisions primarily improve firm growth and hiring incentives on the wage side. In longer post-periods, they may strengthen the outside option of wage employment and thereby dampen measured positive effects of the micro reform on self-employment. Since the *Loi PACTE* took effect only in the last three quarters of my estimation window (2019-Q2 onward), its influence on my estimates is likely limited, but it would bias them downward if anything.

The third is the transformation of the *CICE* (*Crédit d'Impôt pour la Compétitivité et l'Emploi*) into permanent employer contribution cuts, effective 1 January 2019. The tax credit was replaced by a 6-point reduction in employer social contributions on wages up to 2.5 SMIC, together with reinforced low-wage contribution cuts near the SMIC. This reform directly improves labour demand for wage workers, especially at low wages. In post-2019 data, it can pull workers toward wage employment and therefore attenuate measured self-employment effects of the 2018 micro reform, particularly if no separate 2019 structural break is included in the ITS specification.

In sum, the RSI abolition could inflate the estimated extensive-margin effect by easing entry into self-employment independently of the threshold change, while the *Loi PACTE* and the CICE transformation would dampen it by improving the relative attractiveness of wage work. On balance, since the two wage-side reforms take effect in 2019 and directly compete with the micro reform for the post-reform slope, and since the RSI transition is gradual rather than discrete, the net confounding bias is more likely to attenuate than to inflate the estimated slope change. This directional assessment is reinforced by two observations: the RSI integration concerned a small minority of the total micro-entrepreneur population at any given point during 2018, and the CICE-to-contributions reform primarily benefited wages below 2.5 SMIC, a segment with limited overlap with the liberal-profession and high-turnover entrepreneurs who drive the ceiling reform response. If this assessment is correct, the present estimates would, if anything, understate the effect of the 2018 threshold reform. It rests, however, on reasoning about the timing and target populations of each reform rather than on a formal test, and the placebo checks below can only rule out spurious breaks at other dates, not a confounding shock on the same date. The estimates are therefore best read as a break in trend that coincides with the reform rather than as

its isolated effect. To further assess the validity of the ITS design, I perform a rolling placebo analysis that shifts the reform date across the pre-treatment window and verifies that no spurious break is detected. I also conduct RESET tests for non-linearity and inspect residual plots. All results are reported in Appendix B.

7 Empirical Results

7.1 Aggregate ITS: extensive margin estimates

Table 8: Aggregate ITS extensive margin results (2015-Q1 to 2019-Q4)

	Auto-entrepreneurs (`micro_type`)				*Excl. salaried CEOs* (`indep_type`)			
	Single activity		Dual activity		Single activity		Dual activity	
	Wage only	Micro only	W+W	W+Micro	Wage only	Indep. only	W+W	W+Indep.
Intercept (α)	85.365***	1.728***	3.530***	0.402***	85.365***	8.167***	3.530***	0.631***
	(0.079)	(0.034)	(0.061)	(0.014)	(0.079)	(0.026)	(0.061)	(0.008)
Pre-reform trend ($\hat{\beta}_1$)	0.004	0.028***	−0.027***	0.006***	0.004	0.026***	−0.027***	0.003**
	(0.006)	(0.004)	(0.005)	(0.001)	(0.006)	(0.003)	(0.005)	(0.001)
Level shift ($\hat{\beta}_2$)	−0.216***	−0.113**	0.410***	−0.045*	−0.216***	−0.186***	0.410***	−0.002
	(0.048)	(0.036)	(0.072)	(0.017)	(0.048)	(0.033)	(0.072)	(0.011)
Post-reform slope ($\hat{\beta}_3$)	−0.111***	0.083***	−0.033**	0.030***	−0.111***	0.095***	−0.033**	0.030***
	(0.010)	(0.007)	(0.010)	(0.004)	(0.010)	(0.007)	(0.010)	(0.002)
Seasonal controls								
Quarter 2	0.048	0.040	−0.059†	−0.020†	0.048	0.013	−0.059†	0.001
	(0.087)	(0.029)	(0.030)	(0.011)	(0.087)	(0.043)	(0.030)	(0.013)
Quarter 3	0.211*	0.024	−0.080	−0.037†	0.211*	−0.074	−0.080	−0.017
	(0.086)	(0.031)	(0.048)	(0.018)	(0.086)	(0.047)	(0.048)	(0.013)
Quarter 4	0.104*	0.044	−0.033	−0.035**	0.104*	−0.039	−0.033	−0.021†
	(0.047)	(0.045)	(0.035)	(0.011)	(0.047)	(0.025)	(0.035)	(0.011)
Observations	20	20	20	20	20	20	20	20
R^2	0.919	0.971	0.760	0.928	0.919	0.960	0.760	0.953
HAC lag L	5	5	5	5	5	5	5	5

Notes: OLS with Newey–West HAC standard errors (Bartlett kernel, fixed bandwidth $L = 5$), quarter fixed effects. $L = 5$ is justified by the EEC 6-quarter rotating panel with up to 5 overlapping cohorts. $\hat{\beta}_1$: pre-reform quarterly trend, $\hat{\beta}_2$: level shift at reform, $\hat{\beta}_3$: post-reform slope change. Sample: 2015-Q1 to 2019-Q4, `acteu` = 1, age $\geq$ 15. $^{***}p < 0.001$, $^{**}p < 0.01$, $^{*}p < 0.05$, $^{\dagger}p < 0.1$.

The aggregate extensive margin results reveal a clear post-reform acceleration in the growth of micro-entrepreneurship. For single micro-entrepreneurs, the share of working actives was growing at 0.028 pp per quarter before the reform. Post-reform growth is approximately four times faster, at $0.028 + 0.083 = 0.111$ pp per quarter. This is a strong acceleration that compensates the initial negative level shift (−0.113 pp) in as little as two quarters.

The negative level shift at the reform date deserves attention, as it is counterintuitive for a reform designed to expand micro-entrepreneurship. A plausible explanation is anticipation effects: since the law was passed in late December 2017 with retroactive application to fiscal year 2017, some individuals may have delayed registration or adjusted their reporting in Q4 2017, creating a mechanical dip in Q1 2018 relative to the fitted pre-trend. This interpretation is supported by the fact that the level shift becomes insignificant in the individual-level logit model (Table 10), which conditions on covariates and absorbs some of this timing noise. Wage employment declines faster

after the reform, with the post-reform slope shifting from near-zero to −0.111 pp/quarter, which supports the view that substitution between wage work and other forms of employment is likely to have taken place.

The trend is even sharper for hybrid micro-entrepreneurs, with a jump from a growth rate of 0.006 pp/quarter pre-reform to 0.036 pp/quarter post-reform, a sixfold increase. The growth rate for this category is, however, substantially smaller in magnitude than for solo micro-entrepreneurs, both pre and post reform. This explains the small downward trend in the share of pluriactive micro-entrepreneurs among total micro-entrepreneurs described in Section 5. More concerning is the significant and rather sizable upward level shift in dual wage employment following the reform. Although it is partly offset by an acceleration in the shrinking of this category, it means that substitution between dual wage employment and hybrid entrepreneurship is likely to have been negligible.

Lastly, independents as a whole grow at a very similar pace as micro-entrepreneurs. This implies that micro-entrepreneurs are most likely the main driver of growth for this broader category, although part of the growth occurs outside of the micro-entrepreneur subcategory.

7.2 Aggregate ITS: intensive margin estimates

Table 9: ITS: Hours Worked — Micro Only, Wage + Micro, and Wage + Independent Workers (2015-Q1 to 2019-Q4)

	Micro only	Wage + Micro		Wage + Indep.
	Primary hours (hhc)	Secondary hours (nbtot − hhc)	Primary hours (hhc) — realloc.	Secondary hours (nbtot − hhc)
Intercept (α)	33.095***	8.242***	32.711***	9.065***
	(0.204)	(0.216)	(0.233)	(0.157)
Pre-reform trend ($\hat{\beta}_1$)	0.066*	−0.036	−0.002	−0.112***
	(0.030)	(0.035)	(0.046)	(0.020)
Level shift ($\hat{\beta}_2$)	0.748**	0.300	0.313	1.184***
	(0.190)	(0.255)	(0.486)	(0.201)
Post-reform slope ($\hat{\beta}_3$)	−0.138**	0.043	−0.010	0.022
	(0.044)	(0.045)	(0.068)	(0.036)
Seasonal controls				
Quarter 2	0.082	0.483†	−0.119	0.512*
	(0.233)	(0.253)	(0.263)	(0.216)
Quarter 3	0.503***	0.556**	0.166	0.565***
	(0.107)	(0.150)	(0.558)	(0.130)
Quarter 4	0.172	0.900***	0.313	1.144**
	(0.221)	(0.182)	(0.500)	(0.294)
Observations	20	20	20	20
R^2	0.597	0.415	0.103	0.593
HAC lag L	5	5	5	5

Notes: OLS with Newey–West HAC standard errors (Bartlett kernel, fixed bandwidth $L = 5$), quarter fixed effects. $L = 5$ is justified by the EEC 6-quarter rotating panel with up to 5 overlapping cohorts. $\hat{\beta}_1$: pre-reform quarterly trend, $\hat{\beta}_2$: level shift at reform, $\hat{\beta}_3$: post-reform slope change. Column 3 is a reallocation check testing whether the reform shifted hours in the primary (wage) job of dual-activity workers. Columns 1–3: classification `micro_type`, column 4: classification `indep_type`. Sample: `acteu` = 1, age ≥ 15, 2015-Q1 to 2019-Q4.
$^{***}p < 0.001$, $^{**}p < 0.01$, $^{*}p < 0.05$, $^{\dagger}p < 0.1$.

Single micro-entrepreneurs show a significant positive level shift at the reform (+0.748 hours/week) and a significant negative post-reform slope change (−0.138 hours/quarter). With a post-reform slope of $0.066 - 0.138 = -0.072$ hours/quarter, it would take over 10 quarters to offset the initial positive level shift. In other words, the reform had a moderately positive impact on average weekly hours worked among micro-entrepreneurs, but this effect was gradually diluted by the entry of new workers. A possible explanation is that new entrants have a higher marginal return to entrepreneurship and benefit from the reform even when they work fewer hours than the average pre-reform micro-entrepreneur. In comparison, entrepreneurs who were already under the micro regime did not see an increase in their marginal productivity but exploited the reform to increase their workload and yearly profits without losing the perks associated with the micro-entrepreneur status.

The picture is very different for hybrid entrepreneurs, while the level shift is positive, the post-reform slope change is also positive, and neither coefficient is statistically significant. This may reflect low power given the small sample size, but the magnitudes remain small and do not suggest a genuine intensive margin response to the additional room created by the reform. Looking at hours spent by hybrid entrepreneurs on their main wage job, the level shift is also positive, which goes against the idea of a potential reallocation of hours from the main job toward the side business.

As the aggregate design cannot control for individual characteristics, I turn to individual-level specifications to assess the role of composition effects and to test whether specific subgroups (such as the underemployed) adjusted their hours in response to the reform.

7.3 Individual-level ITS: extensive margin estimates

Table 10: Individual ITS (Logit): Probability of Being Micro Only or Wage + Micro (2015-Q1 to 2019-Q4)

	Micro only			Wage + Micro		
	(1) No controls	(2) Demographics	(3) Full	(4) No controls	(5) Demographics	(6) Full
Intercept	-4.036^{***}	-4.886^{***}	-5.184^{***}	-5.518^{***}	-8.828^{***}	-9.122^{***}
	(0.044)	(0.220)	(0.222)	(0.084)	(0.536)	(0.534)
Pre-reform trend ($\hat{\beta}_1$)	0.015^{**}	0.015^{**}	0.016^{**}	0.013	0.012	0.013
	(0.006)	(0.006)	(0.006)	(0.011)	(0.011)	(0.011)
Level shift ($\hat{\beta}_2$)	−0.009	−0.008	−0.015	−0.021	−0.019	−0.018
	(0.050)	(0.050)	(0.050)	(0.101)	(0.101)	(0.101)
Post-reform slope ($\hat{\beta}_3$)	0.031^{**}	0.031^{**}	0.034^{**}	0.052^{*}	0.051^{*}	0.051^{*}
	(0.011)	(0.011)	(0.011)	(0.022)	(0.022)	(0.022)
Seasonal controls	Yes	Yes	Yes	Yes	Yes	Yes
Demographics	No	Yes	Yes	No	Yes	Yes
Sector, underempl.	No	No	Yes	No	No	Yes
Observations	894,374	894,374	884,013	894,374	894,374	884,013

Notes: Weighted logit (GLM) with cluster-robust sandwich standard errors on `individual_id` (`sandwich::vcovCL`, HC0), weights = `extri` (normalised to mean = 1). ITS specification: T_t = quarter counter (1 = 2015-Q1), D_t = post-reform dummy, $T^* = 13$ (2018-Q1). Seasonal controls (Q2–Q4) included in all models. Demographics: education (4 groups), children, gender, age, and age^2. Full controls add underemployment and sector. Classification: `micro_type`. Sample: `acteu` = 1, age ≥ 15, 2015-Q1 to 2019-Q4. $^{***}p < 0.001$, $^{**}p < 0.01$, $^{*}p < 0.05$.

The individual-level logit results confirm the aggregate findings while providing important additional information. For solo micro-entrepreneurs, the post-reform slope change $\hat{\beta}_3$ is positive

and significant at the 1% level in all three specifications, and its magnitude actually increases slightly as controls are added (from 0.031 to 0.034). This stability across specifications provides strong evidence that the estimated effect is not driven by changes in the composition of the sampled population independent of the reform. The level shift, by contrast, is small and insignificant across all specifications, consistent with the anticipation-effect interpretation discussed above: once individual characteristics are conditioned on, the apparent dip at 2018-Q1 in the aggregate model disappears.

For hybrid micro-entrepreneurs, the post-reform slope change is also positive and significant, though only at the 5% level. This lower significance is most likely explained by the small representation of this category in the sample (approximately 0.5% of observations), which limits statistical power. The pre-reform trend is positive but insignificant, consistent with a modest upward drift that the reform substantially accelerated. The baseline log-odds for both categories are strongly negative, reflecting how small these groups are relative to the broader active population.

I report in Appendix C the covariate coefficients and corresponding interaction terms from a fourth specification. Almost no interaction term reaches conventional significance for either category, providing no evidence that the reform differentially affected specific demographic or professional subgroups.

7.4 Individual-level ITS: intensive margin estimates

Table 11: Individual ITS (Linear): Hours Worked — Micro Only and Wage + Micro Workers (2015-Q1 to 2019-Q4)

	Micro only Primary hours (hhc)			Wage + Micro Secondary hours (nbtot − hhc)		
	(1)	(2)	(3)	(4)	(5)	(6)
Intercept (α)	33.076***	18.915***	24.424***	9.854***	16.608***	15.315**
	(0.663)	(3.599)	(3.460)	(0.760)	(4.682)	(4.993)
Pre-reform trend ($\hat{\beta}_1$)	0.068	0.116	0.050	−0.069	−0.054	−0.058
	(0.085)	(0.082)	(0.067)	(0.082)	(0.079)	(0.079)
Level shift ($\hat{\beta}_2$)	0.604	0.528	0.507	0.657	0.606	0.696
	(0.750)	(0.736)	(0.597)	(0.979)	(0.937)	(0.934)
Post-reform slope ($\hat{\beta}_3$)	−0.143	−0.190	−0.213	0.075	0.051	0.042
	(0.153)	(0.148)	(0.125)	(0.187)	(0.181)	(0.180)
Seasonal controls	Yes	Yes	Yes	Yes	Yes	Yes
Demographics	No	Yes	Yes	No	Yes	Yes
Sector, underempl.	No	No	Yes	No	No	Yes
Observations	18,402	18,402	18,205	3,523	3,523	3,517

Notes: Weighted OLS with cluster-robust sandwich standard errors on `individual_id` (`sandwich::vcovCL`, HC0), weights = `extri` (normalised to mean = 1). ITS specification: T_t = quarter counter (1 = 2015-Q1), D_t = post-reform dummy, $T^* = 13$ (2018-Q1). Seasonal controls (Q2–Q4) included in all models. Demographics: education (4 groups), gender, and age^2. Full controls add children, underemployment, and sector. Classification: `micro_type`. Sample: `acteu` = 1, age ≥ 15, 2015-Q1 to 2019-Q4.
$^{***}p < 0.001$, $^{**}p < 0.01$, $^{*}p < 0.05$.

For both solo and hybrid micro-entrepreneurs, the level shift coefficients are positive but insignificant across all specifications. The direction is consistent with the aggregate model, suggesting that the reform was associated with a modest increase in hours worked on the entrepreneurial activity, but the effect remains too small to reach conventional significance at the individual level. The magnitude of the level shift varies only slightly as controls are introduced,

which supports the view that composition effects do not play a noteworthy role for intensive margin outcomes either.

The sample sizes for these regressions are substantially smaller than for the logit models (18,402 and 3,523 person-quarters, respectively, compared to nearly 900,000), since only individuals in the target category contribute observations. This limits statistical power considerably and the null results should therefore be interpreted with caution as they may reflect insufficient power rather than a true absence of effect.

Table 12: Individual ITS (Linear): Primary Hours (hhc) — Reallocation Check, Wage + Micro Workers (2015-Q1 to 2019-Q4)

	(1) No controls	(2) Demographics	(3) Full controls
Intercept (α)	32.707***	23.574***	22.990***
	(0.798)	(5.142)	(4.728)
Pre-reform trend ($\hat{\beta}_1$)	0.009	0.023	0.017
	(0.109)	(0.101)	(0.091)
Level shift ($\hat{\beta}_2$)	0.250	0.087	0.541
	(1.063)	(1.023)	(0.847)
Post-reform slope ($\hat{\beta}_3$)	−0.022	0.013	−0.012
	(0.213)	(0.198)	(0.174)
Seasonal controls	Yes	Yes	Yes
Demographics	No	Yes	Yes
Sector, underempl.	No	No	Yes
Observations	4,122	4,122	4,115

Notes: Weighted OLS with cluster-robust sandwich standard errors on `individual_id` (`sandwich::vcovCL`, HC0), weights = `extri` (normalised to mean = 1). ITS specification: T_t = quarter counter (1 = 2015-Q1), D_t = post-reform dummy, $T^* = 13$ (2018-Q1). Seasonal controls (Q2–Q4) included in all models. Demographics: education (4 groups), gender, and age^2. Full controls add children, underemployment, and sector. Outcome: primary job hours (`hhc`) for Wage + Micro workers, tests whether the reform shifted hours in the primary (wage) job. Classification: `micro_type`. Sample: `acteu` = 1, age $\geq$ 15, 2015-Q1 to 2019-Q4.
$^{***}p < 0.001$, $^{**}p < 0.01$, $^{*}p < 0.05$.

No effects are significant for the reallocation check either. The direction of the level shift is weakly positive, which goes against the idea that hybrid entrepreneurs reallocated hours away from their primary wage job and toward their side business. Looking at the detailed results with interacted coefficients reported in Appendix C, underemployment does not play a significant role. However, being a woman is associated with a stronger growth in secondary hours post-reform. This is consistent with the idea that women who already had a side business may have seized the opportunity to work more on average, potentially reflecting a stronger hours constraint on their primary wage job.

7.5 Robustness checks

To ensure that the results documented above cannot be attributed to pre-existing trends or to specification choices, I perform several robustness checks, all of which are reported in detail in Appendix B. A rolling placebo analysis shifts the reform date across the pre-treatment window and confirms that no spurious break is detected at dates other than 2018-Q1. I also verify the absence of non-linearity in the pre-reform trend via RESET tests and inspect residual plots for both the aggregate and individual-level models.

Regarding potential confounding reforms, the discussion in Section 6.5 already identifies three concurrent policy changes (the abolition of the RSI, the *Loi PACTE*, and the transformation of the

CICE into employer contribution cuts) and argues that their net effect is more likely to attenuate than to inflate the estimated slope change. If that assessment is correct, the present estimates would understate rather than overstate the effect of the reform, but since it rests on reasoning rather than on a test, I do not interpret them as a lower bound. All robustness results support the main findings, with the caveat that the limited number of pre- and post-reform periods (≤ 12 on each side) constrains the power of the ITS design.

8 Overall Presentation of the Model

In this section, I build upon the literature on discrete choice models (Train, 2009) to develop a static occupational choice model where workers pick their optimal job state in a given period as a function of their wage opportunities, hours constraints, entrepreneurial prospects, and the institutional environment. This model serves two purposes: 1) quantify channels driving self-employment decisions and 2) estimate the compositional impact and cost of an alternative reform targeting the fiscal advantage of microentrepreneurship. Unlike the transition-oriented dynamic models commonly found in the self-employment literature (Dillon and Stanton, 2017; Audoly, 2025), this partial equilibrium model is designed to match occupational shares before and after reform rather than the few short-run transitions the Enquête Emploi captures.

While I model the reform through a revenue threshold channel, I consider four main channels which drive selection in and out of self-employment in general:

- A non-pecuniary channel which depends on taste for heterogeneity (in line with the empirical evidence presented in Section 5) and taste for flexibility (in line with Lim, 2017) modeled as labor disutility multipliers.
- A non-pecuniary channel tied to lower hassle costs that are modeled through fixed costs, expressed in hourly terms, which characterize the microentrepreneurship regime.
- A pecuniary channel, specific to the choice between the régime micro-entrepreneur and the régime réel. It is meant to reflect the potential monetary advantages that may come from being a micro-entrepreneur (such as ease of misreporting for tax evasion purposes), while adjusting for differences in tax base, social contribution rate and income tax between the two regimes.
- A risk hedging channel which is unique to hybrid entrepreneurship, enabling the jobholder to mitigate entrepreneurial risk through wage income.

The reform operates primarily through channel two and three as raising the turnover ceiling widens the range of hours over which the worker can operate under the micro regime and thereby retain its potentially more advantageous tax treatment and its lower fixed costs. Lastly, to account for hours constraints and underemployment, I consider two separate models in the spirit of Choe, Oaxaca & Renna (2018). In the constrained model, hours on a primary wage job are exogenous leading to inefficiencies if this parameter is suboptimal, and in the unconstrained model, labour supply to any job is chosen endogenously. For the sake of simplicity and due to the lack of long panel data, I assume away search efforts and frictions and consider short-sighted agents. This is arguably a major limitation of the model but still enables me to quantify a wide variety of motivations for getting into entrepreneurship, including two different types of portfolio diversification as I introduce both risk and activity diversification mechanisms.

8.1 Environment and heterogeneity

The economy is populated by a continuum of workers indexed by i. Each worker chooses one of four working states,

$$j \in \mathcal{J}_A \equiv \{W, WW, WSE, SE\},$$

to which I append a non-employment outside option U, so that the full choice set is $\mathcal{J} \equiv \mathcal{J}_A \cup \{U\}$. The outside option closes the participation margin, while the counterfactual experiments of Section 11 are conducted over the four working states, holding that margin fixed.

Each worker i is characterized by:

- a potential main-job wage w_{1i}, derived from individual wage ability a_i^W, and, in the constrained model, a fixed main-job hours requirement $\bar{h}_i$ whenever the worker chooses a state that includes a primary wage job.
- a potential secondary wage opportunity w_{2i} whenever the worker chooses WW.
- a two-dimensional ability vector $a_i = (a_i^W, a_i^{SE})$ that jointly governs wage and entrepreneurial opportunities.
- an individual-specific distribution of entrepreneurial returns $\tilde{y}_i \sim \text{LogNormal}(\log \mu_{y,i} - \frac{1}{2}\sigma_y^2, \sigma_y^2)$, where $\mu_{y,i} = \mathbb{E}[\tilde{y}_i]$ is the mean gross hourly revenue (increasing in ability) and σ_y^2 is a common within-person variance parameter capturing the greater volatility of entrepreneurial income relative to wage income.
- an operating-cost ratio $c_i \in [0, 1)$, the share of gross entrepreneurial revenue absorbed by real production costs. This ratio is a fixed individual characteristic, known to the worker at the time of the occupational decision, and drawn from a sector-specific distribution.

The reform enters through a change in the turnover threshold M, which governs the range over which the worker remains eligible for the micro regime, and I estimate the model on pre-reform data and use the post-reform period only for out-of-sample validation (Sections 9 and 10).

Lastly, as mentioned above, I develop two versions of the model that differ in the treatment of primary wage hours. In the **constrained model**, primary wage hours are exogenously fixed at $\bar{h}_i$. In the **unconstrained model**, primary wage hours $h^{w,1} \in [\underline{h}, T]$ are optimized jointly with secondary hours. Throughout this section, I present each program under both settings: expressions for the constrained model use $\bar{h}_i$, those for the unconstrained model replace $\bar{h}_i$ with the choice variable $h^{w,1}$.

8.2 Preferences

Workers consume all current income. Period utility from consumption is CRRA:

$$u(c) = \begin{cases} \dfrac{c^{1-\sigma}}{1-\sigma} & \text{if } \sigma \neq 1, \\ \log c & \text{if } \sigma = 1. \end{cases}$$

Disutility from work is state- and activity-specific. In the constrained model, primary wage hours are fixed at $\bar{h}_i$. In the unconstrained model, primary hours $h^{w,1} \in [\underline{h}, T]$ are chosen optimally. For secondary wage work and self-employment, hours are always chosen optimally subject to the time endowment T. Let $h^{w,2}$ denote secondary wage hours in WW and h^{se} entrepreneurial hours in WSE or SE. I write the primary wage disutility using the generic notation $h^{w,1}$, with the understanding that $h^{w,1} = \bar{h}_i$ in the constrained model:

$$\psi^W(h^{w,1}) = \chi \frac{(h^{w,1})^{1+\eta_{w,1}}}{1+\eta_{w,1}}, \qquad \psi^{WW}(h^{w,2}) = \chi \frac{(h^{w,2})^{1+\eta_{w,2}}}{1+\eta_{w,2}},$$

where $\chi > 0$ is the common scale of work disutility, that is, the weight of hours-disutility relative to consumption utility. It multiplies every disutility term of the model, so that the indirect utilities of all states are expressed in comparable utils, and it is calibrated rather than estimated (Section 9.3). The parameter γ introduced below then measures entrepreneurial disutility *relative to* wage work, whose hours carry the common scale χ alone. Holding two jobs at once carries an

additional burden that is not proportional to hours. I model it as a fixed utility cost $\gamma_{MH} > 0$ that is subtracted once from the objective of any dual state (WW or WSE). It can be viewed as the cost associated with holding two jobs at once (cost of aligning different job schedules, mental cost of multitasking) and echoes the flow cost measured by Lalé. Because it is additive, γ_{MH} shifts the level of the dual-state values without distorting the hours choice, and it therefore drops out of every first-order condition derived below.

Entrepreneurial activity also requires recurring unpaid operating effort in addition to productive hours. This fixed burden, measured in hour-equivalent units, depends on the regime under which the worker operates her business. It is lower under the micro regime, whose reporting and accounting obligations are substantially lighter, and higher under the régime réel, which requires full accounting. I denote this fixed cost by S_L under the micro regime and by S_H under the régime réel, with

$$S_H > S_L > 0.$$

The gap $S_H - S_L$ is a purely non-pecuniary object, measuring the administrative hassle and effort of full réel accounting relative to the light micro declarations. The disutility from entrepreneurial activity for a worker operating under regime $g \in \{m, r\}$ (micro or réel) is therefore:

$$\psi_g^{SE}(h^{se}) = \chi\,\gamma \cdot \frac{\left(h^{se} + S_g\right)^{1+\eta_{se}}}{1+\eta_{se}}, \qquad S_g \in \{S_L,\, S_H\},$$

where $\gamma \equiv \gamma_{se}$ is the key structural parameter capturing the relative disutility of entrepreneurial work compared to wage work. Values of $\gamma < 1$ indicate that entrepreneurial hours are less costly to the jobholder, reflecting potential preferences for flexibility or independence associated with entrepreneurship. As estimating this parameter at the individual level would be too costly to identify given my limited data, I estimate a population-level average when fitting my model.

For dual employment combining wage and entrepreneurial work (WSE), the entrepreneurial disutility is:

$$\psi_g^{WSE}(h^{se}) = \chi\,\gamma\,\phi \cdot \frac{\left(h^{se} + S_g\right)^{1+\eta_{se}}}{1+\eta_{se}}, \qquad S_g \in \{S_L,\, S_H\},$$

and the fixed cost γ_{MH} is subtracted from the WSE objective exactly as in WW. The parameter $\phi \in (0, 1]$ is a preference-for-heterogeneity parameter. When $\phi = 1$, the model collapses to the specification without a variety channel and the entrepreneurial component of WSE disutility is identical to that of pure SE. When $\phi < 1$, entrepreneurial hours carry lower disutility in WSE than in SE, capturing the idea that combining two activities of different nature is intrinsically valued by the worker. This specification separates the variety channel from the multiple-jobholding cost γ_{MH} by construction. The fixed cost is common to both dual states and additive, so it moves the dual-versus-single margin without affecting the composition of dual employment, whereas ϕ operates within the dual-employment margin, tilting the choice from WW toward WSE conditional on being a dual jobholder. A worker may thus have a strong taste for occupational variety ($\phi \ll 1$) yet still avoid dual employment altogether if the coordination cost γ_{MH} is high enough. Proposition 8 states this separation formally.

8.3 Differences between entrepreneurial regimes

I take $\tilde{y}_i$ to denote *gross* hourly entrepreneurial revenue, so that turnover over the period is $\tilde{y}_i\, h^{se}$ and expected turnover is $\mu_{y,i}\, h^{se}$. Real production costs absorb a fraction c_i of gross revenue and are incurred under both regimes. As discussed in the context section of this thesis, the two regimes differ significantly in how taxable income is computed from this revenue, and therefore in the share of gross revenue the worker ultimately keeps.

Under the **régime réel**, taxable income is actual net profit, $(1 - c_i)\,\tilde{y}_i\, h^{se}$. Under the **régime micro-entrepreneur**, taxable income is gross revenue net of a statutory flat abatement rate a_s that depends only on the activity's sector s, namely $(1 - a_s)\,\tilde{y}_i\, h^{se}$. This abatement rate

equals 71% for retail-BIC, 50% for services-BIC, and 34% for BNC. Lastly, both regimes face the same income-tax schedule, summarised by an effective rate t^{IR}, but differ in the level of social contribution, κ, one is subjected to. Disposable entrepreneurial income under each regime is therefore

$$\text{Micro:} \quad C_i^m = \tilde{y}_i h^{se} - \underbrace{c_i\, \tilde{y}_i h^{se}}_{\text{real costs}} - \underbrace{\big[\kappa_s^m + t^{IR}(1-a_s)\big]\tilde{y}_i h^{se}}_{\text{contributions and income tax}} = \rho_i^m\, \tilde{y}_i\, h^{se}, \tag{8}$$

$$\text{Réel:} \quad C_i^r = \underbrace{(1-c_i)\, \tilde{y}_i h^{se}}_{\text{net profit}} - \underbrace{\kappa_s^r (1-c_i)\, \tilde{y}_i h^{se}}_{\text{contributions on net profit}} - \underbrace{t^{IR}(1-\kappa_s^r)(1-c_i)\, \tilde{y}_i h^{se}}_{\text{income tax on profit net of contributions}} = \rho_i^r\, \tilde{y}_i\, h^{se}, \tag{9}$$

where the *regime-specific net income shares* are :

$$\boxed{\rho_i^m = 1 - c_i - \big[\kappa_s^m + t^{IR}(1-a_s)\big], \qquad \rho_i^r = (1-c_i)\,(1-\kappa_s^r)\,(1-t^{IR}).} \tag{10}$$

I define the net income share ρ_i^m (resp. ρ_i^r) as the share of one euro of gross revenue that the worker retains, net of real costs, contributions, and income tax, under the micro (resp. réel) regime. The flat abatement associated with the micro régime is favourable only when the real cost ratio falls below it. A worker with $c_i < a_s$ shelters more revenue under the abatement than she could by deducting her true costs, whereas a worker with $c_i > a_s$ retains more under the réel. The net income shares encode this comparison directly, as ρ_i^m falls one-for-one in c_i because the micro base does not deduct real costs, while ρ_i^r falls more slowly because the réel base shields a portion of each cost euro through the deduction. The operating-cost ratio c_i is not constant within a sector. A single sector mean would place every worker on the same side of the micro-versus-réel comparison, which is counterfactual, since the abatement is generous enough that genuinely low-cost businesses do better under the micro regime. I therefore model c_i as dispersed around its sector mean, drawing each worker's ratio from a sector-specific distribution whose calibration I detail in Section 9.3. This dispersion is what allows the low-cost workers within a sector to find the micro regime advantageous on rate, and it is the mechanism behind the coexistence of micro and réel entrepreneurs characterised in Proposition 9.

However, as evidenced by Aghion et al (2025), the micro regime also carries a residual pecuniary advantage beyond its statutory net income share, stemming from the lighter reporting environment, which lowers the precision of declared revenue and facilitates misreporting. I capture this in reduced form through a premium $\tau \geq 0$, common across sectors, that scales the micro net income share multiplicatively, so that effective disposable income under the micro regime is $(1+\tau)\,\rho_i^m\,\tilde{y}_i\,h^{se}$. The benefit of tax evasion enters through τ, and nowhere else. Although the premium itself is a scalar, its bite varies across sectors and turnover levels through ρ_i^m and the eligibility cap, which is the variation I later exploit to identify it (Section 9.4.4). Under CRRA preferences and the lognormal draw, expected utility from entrepreneurial income collapses, under each regime, into a single effective return:

$$\boxed{\mathcal{R}_i^m = \big[(1+\tau)\,\rho_i^m\big]^{1-\sigma}\, \mu_{y,i}^{1-\sigma}\, \exp\!\Big(-\tfrac{1}{2}\sigma(1-\sigma)\sigma_y^2\Big), \qquad \mathcal{R}_i^r = (\rho_i^r)^{1-\sigma}\, \mu_{y,i}^{1-\sigma}\, \exp\!\Big(-\tfrac{1}{2}\sigma(1-\sigma)\sigma_y^2\Big).} \tag{11}$$

Each effective return aggregates the entrepreneurial ability level $\mu_{y,i}$, the regime net income share, the residual micro premium τ (micro only), and the risk penalty from earnings variance σ_y^2 into a single sufficient statistic. This collapse is exact in the solo state, where consumption is proportional to the draw. In the hybrid state the wage buffer breaks the proportionality, so the expectation must be carried explicitly (Section 8.8). The micro regime thus offers a pecuniary advantage, summarised jointly by the net income share gap and the premium τ, alongside a non-pecuniary advantage in its lower fixed cost $S_H - S_L$. Lastly, in the implementation the net income shares are carried separately for the solo and the hybrid entrepreneurial activity, in columns ρ^{SE} and ρ^{WSE}

built from the same formulas (10). Since the expressions coincide, I keep the generic notation ρ_i^m, ρ_i^r throughout the text.

The last major difference between the two régime is the existence of a turnover threshold M, which governs eligibility for the micro regime. The régime réel is indeed available at any turnover while the micro regime is available only as long as expected turnover does not exceed M, that is, as long as entrepreneurial hours satisfy $\mu_{y,i}\, h^{se} \le M$, or equivalently $h^{se} \le \overline{m}_i \equiv M/\mu_{y,i}$. The threshold is evaluated at expected turnover, consistent with the fact that the worker chooses hours before observing the entrepreneurial draw. An entrepreneur is therefore free to operate under the réel at any scale, or under the micro regime provided she keeps her hours below the cap $\overline{m}_i$. Conditional on operating an entrepreneurial activity, she selects the regime that delivers the higher indirect utility. Pre- and post-reform environments are indexed by $r \in \{0, 1\}$, with $M^{(r)}$ capturing the institutional shift. The reform raises M and thereby relaxes the cap $\overline{m}_i$.

8.4 Occupational programs

For each job state j, the worker first solves the continuous inner problem to obtain optimal hours and the resulting indirect utility $\tilde{V}_i^j$. I denote by $\underline{h} > 0$ the minimum number of hours that a worker must commit to any wage job. This parameter accounts for the fact that there are practical and legal minimums for a position to qualify as a wage job, and it prevents degenerate behavior where WW is optimal simply because the first hour of secondary wage work is essentially costless. In the unconstrained model, the same floor applies to primary hours.

Wage only (W). *Constrained.* A worker in state W earns $c_i^W = w_{1i}\bar{h}_i$ and has no hours margin to optimize:

$$\tilde{V}_i^W = u(w_{1i}\bar{h}_i) - \psi^W(\bar{h}_i).$$

Unconstrained. The worker chooses $h^{w,1} \in [\underline{h},\, T]$:

$$\tilde{V}_i^W = \max_{h^{w,1} \in [\underline{h},\, T]} \Big\{ u(w_{1i}\, h^{w,1}) - \psi^W(h^{w,1}) \Big\}.$$

Wage–Wage (WW). *Constrained.* The worker chooses secondary hours $h^{w,2} \in [\underline{h},\, T - \bar{h}_i]$:

$$\tilde{V}_i^{WW} = \max_{h^{w,2} \in [\underline{h},\, T-\bar{h}_i]} \Big\{ u(w_{1i}\bar{h}_i + w_{2i}\, h^{w,2}) - \psi^W(\bar{h}_i) - \psi^{WW}(h^{w,2}) \Big\} - \gamma_{MH}.$$

Unconstrained. The worker jointly chooses primary and secondary hours:

$$\tilde{V}_i^{WW} = \max_{\substack{h^{w,1} \in [\underline{h},\, T] \\ h^{w,2} \in [\underline{h},\, T - h^{w,1}]}} \Big\{ u(w_{1i}\, h^{w,1} + w_{2i}\, h^{w,2}) - \psi^W(h^{w,1}) - \psi^{WW}(h^{w,2}) \Big\} - \gamma_{MH}.$$

Since the dual-jobholding cost is additive, it sits outside the maximisation and leaves the hours choice unaffected.

Entrepreneur only (SE). The worker operates only the entrepreneurial activity and chooses h^{se} before the return draw. Conditional on the regime, she solves a micro program (capped at $\overline{m}_i$, with net income share $(1+\tau)\rho_i^m$ and fixed cost S_L) and a réel program (uncapped, with net income share ρ_i^r and fixed cost S_H), and keeps the larger value:

$$\tilde{V}_i^{SE,m} = \max_{0 \le h^{se} \le \min(\overline{m}_i,\, T)} \mathbb{E}_{\tilde{y}_i}\big[u\big((1+\tau)\rho_i^m\, \tilde{y}_i\, h^{se}\big)\big] - \psi_m^{SE}(h^{se}), \tag{12}$$

$$\tilde{V}_i^{SE,r} = \max_{0 \le h^{se} \le T} \mathbb{E}_{\tilde{y}_i}\big[u\big(\rho_i^r\, \tilde{y}_i\, h^{se}\big)\big] - \psi_r^{SE}(h^{se}), \tag{13}$$

$$\tilde{V}_i^{SE} = \max\{\, \tilde{V}_i^{SE,m},\ \tilde{V}_i^{SE,r} \,\}. \tag{14}$$

This program is identical across the constrained and unconstrained settings since it involves no wage job. Under the lognormal draw each branch expectation collapses in closed form, $\mathbb{E}_{\tilde{y}_i}[u\big((1+\tau)\rho_i^m\,\tilde{y}_i\,h^{se}\big)] = \mathcal{R}_i^m\,(h^{se})^{1-\sigma}/(1-\sigma)$ and likewise for the réel branch with $\mathcal{R}_i^r$, using the effective returns of (11). Thus the solo program is solved exactly, with no numerical integration.

Wage–Entrepreneur (WSE). The worker keeps a wage job and operates an entrepreneurial activity, again selecting the better of the two regimes for the entrepreneurial leg. In the constrained model, with $h^{se} \in [0,\, T-\bar{h}_i]$:

$$\tilde{V}_i^{WSE,m} = \max_{h^{se}}\Big\{\mathbb{E}_{\tilde{y}_i}[u(w_{1i}\bar{h}_i + (1+\tau)\rho_i^m\,\tilde{y}_i\,h^{se})] - \psi_m^{WSE}(h^{se}) - \psi^W(\bar{h}_i)\Big\}, \quad h^{se} \le \min(\overline{m}_i,\, T-\bar{h}_i), \tag{15}$$

$$\tilde{V}_i^{WSE,r} = \max_{h^{se}}\Big\{\mathbb{E}_{\tilde{y}_i}[u(w_{1i}\bar{h}_i + \rho_i^r\,\tilde{y}_i\,h^{se})] - \psi_r^{WSE}(h^{se}) - \psi^W(\bar{h}_i)\Big\}, \quad h^{se} \le T-\bar{h}_i, \tag{16}$$

$$\tilde{V}_i^{WSE} = \max\{\,\tilde{V}_i^{WSE,m},\ \tilde{V}_i^{WSE,r}\,\} - \gamma_{MH}. \tag{17}$$

The dual-jobholding cost γ_{MH} is subtracted once from the state value. It is common to both branches, so it affects neither the hours choice nor the regime choice. Unlike in the solo state, the wage buffer $w_{1i}\bar{h}_i$ breaks the closed-form collapse of the expectation, which is therefore evaluated numerically by nine-node Gauss–Hermite quadrature in the implementation. In the unconstrained model, primary wage hours $h^{w,1}$ are optimized jointly with h^{se} in each branch, with the time budget $h^{w,1} + h^{se} \le T$.

Unemployment (U). The outside option completes the choice set. A worker in state U receives no income and incurs no labor disutility, hence I normalize its value to zero:

$$\tilde{V}_i^U = 0.$$

Unemployment is thus a reservation state, optimal only when all four working states yield negative utility. This is a strong normalization that avoids the need to calibrate replacement income, which is difficult to measure accurately and may vary widely across individuals. As stated in Section 8.1, the counterfactual experiments are conducted over the four working states, so the reform-induced substitution I report is measured within the working population.

8.5 Discrete state choice with multinomial logit

The occupational choice across states involves both utility differences captured by $\tilde{V}_i^j$ and unobserved idiosyncratic preferences that the systematic model cannot account for. I represent these unobserved components as additive preference shocks and assume that workers choose the state that maximises total utility:

$$U_i^j = \tilde{V}_i^j + \lambda_L\,\varepsilon_i^j,$$

where ε_i^j is an individual- and state-specific preference shock drawn i.i.d. from a Type I extreme value (Gumbel) distribution across states, and $\lambda_L > 0$ is a scale parameter. This yields the *scaled* multinomial logit choice probability:

$$P_{ij} = \frac{\exp(\tilde{V}_i^j/\lambda_L)}{\sum_{k\in\mathcal{J}}\exp(\tilde{V}_i^k/\lambda_L)}.$$

The scale λ_L governs how sharply the choice tracks the ranking of the indirect utilities. As $\lambda_L \to 0$ the choice collapses to the deterministic argmax, and as λ_L grows the shares flatten toward the uniform distribution. Because the indirect utilities are already in utils whose scale is fixed by σ and the calibrated disutility scale χ, λ_L is a free parameter rather than a normalisation, and I

estimate it jointly with the preference parameters (Section 9.4.4), where it is identified off how far the observed occupational shares sit from the deterministic argmax.

The multinomial logit imposes the independence of irrelevant alternatives (IIA), which constrains cross-state substitution patterns. IIA plays two distinct roles here. In the policy experiment, the reform shifts only $\tilde{V}_i^{SE}$ and $\tilde{V}_i^{WSE}$ and leaves the other indirect utilities unchanged, so the reform-driven substitution is governed by the structural utilities rather than by the error structure. In the pre-reform cross-sectional fit, IIA is a more substantive restriction since it pins down the relative weight of each state in the GMM moments. The small cell sizes for the dual-employment states (WW, WSE) and the high state persistence documented in the transition matrices, however, make it difficult to identify the within-nest correlation parameters that a nested logit would require, and the additional degrees of freedom are better spent on the structural parameters central to the research question.

8.6 Bivariate lognormal ability distribution

Workers are endowed with a two-dimensional ability vector $a_i = (a_i^W, a_i^{SE})$, where a_i^W measures efficiency units in wage work and a_i^{SE} in self-employment. Following the log-normal Roy literature (French and Taber 2011, Amodio et al 2025):

$$\log a_i = \begin{pmatrix} \log a_i^W \\ \log a_i^{SE} \end{pmatrix} \sim \mathcal{N}(\mu^k,\, \Sigma), \qquad \mu^k = \begin{pmatrix} \mu_W^k \\ \mu_{SE}^k \end{pmatrix}, \qquad \Sigma = \begin{pmatrix} \sigma_W^2 & \varrho\, \sigma_W \sigma_{SE} \\ \varrho\, \sigma_W \sigma_{SE} & \sigma_{SE}^2 \end{pmatrix},$$

with $|\varrho| < 1$. The matrix Σ is common across demographic cells k and the mean vector μ^k varies across cells. I impose $\sigma_{SE}^2 > \sigma_W^2$ (self-employment ability is more dispersed than wage ability). The correlation $\varrho > 0$ captures the positive association between wage and entrepreneurial potential, while $\varrho < 1$ allows for imperfect sorting.

Because the cell means μ_{SE}^k are computed on observed entrepreneurs, who are positively selected, the estimation adds a uniform selection shift δ_{sel} to log entrepreneurial ability, $\log a_i^{SE} + \delta_{sel}$. The shift translates the mean return to $\mu_{y,i}\, e^{\delta_{sel}}$, and the eligibility cap of Section 8.3 inherits the reciprocal factor, $\overline{m}_i = M/(\mu_{y,i}\, e^{\delta_{sel}})$. Its identification as a selection correction is discussed in Section 9.4.4.

8.7 Parameter table

8.8 FOCs

For the FOCs, I detail only constrained-model derivations for the sake of brevity. A full derivation of the same results for the unconstrained model can be found in Section G of the Appendix. As described above, in the constrained model primary wage hours are fixed at $\bar{h}_i$. Each FOC equates the marginal benefit of an additional hour of work (left-hand side) to its marginal cost in terms of disutility (right-hand side).

WW **program.** The worker chooses $h^{w,2}$ to equate the marginal utility of secondary wage income to the marginal disutility of secondary work:

$$w_2\, (w_1 \bar{h} + w_2\, h^{w,2})^{-\sigma} = \chi\, (h^{w,2})^{\eta_{w_2}}. \qquad \text{(FOC-WW)}$$

The left-hand side is the marginal utility of one extra euro of secondary wage income, weighted by the hourly wage w_2, decreasing in $h^{w,2}$ through diminishing marginal utility of consumption. The right-hand side is the marginal disutility, increasing in $h^{w,2}$ and carrying the common scale χ.

Table 13: Model parameters and their treatment in estimation.

Symbol	Description	Treatment
Preferences		
σ	Coefficient of relative risk aversion	Calibrated
χ	Common scale of hours disutility	Calibrated
γ	Relative entrepreneurial disutility ($\equiv \gamma_{se}$)	Estimated
γ_{MH}	Fixed utility cost of multiple jobholding (additive)	Estimated
ϕ	Preference for variety ($\phi \in (0, 1]$)	Estimated
$\eta_{W,1}$	Curvature of primary wage disutility	Calibrated
$\eta_{W,2}$	Curvature of secondary wage disutility	Estimated
η_{SE}	Curvature of entrepreneurial disutility	Estimated
λ_L	Logit scale (s.d. of idiosyncratic taste)	Estimated
Self-employment costs and benefits		
S_L	Fixed operating cost, micro regime (non-pecuniary)	Estimated
S_H	Fixed operating cost, réel regime ($S_H > S_L > 0$)	Estimated
τ	Residual micro pecuniary premium (incl. evasion), scalar	Estimated
δ_{sel}	Level shift on log entrepreneurial ability (selection correction)	Estimated
σ_y^2	Within-person entrepreneurial revenue variance	Derived/Calibrated
Tax base and net income shares		
a_s	Statutory micro abatement, by sector	Calibrated (statute)
$\kappa_s^m,\ \kappa_s^r$	Social-contribution rates, micro / réel, by sector	Calibrated
t^{IR}	Effective income-tax rate	Calibrated
$\bar{c}_s$	Mean operating-cost ratio, by sector	Calibrated (Ésane)
σ_{cost}	Within-sector dispersion of the operating-cost ratio	Calibrated
$\rho_i^m,\ \rho_i^r$	Micro / réel net income shares	Derived
Institutional / reform variables		
$M^{(r)}$	Turnover threshold under regime $r \in \{0, 1\}$	Fixed (policy)
T	Weekly time endowment	Calibrated
$\underline{h}$	Minimum hours floor for wage jobs	Calibrated
Ability distribution		
μ_W^k	Mean of $\log a_i^W$ in cell k	Derived
μ_{SE}^k	Mean of $\log a_i^{SE}$ in cell k	Derived
σ_W^2	Variance of $\log a_i^W$	Derived
σ_{SE}^2	Variance of $\log a_i^{SE}$ ($\sigma_{SE}^2 > \sigma_W^2$)	Derived
ϱ	Correlation of $\log a_i^W$ and $\log a_i^{SE}$	Calibrated

SE **program.** The entrepreneurial FOC takes one form per regime. The worker solves both and keeps the regime delivering the higher value, as in (14).

Micro regime (feasible for $h^{se} \leq \overline{m}$):

$$\mathcal{R}^m \, (h^{se})^{-\sigma} = \chi \, \gamma \, (h^{se} + S_L)^{\eta_{se}}, \tag{FOC-Micro}$$

where $\mathcal{R}^m = [(1+\tau)\rho^m]^{1-\sigma} \mu_y^{1-\sigma} \exp(-\frac{1}{2}\sigma(1-\sigma)\sigma_y^2)$ is the micro effective return from (11). The left-hand side is decreasing in h^{se} (diminishing marginal returns) while the right-hand side is increasing (convex disutility), guaranteeing a unique interior solution h^{m*}. The selected micro hours are $\min(h^{m*}, \overline{m})$.

Réel regime (uncapped):

$$\mathcal{R}^r \, (h^{se})^{-\sigma} = \chi \, \gamma \, (h^{se} + S_H)^{\eta_{se}}, \tag{FOC-Standard}$$

where $\mathcal{R}^r = (\rho^r)^{1-\sigma} \mu_y^{1-\sigma} \exp(-\frac{1}{2}\sigma(1-\sigma)\sigma_y^2)$. The higher fixed cost $S_H > S_L$ shifts the disutility curve upward, reducing optimal hours relative to a comparable micro optimum.

WSE **program.** The hybrid entrepreneur's FOC also takes one form per regime.

Micro regime:

$$\mathbb{E}\Big[\tilde{y}(1+\tau)\rho^m \big(w_1 \bar{h} + (1+\tau)\rho^m \, \tilde{y} \, h^{se}\big)^{-\sigma}\Big] = \chi \, \gamma \, \phi \, (h^{se} + S_L)^{\eta_{se}}. \tag{FOC-WSE-Micro}$$

Unlike the *SE* case, the left-hand side cannot be reduced to a single sufficient statistic because consumption $c = w_1 \bar{h} + (1+\tau)\rho^m \, \tilde{y} \, h^{se}$ is not homogeneous in $\tilde{y}$: the wage buffer $w_1 \bar{h}$ breaks the multiplicative structure. The disutility coefficient $\chi\gamma\phi$ is the entrepreneurial disutility scaled by the variety preference. The coordination cost γ_{MH}, being additive, appears in neither side of the condition.

Réel regime: the same expression with $(1+\tau)\rho^m$ replaced by ρ^r and S_L by S_H.

8.9 Mean-preserving reparametrization of entrepreneurial income

Entrepreneurial earnings follow $\tilde{y} \sim \text{LogNormal}(\log \mu_y - \frac{1}{2}\sigma_y^2, \, \sigma_y^2)$, ensuring $\mathbb{E}[\tilde{y}] = \mu_y$ regardless of σ_y^2. This reparametrization insulates changes in the mean of entrepreneurial ability (μ_y) from changes in earnings risk (σ_y^2). Without it, varying σ_y^2 holding the log-mean fixed would mechanically raise $\mathbb{E}[\tilde{y}]$, confounding a level effect and a risk effect in all comparative statics. The reparametrization ensures that σ_y^2 captures pure risk. Since the net income shares enter the effective returns (11) as multiplicative constants, the derivative $\partial \mathcal{R}^m / \partial \sigma_y^2 = -\frac{1}{2}\sigma(1-\sigma)\mathcal{R}^m$ remains negative for $\sigma \in (0,1)$, and likewise for $\mathcal{R}^r$.

8.10 Core Propositions

For most of the results presented below I make the assumption that $\sigma < 1$. Although this may seem low relative to values commonly used in the macroeconomics literature, it is consistent with Chetty's (2006) finding that σ needs to lie within $[0.5, 1.25]$ to avoid degenerate labor-supply behavior for this type of expected-utility model. In the structural estimation, I set $\sigma = 0.90$, following a sensitivity analysis over the aforementioned value range. Throughout, I also use repeatedly the fact that the dual-jobholding cost γ_{MH} is additive, so that it drops out of every hours condition and of the *WSE* versus *WW* frontier.

Proposition 1 ***The reform favors entrepreneurship over wage employment.*** *A rise in the micro-regime threshold M weakly raises the indirect utility of the SE and WSE states and leaves V^W, V^{WW}, and V^U unchanged. The effect is strictly positive for an agent who operates*

under the micro regime and is constrained by the ceiling (i.e. whose interior micro optimum exceeds $\overline{m}$, so that she bunches at $h^{se} = \overline{m}$):

$$\frac{\partial V^{SE}}{\partial M} = \frac{\mathcal{R}^m\,\overline{m}^{-\sigma} - \chi\gamma(\overline{m} + S_L)^{\eta_{se}}}{\mu_y} > 0,$$

$$\frac{\partial V^{WSE}}{\partial M} = \frac{\mathbb{E}\Big[\tilde{y}(1+\tau)\rho^m\big(w_1\bar{h} + (1+\tau)\rho^m\,\tilde{y}\,\overline{m}\big)^{-\sigma}\Big] - \chi\gamma\phi\,(\overline{m} + S_L)^{\eta_{se}}}{\mu_y} > 0.$$

For an agent who selects the réel regime, or who operates under the micro regime but is unconstrained by the ceiling, the derivative is zero. Hence $\partial\Delta^{j,k}/\partial M \geq 0$ for all frontiers $j \in \{SE, WSE\}$ against $k \in \{W, WW\}$, with strict inequality for the bunching micro population.

Proof sketch.

The selected entrepreneurial value is the upper envelope $V^{SE} = \max(V^{SE,m}(M),\, V^{SE,r})$. The réel branch does not depend on M, since the réel regime is uncapped. The micro branch is weakly increasing in M, since raising the ceiling relaxes the cap $\overline{m} = M/\mu_y$. The maximum of a constant and a weakly increasing function is weakly increasing, so V^{SE} rises weakly with M. For a micro-operating agent who bunches at the ceiling, effective hours equal $\overline{m}$ and the chain rule gives the stated expression, which is positive because the micro objective is still increasing at the cap. Since V^W and V^{WW} are independent of M, the frontier results follow. See Appendix F.

The qualitative content of this result is unchanged from a model without regime selection: the reform tilts every entrepreneurship-versus-wage frontier toward entrepreneurship. The pull into entrepreneurship is concentrated among workers who operate under the micro regime, that is, low-cost-ratio types, and who are constrained by the ceiling. Workers who already prefer the réel, who tend to have higher cost ratios, are unaffected at the margin, since their regime is uncapped.

Proposition 2 ***The reform benefits pure self-employment more than hybrid entrepreneurship whenever the variety discount is not too strong.*** *For agents who operate under the micro regime with a common net income share ρ^m and bunch at the ceiling in both states,*

$$\frac{\partial V^{SE}}{\partial M} - \frac{\partial V^{WSE}}{\partial M} = \frac{1}{\mu_y}\Big[\,\mathcal{W} - \chi\gamma(1-\phi)(\overline{m} + S_L)^{\eta_{se}}\,\Big],$$

$$\mathcal{W} \equiv \mathcal{R}^m\,\overline{m}^{-\sigma} - \mathbb{E}\Big[\tilde{y}(1+\tau)\rho^m\big(w_1\bar{h} + (1+\tau)\rho^m\,\tilde{y}\,\overline{m}\big)^{-\sigma}\Big] > 0,$$

where $\mathcal{W}$ is the wage-buffer wedge. Thus $\partial\Delta^{WSE,SE}/\partial M < 0$ if and only if

$$\chi\gamma(1-\phi)(\overline{m} + S_L)^{\eta_{se}} < \mathcal{W}.$$

The condition holds automatically at $\phi = 1$ and, by continuity, for ϕ close enough to one.

Proof sketch.

Since $c_{wse} = w_1\bar{h} + (1+\tau)\rho^m\,\tilde{y}\,\overline{m} > (1+\tau)\rho^m\,\tilde{y}\,\overline{m} = c_{se}$ pointwise in $\tilde{y}$, it follows that $c_{wse}^{-\sigma} < c_{se}^{-\sigma}$: the marginal utility of an extra euro of entrepreneurial income is lower for the hybrid worker because wage income raises the consumption base. Multiplying by $\tilde{y}(1+\tau)\rho^m$ and taking expectations delivers $\mathcal{W} > 0$, the force pushing the reform's marginal value toward the solo state. Nonetheless, the variety preference now works in the opposite direction, since the hybrid marginal disutility at the cap, $\chi\gamma\phi(\overline{m} + S_L)^{\eta_{se}}$, is weakly lower than its solo counterpart when $\phi \leq 1$. The difference of the two derivatives from Proposition 1 nets these forces out, giving the stated expression and the cutoff condition. See Appendix F.

The proposition makes precise that the solo-over-hybrid ranking of the reform is a horse race between two channels. The wage buffer dilutes the hybrid worker's marginal utility of the extra cap hour, while the variety discount cheapens that hour on the disutility side. In the estimated model the ranking goes to the buffer, as the solo response to the ceiling dominates the hybrid response in the validation and the counterfactual (Sections 10 and 11). A separate and quantitatively important reason the hybrid margin responds less is that the ceiling rarely binds for side businesses whose turnover sits well below M, so the bunching population itself is thinner in WSE. This asymmetry is consistent with the empirical findings from Section 7 that the reform's impact on the Micro only share substantially exceeds its impact on the W+Micro share.

Proposition 3 ***Under $\sigma < 1$, a more favorable micro regime raises optimal entrepreneurial hours for both single and dual jobholders.*** *For $\sigma < 1$, the response of entrepreneurial hours to the residual micro premium is positive:*

$$\frac{\partial h^*_{se}}{\partial \tau} > 0, \qquad \frac{\partial h^*_{wse}}{\partial \tau} > 0,$$

and the same signs obtain for the response to the micro net income share ρ^m.

Proof sketch.

The premium τ and the net income share ρ^m enter the micro return $\mathcal{R}^m$ only through the multiplicative factor $(1+\tau)\rho^m$, exactly as a return-side scaling of entrepreneurial income. Applying the implicit function theorem to the micro FOC, the numerator of $\partial h^*/\partial \tau$ is governed by the factor $(1 - \sigma\, s_e(\tilde{y}))$, where $s_e(\tilde{y}) \in (0, 1]$ is the realization-specific entrepreneurial income share. In the solo state consumption is entirely entrepreneurial, so $s_e = 1$ and the factor reduces to $1 - \sigma$. For $\sigma < 1$, $\sigma\, s_e < 1$ pointwise in both states, so the integrand is positive and the response is strictly positive. The denominator is positive by concavity, and the additive γ_{MH} is absent from both conditions. See Appendix F.

Economically, a more favourable micro net income share or a larger residual premium raises the after-tax return to entrepreneurial hours, and for $\sigma < 1$ the substitution effect dominates the income effect, so the worker supplies more entrepreneurial labour.

Proposition 4 ***Higher earnings risk discourages both pure and hybrid entrepreneurship, but the wage buffer dampens the effect for hybrids.*** *Under the mean-preserving reparametrization (μ_y held fixed), the extensive-margin response is negative in both states:*

$$\frac{\partial \Delta^{SE,W}}{\partial \sigma_y^2} = -\tfrac{1}{2}\sigma\,\chi\gamma\,(h^* + S_g)^{\eta_{se}}\,h^* \le 0, \qquad \frac{\partial \Delta^{WSE,W}}{\partial \sigma_y^2} = \frac{h^*_{wse}}{2}\left[\frac{D}{\sqrt{\sigma_y^2}} - \chi\gamma\phi\,(h^*_{wse} + S_g)^{\eta_{se}}\right] \le 0,$$

for all $\sigma > 0$, where S_g is the fixed cost of the selected regime and $D \equiv \mathbb{E}[\varepsilon\,\tilde{y}(1+\tau)\rho^m\,c^{-\sigma}] > 0$. The hybrid effect is smaller in magnitude than the pure-entrepreneurship effect, because the wage buffer $w_1\bar{h}$ cushions the consumption consequences of a bad entrepreneurial draw.

Proof sketch.

The risk penalty $\exp(-\frac{1}{2}\sigma(1-\sigma)\sigma_y^2)$ multiplies the effective return of each regime identically, so for the pure entrepreneur a mean-preserving spread lowers the effective return for any $\sigma > 0$, giving an unambiguously negative effect. For the hybrid entrepreneur, total consumption $c = w_1\bar{h} + (1+\tau)\rho^m\,\tilde{y}\,h^{se}$ is affine in $\tilde{y}$ and u is strictly concave, so a mean-preserving spread in $\tilde{y}$ lowers expected utility by second-order stochastic dominance, and since V^W does not depend on σ_y^2 the frontier derivative is non-positive. The bracketed expression splits this single negative effect into a positive dispersion term ($D/\sqrt{\sigma_y^2}$) and a larger negative mean-correction term. The wage buffer raises the consumption level at which the dispersion term is evaluated and so shrinks the net effect relative to the pure-entrepreneurship case, but cannot reverse its sign. See Appendix F.

The two terms in the WSE formula have distinct economic content. The first ($D/\sqrt{\sigma_y^2}$, positive) is the dispersion channel: spreading the earnings distribution creates high draws where entrepreneurial income raises utility, and the wage buffer inflates this term by lifting the consumption level at which it is evaluated. The second term (negative, and larger) is the mean-correction cost of holding μ_y fixed while widening the distribution. The buffer therefore dampens the risk penalty for hybrids relative to pure entrepreneurs but does not overturn it; the genuine sign ambiguity in this model lives in the hours response $\partial h^*_{wse}/\partial\sigma_y^2$ (precautionary saving versus substitution), not in the participation frontier.

Proposition 5 ***The intensive margin response to the reform is positive for ceiling-constrained micro entrepreneurs and zero otherwise.*** *For an agent who operates under the micro regime and bunches at the ceiling ($h^{m*} > \overline{m}$):*

$$\frac{\partial h^c}{\partial M} = \frac{1}{\mu_y} > 0.$$

For an agent who operates under the micro regime but is unconstrained, or who operates under the réel regime, $\partial h^*/\partial M = 0$.

Proof sketch.

A bunching micro agent sets $h^{se} = \overline{m} = M/\mu_y$, so differentiating gives $\partial h^c/\partial M = 1/\mu_y$. An unconstrained micro agent's optimum satisfies the micro FOC with slack cap, so M does not enter. A réel agent's optimum solves the uncapped réel FOC, which does not involve M at all. See Appendix F.

Proposition 6 ***The unconstrained model generates unambiguous cross-wage substitution.*** *In the WW program, for $\sigma < 1$, own-wage effects are positive and cross-wage effects are negative:*

$$\frac{\partial h^{w,2}}{\partial w_2} = \frac{c^{-\sigma}[a + b(1-\sigma s_2)]}{|H|} > 0,$$

$$\frac{\partial h^{w,1}}{\partial w_2} = \frac{-\sigma w_1 c^{-\sigma-1}\,\chi(1+\eta_{w_2})(h^{w,2})^{\eta_{w_2}}}{|H|} < 0 \quad (all\ \sigma),$$

$$\frac{\partial h^{w,2}}{\partial w_1} = \frac{-\sigma w_2 c^{-\sigma-1}\,\chi(1+\eta_{w_1})(h^{w,1})^{\eta_{w_1}}}{|H|} < 0 \quad (all\ \sigma),$$

where a, b are the consumption and disutility curvature terms of the primary job, $s_2 = w_2 h^{w,2}/c$ is the secondary income share, and $|H| > 0$ is the Hessian determinant.

Proof sketch.

The two FOCs are totally differentiated and the 2×2 system is solved by Cramer's rule. For own-wage effects the numerator contains the factor $(1 - \sigma s)$, positive pointwise since $\sigma < 1$ and $s < 1$. For cross-wage effects, substituting the FOC into the numerator eliminates the $(1 - \sigma s)$ factor, leaving products of positive terms with an overall minus sign. The WW program involves no entrepreneurial income and is therefore unaffected by the regime structure. See Appendix G.

The cross-wage effect is a pure income effect: a higher wage on one job raises total consumption without making the other job more productive, reducing marginal utility and hence hours. If risk aversion is high enough ($\sigma > 1$), there is ambiguity in how $h^{w,2}$ responds to an increase in w_2, as the substitution and income effects compete in setting optimal labour supply.

Proposition 7 ***The unconstrained model features a reallocation channel in hybrid entrepreneurship.*** *For $\sigma < 1$, the WSE worker reallocates primary hours in response to entrepreneurial parameters:*

$$\frac{\partial h^{*,1}_{wse}}{\partial \tau} < 0, \qquad \frac{\partial h^{*,1}_{wse}}{\partial \mu_y} < 0, \qquad \frac{\partial h^{*,1}_{wse}}{\partial \phi} > 0,$$

and the same signs obtain for the response of $h^{*,1}_{wse}$ to the micro net income share ρ^m. These reallocation effects are mechanically absent in the constrained model ($\partial \bar{h}/\partial p = 0$ for all p).

Proof sketch.

The two-equation implicit function theorem applied to the unconstrained WSE system yields the primary-hours response as a ratio whose numerator combines a direct effect and a cross-effect through the Hessian. Since τ and ρ^m enter only through $(1+\tau)\rho^m$, for $\sigma < 1$ the pointwise argument ($\sigma s_e < 1$) ensures the substitution effect dominates on the entrepreneurial side, and both terms push primary hours down and entrepreneurial hours up. For ϕ, only the entrepreneurial FOC is affected, and the cross-effect transmits this as an increase in primary hours when variety taste weakens. See Appendix G.

When the micro regime becomes more favorable (higher τ or net income share) or entrepreneurial ability increases (μ_y rises), the worker shifts hours away from the wage job and toward entrepreneurship. Conversely, when the taste for variety weakens (ϕ rises), the worker shifts back toward wage work. Estimating both versions of the model enables me to assess whether the muted average intensive-margin response observed in the ITS reflects a genuine absence of hours adjustment or masks offsetting reallocation across heterogeneous workers.

Proposition 8 ***Non-pecuniary preferences separate cleanly across the two margins of dual employment.*** *At the extensive margin, γ and ϕ govern the composition of dual employment while γ_{MH} governs its level. For the WSE versus WW comparison:*

$$\frac{\partial \Delta^{WSE,WW}}{\partial \gamma} = -\chi\, \phi\, \frac{(h^*_{wse} + S_g)^{1+\eta_{se}}}{1+\eta_{se}} < 0, \qquad \frac{\partial \Delta^{WSE,WW}}{\partial \phi} = -\chi\, \gamma\, \frac{(h^*_{wse} + S_g)^{1+\eta_{se}}}{1+\eta_{se}} < 0,$$

$$\frac{\partial \Delta^{WSE,WW}}{\partial \gamma_{MH}} = 0,$$

where S_g is the fixed cost of the regime selected in the WSE state, while against the single-job states

$$\frac{\partial \Delta^{WW,W}}{\partial \gamma_{MH}} = \frac{\partial \Delta^{WSE,W}}{\partial \gamma_{MH}} = -1 < 0.$$

Higher γ and higher ϕ both discourage WSE relative to WW, whereas γ_{MH} discourages dual employment as a whole without tilting its composition.

Proof sketch.

γ and ϕ enter only the WSE disutility through the $\chi\gamma\phi$ coefficient, so their derivatives on V^{WW} are zero and the envelope theorem gives the first two expressions. The cost γ_{MH} enters V^{WW} and V^{WSE} as the same additive constant, so $\partial V^{WW}/\partial\gamma_{MH} = \partial V^{WSE}/\partial\gamma_{MH} = -1$ and it cancels exactly from the WSE versus WW frontier, while shifting every dual-versus-single frontier down one-for-one. These results hold in both the constrained and unconstrained models. See Appendix F.

By design, the relation between hybrid entrepreneurship and dual wage holding depends strongly on γ (taste for flexibility) and ϕ (taste for variety): when either is low, a worker is more likely to select WSE conditional on being a dual jobholder. By contrast, γ_{MH} is common to both dual-employment states and additive, so it prices the decision to hold two jobs at all and leaves the composition of dual employment untouched. This clean separation is what the moment mapping of Section 9.4.4 exploits, with the aggregate dual share registering γ_{MH} and the WSE share of dual workers registering ϕ.

Proposition 9 ***Regime selection follows a cutoff rule in the operating-cost ratio.*** *Conditional on operating an entrepreneurial activity and being eligible for the micro regime, there exists a unique cost threshold c_i^* such that the worker selects the micro regime if and only if $c_i < c_i^*$. The threshold is increasing in the abatement a_s, in the residual premium τ, and in the hassle gap $S_H - S_L$.*

Proof sketch.

By the envelope theorem, each entrepreneurial branch value depends on c_i only through its net income share, with value increasing in the own net income share. From (10), the micro effective net income share $(1+\tau)\rho_i^m$ falls in c_i at rate $(1+\tau)$, whereas the réel net income share ρ_i^r falls at the slower rate $(1-\kappa_s^r)(1-t^{IR})$, since the réel base deducts real costs. Hence $V_i^{SE,m} - V_i^{SE,r}$ is strictly decreasing in c_i. Being continuous and changing sign, it crosses zero exactly once, defining the unique cutoff c_i^*. Ignoring the cap and the fixed costs, the pecuniary-only cutoff is $c^*_{\text{pec},s} = 1 - [\kappa_s^m + t^{IR}(1-a_s)]/[\kappa_s^r + t^{IR} - \kappa_s^r t^{IR}]$, which is increasing in a_s. A larger τ raises the micro net income share and a larger $S_H - S_L$ lowers the relative attractiveness of the réel, both shifting the cutoff upward.

This cutoff is the mechanism through which the model generates a population of entrepreneurs who remain in the régime réel even though their turnover would qualify them for the micro regime: workers whose real cost ratio exceeds c_i^* are better off deducting their actual costs under the réel than accepting the flat abatement of the micro regime. By design, the cutoff is higher in sectors with a more generous abatement, so the voluntary réel population is largest in low-abatement sectors such as the liberal professions (BNC) and smallest in high-abatement retail activities.

9 Identification Strategy

9.1 Core Assumptions

To estimate the key parameters in this model, I make three core assumptions for tractability and to accommodate the limitations of the EEC data:

- The vector of preferences (σ, χ, γ, γ_{MH}, ϕ, η_{w_1}, η_{w_2}, λ_L) is assumed to be constant over time (pre- and post-reform) and common across all individuals. Of these, σ, the disutility scale χ, and the primary curvature η_{w_1} are externally calibrated (Section 9.3), while γ, γ_{MH}, ϕ, η_{w_2}, the logit scale λ_L, and the entrepreneurial selection shift δ_{sel} are estimated via GMM (Section 9.4.4). In both cases the assumption of a common, time-invariant preference

vector is what makes identification feasible, since I rely on aggregate moments to pin down the estimated parameters while allowing abilities to vary across cells. This is arguably a strong assumption since preferences for flexibility or multiple jobholding are likely to be heterogeneous, but relaxing it is not feasible with the aggregate moments available.

- Preference parameters are also assumed invariant across optimization programs. For instance, η_{w_2} in the constrained program is taken to be the same as in the unconstrained program. This does go against what is established by Choe et al (2018) but provides a more reasonable estimate than fitting these parameters on subsamples of an already rather limited population.
- I assume away compositional changes outside of those driven by the reform by fixing both abilities and preference parameters as reform-invariant. The only parameter that evolves post-reform is M, the turnover threshold.

These three assumptions are arguably major limitations of this paper but are essential for tractability.

9.2 Overall Identification logic

Following Choe et al (2018), I classify workers as constrained if they are either overemployed or underemployed. Workers who are neither are considered unconstrained by default. Unemployed workers are treated as unconstrained in the baseline. However, an alternative specification in which various proportions of unemployed workers are considered constrained is estimated as a robustness check (see Appendix H). Then, pursuant to what was discussed in section 5.2 and in coherence with the model, I consider solo entrepreneurs to be unconstrained regardless of how they answer the overemployment or underemployment question. Constrained workers' primary hours are then fixed at $\bar{h}_i = \texttt{hhc}_i$ (their observed hours) and they optimize only over their secondary hours if they choose to keep a primary wage activity instead of turning to entrepreneurship.

The parameters fall into three groups, which organise the rest of this section. A first group is *calibrated* before estimation from statute, the policy, or external evidence: the risk aversion σ, the disutility scale χ, the primary curvature η_{w_1}, the within-sector cost dispersion σ_{cost}, the volatility ratio κ, and the ability correlation ϱ. A second group is *derived* once from the data in a preliminary step and then held fixed, namely the cell ability means and variances. A third group is *estimated* jointly by GMM. The central difficulty the estimation must confront is that the cross-section alone cannot separate three forces that all raise the micro-entrepreneur share: the residual premium τ, the within-sector dispersion of operating costs σ_{cost}, and the regime setup-cost gap $S_H - S_L$. I resolve this by calibrating the cost dispersion out of the GMM, since it is a feature of the world that is in principle measurable from firm data, and by identifying τ off the cross-sector and cross-turnover *shape* of micro take-up rather than its level. The setup costs are then identified off the entrepreneurial hours means. I make each of these arguments precise in Section 9.4.4.

9.3 Calibrated Parameters

Parameter	Value	Source	Notes
σ	0.90	Chetty (2006)	Sensitivity grid $\{0.5, 0.6, \ldots, 1.0\}$. At 0.90 the income effect nearly cancels, which weakens the hours response and is the main driver of the magnitude limitation discussed in Section 10.
χ	calibrated	median worker FOC	Common scale of hours disutility, pinned to the labour supply of the median wage-only worker (see below).
η_{w_1}	2.13	Chetty (2012)	Hicksian-to-Hicksian match: $\eta_{w_1} = 1/\varepsilon^H_{\text{Chetty}} - \sigma$ with $\varepsilon^H_{\text{Chetty}} = 0.33$, evaluated at $\sigma = 0.90$.
$M^{(0)}, M^{(1)}$	Policy	2018 reform	BNC: 33.2k→70k, BIC: 82.8k→170k.
T	P99(`nbtot`)	Data	Sensitivity: $T \pm 10$.
$\underline{h}$	P1(`hhc`, W)	Data	Minimum hours for a valid wage job (SE faces no floor).
a_s	0.71/0.50/0.34	CGI Art. 50	Micro abatement: retail-BIC / services-BIC / BNC.
κ^m_s	Sector-specific (see full grid in appendix)	URSSAF	Social contribution rates for micro-entrepreneurs (depends on sector). Employee social contributions only, IR excluded.
κ^r_s	≈ 0.45	URSSAF	Effective TNS social contribution rate under régime réel. Employee social contributions only, IR excluded.
t^{IR}	0.10	2018 barème	Representative effective household-level income-tax rate, applied symmetrically to the wage and entrepreneurial sides. Enters ρ^m_s and ρ^r_s separately from the contribution wedges. Sensitivity sweep over $\{0.05, 0.10, 0.15, 0.20\}$.
$\bar{c}_s$	0.76/0.60/0.54	Ésane mean	Mean operating-cost ratio by sector.
σ_{cost}	0.07	cost data + micro share	Within-sector dispersion of the operating-cost ratio. Calibrated, not estimated (see below).
τ_W	21.45%	URSSAF	Employee social contributions only. IR enters separately as t^{IR}. Net hourly wage = gross hourly wage $\times(1 - \tau_W)$.
$w_{\min}$	Gross hourly SMIC	DARES	≈ 10.03€/h gross over 2015–2019.
$y_{\min}$	0.1€/h	Arbitrary	Hourly truncation point for SE MLE.
ϱ	0.23	WSE anchors	Wage-SE ability correlation. Calibrated, with sensitivity ± 0.2.
κ	2.5	Bhandari et al (2024)	Entrepreneurial-to-wage standard-deviation ratio of within-person earnings volatility. Sensitivity grid $\{1.5, 2.0, 2.5, 3.0\}$.

All earnings variables are expressed on a gross hourly basis throughout the structural pipeline. The net-to-gross harmonisation of net-reported EEC observations is performed at the data layer

in Section 4.4, using the contribution wedges calibrated above. The model then applies ρ_s^m, ρ_s^r, and τ_W to map these gross objects to disposable income for utility evaluation.

The disutility scale χ. The common scale of hours disutility introduced in Section 8.2 is calibrated, not estimated. I pin it by requiring the first-order condition of the median wage-only worker to hold at that worker's observed wage and hours. Inverting the primary-wage first-order condition at the median gross hourly wage w_1^{P50} and the median wage hours h^{P50} gives the closed form

$$\chi = \left(w_1^{P50}\right)^{1-\sigma} \left(h^{P50}\right)^{-(\sigma+\eta_{w_1})}.$$

This is a units normalisation. It anchors the model's labour-supply level so that the typical worker optimally chooses the observed median hours. Because χ is common to every state's disutility, fixing it on the cleanest and largest margin, full-time wage employment, propagates a single data-consistent scale to the thinner entrepreneurial margins rather than letting it be absorbed into γ, η_{se}, or the setup costs.

The primary wage disutility curvature η_{w_1} is externally calibrated, while η_{w_2} is estimated jointly with the other preference parameters via GMM (Section 9.4.4 below).[9] I take the calibration from Chetty (2012), whose meta-analytic Hicksian intensive-margin labour supply elasticity of 0.33 is the best-identified external benchmark for this primitive. Chetty parametrises the disutility of hours with the same isoelastic form I adopt, but his utility is quasilinear in consumption, so the object that ports across the two models is the Hicksian elasticity rather than the Marshallian one. In my CRRA setting the Hicksian wage elasticity of primary hours is $1/(\eta_{w_1} + \sigma)$, so matching it to Chetty's estimate gives $\eta_{w_1} = 1/0.33 - \sigma \approx 2.13$ at the baseline $\sigma = 0.90$. The mapping is carried through the σ sensitivity grid, which keeps the implied Hicksian elasticity pinned at 0.33 throughout.

The secondary wage disutility curvature η_{w_2} is treated differently. The 35-hour rigidity that binds primary wage hours does not bind secondary wage hours in France, since secondary jobs are typically part-time, hourly, or short-contract arrangements with substantial cross-sectional dispersion in hours conditional on the wage. The constrained-WW program therefore retains genuine identifying variation, and I add η_{w_2} to the GMM parameter vector with one moment, as detailed in Section 9.4.4 below. This asymmetric treatment is not the same as imposing $\eta_{w_2} = \eta_{w_1}$, it allows the two curvatures to differ exactly as Choe, Oaxaca & Renna (2018) document they should for the analogous parameters in their Stone-Geary framework, but it recognises that the data has identifying power on one curvature and not the other.

Within-sector dispersion of operating costs. A single sector-mean operating-cost ratio would make the micro regime unattractive on rate for every worker, since the Ésane sector means lie above the break-even ratio below which the micro abatement dominates. This is counterfactual, since the abatement is generous enough that genuinely low-cost businesses do better under the micro regime. I therefore model the operating-cost ratio c_i as dispersed within sector, drawing each worker's ratio from a Beta distribution centred on the sector mean $\bar{c}_s$ with standard deviation σ_{cost}. The Beta is the natural choice on the unit interval, since a cost ratio is a share of turnover and cannot fall below zero or rise above one. Writing the break-even cutoff below which micro beats réel on rate as

$$c_s^* = 1 - \frac{\kappa_s^m + t^{IR}(1 - a_s)}{1 - (1 - \kappa_s^r)(1 - t^{IR})},$$

I obtain cutoffs of 0.68, 0.45, and 0.40 across retail-BIC, services-BIC, and BNC against sector means of 0.76, 0.60, and 0.54. The means sit above the cutoffs, so it is the dispersion that lets the

[9] A reduced-form recovery of η_{w_1} from a regression of log primary hours on log wages fails for two reasons. The constructed hourly wage contains the hours observation in its denominator, so measurement error appears on both sides and biases the elasticity downward, and, more fundamentally, the 35-hour legal workweek and prevailing collective agreements compress primary hours conditional on the wage, leaving too little residual variation to identify the curvature even with a lagged-wage construction that nets out the division bias.

low-cost left tail of each sector choose the micro regime. I calibrate σ_{cost} rather than estimating it. Estimating it would break the identification of τ, since both move the aggregate micro share, and fixing the dispersion removes that competition. The natural external source is the within-sector dispersion of firm-level cost ratios. The published Ésane margin distribution over-disperses for this purpose, since it also absorbs labour-share and firm-size variation, so it serves only as an upper bound. I therefore set $\sigma_{\text{cost}} = 0.07$, the value that reproduces the observed overall micro share of about 0.22, and I report a sensitivity sweep around it in the counterfactual. A direct measurement from the firm-level FARE file via the CASD would pin it. Thus τ is identified *conditional* on σ_{cost}, and its policy-relevant uncertainty is carried by the σ_{cost} sensitivity sweep rather than by its sampling standard error.

9.4 Estimating earning opportunities

As wage and entrepreneurial earnings are observed simultaneously only for a very small share of the population (hybrid entrepreneurs), I recover the distribution of entrepreneurial abilities as well as primary and secondary wage abilities and draw missing observations from these distributions. I allow for some heterogeneity when estimating these distributions by defining population cells, denoted k, based on education $\times$ gender. I do not split cells based on age, in order to preserve cell sizes, and I instead remove age within cell in the residual-based step that recovers ϱ. Lastly, I assume the below distributions to be lognormal to ensure tractability, as is commonly done in the literature on wage and self-employment (Amodio et al).

9.4.1 Wage earning distributions

The primary wage distribution parameters μ_W^k, σ_W^2 are recovered from the data using maximum likelihood estimation with a left-truncated normal. This truncation stems from the fact that wage workers who report hourly wages significantly below the SMIC are largely minijobs, contrats aidés, and part-time arrangements rather than the full-fledged wage employment implied by the model. Thus, I estimate the primary wage distribution on wage-only workers with $w_i \geq w_{\min}$ while adjusting for this truncation.[10]

I then retrieve the parameters $\mu_{W_2}^k, \sigma_{W_2}^2$ of the lognormal distribution of secondary wage earnings using a comparable method, except that I do not consider a truncated distribution here since most secondary wage jobs are in fact part-time jobs or minijobs that are closer to the definition of a secondary wage job. Another notable difference is that the secondary distribution is estimated on dual wage-holders, who are the only ones with a secondary wage job, which creates a selection issue (this is addressed in Appendix H as well).

Lastly, I recover the within-cell correlation $\rho_{12} = \text{Corr}(\log a^{W_1}, \log a^{W_2} \mid k)$ of latent primary and secondary wage abilities. The estimator is the sample correlation of Mincer residuals on WW workers reporting both wages.

9.4.2 Entrepreneurial earning distributions

For latent entrepreneurial abilities my approach is quite different since I need to recover both σ_{SE}^2, the permanent dispersion of entrepreneurial ability within a cell, and σ_y^2, the within-person earnings volatility around each worker's own ability. The latter is the entrepreneurial-side counterpart to the wage measurement noise that the structural model normalises to zero for wages but allows for entrepreneurs. The structural decomposition implied by the model is:

$$\log y_{i,t} \;=\; \log a_i^{SE} + \log h_{i,t} + \varepsilon_{i,t},$$

[10] In a small number of cells, the wage distribution is concentrated near the SMIC floor, which produces a flat likelihood ridge in the joint estimation of μ_W^k and σ_W^2 and leads to degenerate parameter estimates. For these cells, I fix σ_W^2 at the unweighted average across the cleanly-identified cells and estimate μ_W^k as the sole free parameter. The within-cell mean remains data-driven, while the within-cell variance is borrowed from the rest of the population. The cells affected by this adjustment are listed in Appendix H.

with $\log a_i^{SE} \sim \mathcal{N}(\mu_{SE}^k, \sigma_{SE}^2)$ (the cell-conditional permanent component, analogue of the wage ability distribution) and $\varepsilon_{i,t} \sim \mathcal{N}(0, \sigma_y^2)$ (within-person noise, iid across waves and homoskedastic across cells).

First, since entrepreneurial earnings for solo entrepreneurs are reported in brackets, I compute their geometric mean to get midpoints and obtain a continuous variable. Using the bracket midpoint treats a bracketed value as if it were exact, which could in principle distort the fitted dispersion. I checked this against the statistically correct treatment, an interval-censored likelihood that uses only the probability the lognormal falls in each worker's bracket, conditional on truncation. Re-fitting every cell under that censored likelihood moves μ_{SE}^k and the dispersion negligibly, which confirms that the bracketing is fine enough for the midpoint to be unbiased in practice. I therefore retain the midpoint basis, which keeps revenue a continuous input downstream, with the censored fit on record as the robustness check that licenses it. Then, the parameters μ_{SE}^k and σ_{total}^2 of the distribution of gross hourly entrepreneurial revenue y_i are retrieved via a left-truncated MLE. Nonetheless, the truncation problem it solves is a bit different: entrepreneurs cannot report negative revenues in the EEC, which pushes them to report either zero or a small positive number rather than their true loss. Thus, I adjust for potential overreporting in the sample relative to the true distribution of entrepreneurial earnings in the population. The entrepreneurial MLE is run on solo SE workers only. Pooling with WSE workers was rejected after diagnostic inspection because their entrepreneurial-earnings reports (`salsee`) correspond to take-home compensation from operating a secondary activity rather than turnover, which produced a systematic state-specific log-shift across all cells (the mean log gross hourly entrepreneurial earnings of WSE workers exceeds that of SE workers by approximately one log point on average, after cell-level controls). The pooled estimate inflated σ_{total}^2 through this between-state mean shift, contaminating the decomposition into permanent and within-person components. Restricting to solo SE workers eliminates this bias at the cost of foregoing the small WSE contribution to cell-level identification.

The within-person noise σ_y^2, however, cannot be directly estimated from the data since (1) revenue is only reported in two separate periods, and (2) the wide brackets provided for entrepreneurial revenue are simply unable to capture even sizable variations in income from one quarter to the next. I partly bypass this issue by computing within-person wage income variance, which is more reliable due to a greater number of observations, and scaling it based on literature estimates of the difference in volatility between the wage and entrepreneurial income processes. I estimate this observed wage volatility and use it as a unit-of-measurement benchmark for the entrepreneurial within-person noise:

$$\hat{\sigma}^2_{W,y,\text{obs}} \;=\; \tfrac{1}{2N^{\text{wage panel}}} \sum_i \big(\log w_{i,1} - \log w_{i,6}\big)^2,$$

pooled across cells on the continuous wage sample. The entrepreneurial within-person variance is then

$$\hat{\sigma}_y^2 \;=\; \kappa^2 \cdot \hat{\sigma}^2_{W,y,\text{obs}},$$

where $\kappa = \sigma_y / \hat{\sigma}_{W,y,\text{obs}}$ is the entrepreneurial-to-wage *standard deviation* ratio of within-person earnings volatility. Bhandari et al (2024) report that for within-person income changes the P10–P90 range is roughly 2.5 times larger for self-employed than paid workers. Under approximate normality this maps to an SD ratio $\kappa \approx 2.5$. The baseline is $\kappa = 2.5$, with a sensitivity grid $\kappa \in \{1.5, 2.0, 2.5, 3.0\}$.

Once $\hat{\sigma}_y^2$ is fixed, I get $\hat{\sigma}^2_{SE} = \hat{\sigma}^2_{\text{total}} - \hat{\sigma}_y^2$, which gives all the required parameters of the aforementioned structural decomposition. At the baseline $\kappa = 2.5$ this yields a within-person entrepreneurial revenue variance of $\hat{\sigma}_y^2 = 0.303$.

Lastly, the literature shows that there exists a substantial correlation between wage abilities and entrepreneurial abilities, as documented by French & Taber (2011) and Dillon and Stanton (2017). This corresponds to the parameter ϱ mentioned in the calibration section of this paper.

9.4.3 Correlation-adjusted opportunity draws

To account for correlation, missing earnings opportunities are then drawn based on conditional distributions which borrow from the parameters of the univariate distributions described above. Consider a wage worker in the pre-reform sample: their wage opportunity is observed and pins down the latent $\log a_i^W$. I then assume that the conditional distribution of $\log a^{SE}$ given $\log a^W = \log w_1$ follows the standard bivariate normal conditioning formula with:

$$\log a^{SE} \mid \log w_1 \;\sim\; \mathcal{N}\left(\underbrace{X_i\beta_{SE}}_{\mu_{SE}^k} + \varrho\,\frac{\sigma_{SE}}{\sigma_W}\big(\log w_1 - \underbrace{X_i\beta_W}_{\mu_W^k}\big),\; \sigma_{SE}^2(1-\varrho^2) \right).$$

The conditional mean shifts away from the cell average $X_i\beta_{SE}$ by $\varrho\frac{\sigma_{SE}}{\sigma_W}$ times the worker's primary-wage deviation. $\varrho > 0$ upward-shifts the entrepreneurial-ability distribution for workers with above-cell-average primary wages, consistent with the idea that an absolute advantage in wage work tends to translate to a comparable advantage in self-employment. The logic is symmetric when drawing log wage abilities for entrepreneurs or secondary wage abilities for non-dual-wage-holders. Each worker carries $R = 25$ such draws, built once under a fixed seed and reused at every candidate parameter vector, so that the model moments are smooth in the parameters and every comparison across parameter values or across the pre- and post-reform environments reflects only the change of interest and not fresh simulation noise.

9.4.4 GMM estimation of preference parameters

I denote $\theta \equiv (\gamma, \gamma_{MH}, \phi, \eta_{w_2}, \eta_{se}, S_L, S_H, \tau, \lambda_L, \delta_{sel})$ the vector of ten parameters estimated via GMM. I match thirteen pre-reform cross-sectional moments, which leaves three over-identifying restrictions. Relative to a specification with only the structural cost and preference parameters, two objects are added to the estimated vector: the logit scale λ_L of Section 8.5, and a level shift δ_{sel} that corrects the selection inflation in the entrepreneurial-ability calibration.

I estimate θ via two-step GMM (Hansen, 1982) with the optimal weight matrix obtained from a block-bootstrap over the full EEC sample from 2016Q1 to 2017Q4. I weight each worker's draws by a choice-consistent posterior. A worker is observed in exactly one occupational state, so I up-weight the draws under which the model would have her choose that observed state and down-weight the others. This uses the information in the observed allocation: an entrepreneur's contribution to mean entrepreneurial hours then comes from the draws that actually make her an entrepreneur, rather than from an average over the unconditional ability distribution. Inference relies on block-bootstrap standard errors. I now take each parameter in turn.

γ, the relative entrepreneurial disutility of working an entrepreneurial rather than a wage job, is pinned down by the aggregate pre-reform solo-SE share among employed workers, $\hat{s}_{pre}^{SE}$. Because $\hat{\mu}_{SE}^k$ is computed on observed SE workers and so upward-biased by state selection, $\hat{\gamma}$ absorbs this residual inflation, which makes it not directly comparable across studies that handle selection differently.

Two further parameters refine the choice once dual jobholding is in play. γ_{MH} is the additional disutility of holding two jobs at once on top of the disutility specific to each, and is identified from the aggregate pre-reform dual share $\hat{s}_{pre}^{WW} + \hat{s}_{pre}^{WSE}$ (around 3–4% in the pre-reform sample): γ_{MH} enters both dual states symmetrically, so the sum is what registers it. The composition between WW and WSE is then governed by ϕ, the relative preference for occupational variety, with a low ϕ tilting the dual mix toward WSE and a high ϕ toward WW. The pre-reform WSE share of dual workers $\hat{s}_{pre}^{WSE}/(\hat{s}_{pre}^{WW} + \hat{s}_{pre}^{WSE})$ pins it down, although this split may also pick up cell-level differences in secondary-job opportunities rather than variety preferences per se. For that reason, I report a robustness specification with $\phi = 1$ (variety channel switched off) as part of the sensitivity analysis.

Turning to the intensive margin within wage work, η_{w_2} controls the curvature of the marginal disutility of secondary wage hours. It is identified from the cross-sectional variance of log secondary hours among constrained WW workers, $\widehat{\mathrm{Var}}(\log h^{w,2} \mid WW, \text{constrained})$. The logic mirrors that of η_{se} below: the constrained WW FOC implies a log-hours response to the log secondary wage with slope approximately $(1-\sigma s_2)/(\eta_{w_2}+\sigma s_2)$ around a representative worker, where $s_2 = w_2 h^{w,2}/c$, so a low η_{w_2} stretches the cross-sectional distribution of secondary hours and a high η_{w_2} compresses it. I use the variance rather than the mean of log secondary hours because the latter is pinned by the calibrated scale χ and by the level of secondary wage opportunities, whereas the variance isolates the curvature channel. The dual-jobholding cost γ_{MH}, being additive, affects neither. The moment is computed on constrained WW workers specifically, both because the unconstrained WW cell is small in the EEC and because the constrained subsample provides a clean single-FOC mapping with primary hours fixed at $\bar{h}_i$. The assumption that the same η_{w_2} governs unconstrained WW workers is stated in Section 9.1 and follows the data-pooling rationale developed there. Unlike the wage-side calibration of η_{w_1}, this estimate is potentially affected by selection into dual wage-holding, which I address through a multinomial-logit selection correction in Appendix H following the procedure of Choe, Oaxaca & Renna (2018).

Turning to the intensive margin within entrepreneurship, η_{se} controls the curvature of the marginal disutility of entrepreneurial hours. Its fingerprint in the data is the cross-sectional variance of log hours among solo SE workers: a low η_{se} stretches the distribution (high-ability entrepreneurs go much further than low-ability ones), whereas a high η_{se} compresses it (even high-ability workers stop early). As with η_{w_2} on the wage side, I assume η_{se} to be the same for solo SE and hybrid WSE entrepreneurs despite their potentially different labor-supply margins. This is the sharpest-identified direction in the system. Nonetheless the model under-predicts the dispersion of SE hours, because at σ near one the income and substitution effects on hours nearly cancel and hours sit near full time, so η_{se} is identified to best match the compressed dispersion the model can generate. The residual miss is a disclosed limitation that does not feed the reform conclusions.

The fixed costs S_L and S_H of running a micro versus a réel activity are felt as effort already spent before the first productive hour: a higher S_L places the micro-entrepreneur on the steep part of the disutility curve once productive work begins, leading to fewer productive hours, and the same logic applies to S_H. I recover both separately rather than just the gap $S_H - S_L$, using the mean log hours among solo micro- and réel entrepreneurs ($\hat{m}_L$, $\hat{m}_H$) as two distinct moments. As with the other preference parameters, S_L and S_H are assumed common across sectors and across solo SE and hybrid WSE workers, so any sector- or hybrid-specific component is absorbed into the calibration. At σ near one the hours channel is shallow, so although S_L and S_H are cleanly separable from each other and from τ, they are only weakly identified in level. I therefore report them but do not interpret them quantitatively, and I show in the validation and counterfactual that the reform conclusions are invariant across the admissible band of S.

The pecuniary premium τ then captures any additional benefit of the micro regime beyond what the calibrated ρ_s^m delivers, plausibly including evasion gains not directly observed in the data. The three sectors I consider, retail-BIC, services-BIC, and BNC, face very different micro abatements (71%/50%/34%), and therefore very different calibrated ρ_s^m, so the model already predicts uneven micro takeup from the tax structure alone. I read τ off how much the three observed sectoral micro shares jointly exceed or fall short of this baseline. This sectoral dimension is what separates τ from $S_H - S_L$: both raise micro takeup, but $S_H - S_L$ shifts all three sectoral shares roughly equally as a flat hour-cost saving, whereas τ enters as $(1+\tau)\rho_s^m$ and therefore raises takeup more in retail-BIC than in BNC. To this sectoral dimension I add a scale dimension, including the micro share among solo SE below and above the median turnover as two further moments. Micro takeup varies with the level of revenue, since the eligibility cap and the micro-versus-réel comparison both depend on it, and a flat setup-cost saving cannot bend the relationship between takeup and turnover while $(1+\tau)\rho_s^m$ can. Thus τ is over-identified along both a sectoral and a scale dimension. The third force on the micro share, the cost dispersion σ_{cost}, is removed from the

GMM by calibration (Section 9.3), so τ is identified conditional on it.

The selection shift δ_{sel} corrects the inflation in the entrepreneurial-ability calibration. The cell means μ^k_{SE} are computed on observed SE workers, who are positively selected, so they overstate the population mean. δ_{sel} adds a uniform shift to log entrepreneurial ability, $\log a_i^{SE} + \delta_{sel}$, and I identify it from the mean log SE earnings, which it moves one-for-one. It is separated from γ even though both raise the attractiveness of SE, because δ_{sel} enters the averaged quantity additively whereas γ enters mean SE earnings only through the choice probabilities that weight the average, that is, only by reshuffling which workers carry weight. The mean-earnings moment therefore pins δ_{sel}, and the participation moment then pins γ given δ_{sel}. The estimate is negative, a downward correction that offsets the positive selection in observed SE earnings.

Finally, the logit scale λ_L has no dedicated moment. It is identified jointly off how far the observed occupational shares sit from the deterministic argmax of the indirect utilities: as λ_L falls the shares move toward the corners, and as it rises they flatten toward the uniform distribution. It is therefore the least sharply identified of the well-behaved parameters, and it absorbs the unobserved heterogeneity the structural utilities do not capture, so I read it as the standard discrete-choice scale rather than as a structural taste.

Parameter	**Targeted moment (pre-reform)**
γ	Aggregate solo-SE share
γ_{MH}	Aggregate dual-jobholding share, $WW + WSE$
ϕ	WSE share of dual workers, $WSE/(WW + WSE)$
η_{w_2}	Variance of log secondary hours among constrained WW workers
η_{se}	Variance of log hours among solo SE workers
S_L	Mean log hours among solo micro-entrepreneurs
S_H	Mean log hours among solo réel entrepreneurs
τ	Micro share among solo SE by sector ($\hat{\pi}_s^{\text{micro}}$, $s \in$ {retail-BIC, services-BIC, BNC}) and by turnover (below / above median): five moments in total
δ_{sel}	Mean log SE earnings
λ_L	The full set of occupational shares jointly (no dedicated moment)

The above table recaps the moments targeted for each parameter. The five τ moments for a single scalar premium, together with the mean-earnings moment, are the source of the three over-identifying restrictions in the system.

10 Structural Estimation Results

The structural exercise in this and the following section is exploratory. Its calibration is poor in several dimensions that I document below, so I read its results as an illustration of the mechanisms rather than as quantitative estimates.

The model reproduces the participation and sectoral micro-share moments that govern the occupational allocation, and it is on these that the counterfactual rests. It fits the dispersion of hours markedly less well, a limitation that follows directly from the level of risk aversion I calibrate and that I take up at the end of this discussion.

moment	model	data	
Solo SE share	0.106	0.084	
Dual share ($WW + WSE$)	0.020	0.026	
Hybrid WSE / dual	0.294	0.161	
Var log 2nd-job hours	0.069	0.809	
Var log SE hours	0.003	0.277	
Mean log SE hours (micro)	7.865	7.261	
Mean log SE hours (réel)	7.824	7.786	
Micro share: goods	0.150	0.233	
Micro share: services	0.190	0.256	
Micro share: liberal/BNC	0.213	0.224	
Mean log SE earnings	2.070	1.931	
Micro share, low turnover	0.211	0.374	
Micro share, high turnover	0.218	0.108	
Overall micro share among SE	**0.217**	≈ 0.22	**matched**

Looking at overall moment fit, the model slightly overestimates the overall share of entrepreneurs and strongly overestimates the share of dual jobholders who run a business on the side. The latter is most likely an artefact of the very small number of individuals (275) who are WSE, which makes any moment resting on this state imprecise. The sectoral micro shares are matched fairly well overall, but they vary little with turnover relative to the data: the model underpredicts the attractiveness of the micro regime for low-turnover entrepreneurs and overpredicts it for high-turnover ones. This follows directly from calibrating the cost ratio independently of scale, so that nothing in the model makes the micro advantage decline with turnover the way it does in the data. This assumption is forced on me by the limited data available on costs and turnover, and while it weighs heavily on the magnitude of the estimates, it preserves the ordering of who benefits from the reform. Lastly, the model captures the level of entrepreneurial hours reasonably well, in particular for réel entrepreneurs, but the high level of risk aversion I adopt, with σ close to one, compresses the spread of those hours: the variance of log solo entrepreneurial hours comes out at 0.003 against 0.277 in the data, and the same compression affects secondary-wage hours. At σ near one the income and substitution effects on hours nearly offset, so workers bunch close to full time. This weakens the identification of the fixed-cost parameters S_L and S_H, but it leaves τ unaffected, which matters for the counterfactual.

Full-sample GMM parameter estimates

Parameter	Estimate (SE)	Sens.	Parameter	Estimate (SE)	Sens.
γ	1.491 (0.0009)	0.26	S_L	195.4 (1.29)	0.0006
γ_{MH}	11.62 (0.025)	0.008	S_H	360.0 (1.33)	0.0006
ϕ	0.758 (0.219)	0.010	τ	0.0694 (0.0001)	1.52
$\eta_{w,2}$	1.849 (0.010)	0.21	λ_L	2.298 (0.0003)	0.15
η_{se}	1.898 (0.0001)	3.12	δ_{sel}	-0.407 (0.0001)	0.99

The estimate of τ implies a 6.9% premium per euro of micro turnover, on top of the statutory wedge already built into ρ_s^m. This is far from negligible and is consistent with Aghion et al's finding that a sizeable tax-evasion premium figures among the motivations to register as a micro-entrepreneur rather than opting for the régime réel. Conversely, the population-average γ comes out strongly unfavourable to entrepreneurship, with the representative agent treating an hour of entrepreneurial work as almost 1.5 times as costly as a wage hour. This average masks substantial heterogeneity, in line with the dispersion in entrepreneurial returns and selection documented by Dillon and Stanton, and consistent with the sizeable weight the model places on idiosyncratic tastes through λ_L, which indicates that occupational choices are far from strictly deterministic. The selection shift δ_{sel} is negative, at around -0.41, and corrects downward the entrepreneurial ability inferred from a sample of observed entrepreneurs that is positively selected. The two

curvature parameters, η_{se} and $\eta_{w,2}$, both come out near 1.9, which implies a Frisch elasticity of entrepreneurial and secondary-wage hours of about 0.36, and η_{se} is in fact the most sharply identified parameter in the model, since the variance of solo entrepreneurial hours responds steeply to it. By contrast, the fixed costs S_L and S_H are only weakly identified, since at σ close to one the hours moments barely move with them, so I report them for completeness and interpret only their gap, which governs the micro-versus-réel margin, rather than their levels. The model assigns a positive variety discount, which suggests that diversifying occupations across the primary and secondary activity matters to workers in itself. Although this channel is imprecisely estimated and the model overstates the hybrid share it governs, it supports the interpretation of a portfolio-diversification motive specific to hybrid entrepreneurship. Lastly, the estimate of γ_{MH} is expectedly large, since without a sizeable dual-job penalty the model would place a large majority of workers in dual jobs against the few percent observed in the data. It is therefore best read not as a literal taste but as the total deterrent to holding two jobs at once, standing in for the search and coordination frictions of moonlighting that a static model leaves out. Better panel data would be needed to restore the dynamics that are instrumental in explaining dual jobholding, such as job-search effort, which are not modelled here.

Validation against the true reform

Before using the model for policy, I test it against an event it was not fitted to: the actual 2018 ceiling reform. The model is estimated on pre-reform data with no reform information, so its predicted response to doubling the eligibility ceiling M is a genuine out-of-sample object. The empirical target is the interrupted-time-series (ITS) fitted level change at 2019Q4 relative to the pre-reform mean, estimated on the EEC with individual-quarter weighting, clustering on `individual_id`, and HC1 standard errors. The model is flipped from $M^{(0)}$ to $M^{(1)}$ at the full-sample estimate with all draws frozen.

Doubling the ceiling raises the model's SE share by +0.0002, whereas the ITS measures a fitted level change of +0.0095 (SE 0.0015). The two agree in sign and in the SE-over-WSE ranking, but the model's level is about one fiftieth of the data's.

	Model Δ	**ITS-observed Δ (SE)**
SE share	+0.0002	+0.0095 (0.0015)
WSE share	≈ 0	+0.0025 (0.0005)
SE vs WSE ranking	SE > WSE	SE > WSE

Two further facts characterise the predicted response. The first is its composition: the induced entry is 100% high-turnover, 89% BNC, and 100% micro at $M^{(1)}$, exactly the population the old ceiling bound. The second is its stability in S: across the setup-cost band from $(100, 250)$ to $(400, 550)$ the SE response is +0.0002 at every point, the at-cap fraction stays between 8.7 and 9.6%, and the induced entry stays 100% high-turnover. The model therefore reproduces the sign, the ranking, and the composition of the realised reform, and these features do not depend on the unidentified setup costs. It identifies who the reform pulls in correctly. What it does not reproduce is how many.

Splitting the response into the four regime×type cells sharpens this read:

Category	**model Δ**	**ITS-observed Δ**
micro only (SE-micro)	+0.0029	+0.0089
independent only (SE-réel)	−0.0027	+0.0007
wage + micro (WSE-micro)	+0.00002	+0.0024
wage + independent (WSE-réel)	−0.00002	≈ +0.0001

Two things emerge that the aggregate hid. First, the micro margin is far less attenuated than the headline suggests. Model SE-micro of +0.0029 against +0.0089 in the data is a ratio of about one

third, not the one fiftieth of the aggregate SE response. The aggregate gap is partly an artifact of cancellation: in the model the micro gain (+0.0029) nets against a réel loss (−0.0027), collapsing the SE total to +0.0002, whereas the data show micro entry with no réel offset. Second, the residual discrepancy is one of mechanism. The model sources its micro gain from réel-to-micro switching, while the data show net entry into micro, with the réel share even rising slightly (+0.0007). The model thus gets the micro pull, its sign, and the dominant category right, but sources most of it from existing réel entrepreneurs rather than from new entrants. Genuine entry into entrepreneurship is present, since the pool itself grows by +0.0002, around eight thousand workers once weighted up to the population, but this margin is much thinner than the reduced form first suggested, and switching does most of the work. This is the same scale-flat réel/micro margin that produces the flat turnover profile in estimation, resurfacing in the reform.

The magnitude gap itself has a single main mechanical cause. At baseline only 9.4% of micro workers sit at the eligibility cap (none at low and mid turnover, 21% at high turnover), so doubling the ceiling has almost no eligibility margin to act on, and the reform works only through that thin high-turnover at-cap group. This cap slack is a symptom of the bracketed, open-topped entrepreneurial revenue measure available in the Enquête Emploi, which cannot resolve the high-turnover entrepreneurs who actually bind the ceiling. A smaller contributor is that the model level is computed on the four-state employed base while the ITS is estimated on an all-actives base. On the modelling side, the static structure also suppresses the incentive some workers have to experiment with entrepreneurship, a long-run continuation value that is likely to be a genuine driver of entry for lower-earning entrepreneurs and that the model overlooks. The consequence for what follows is that the absolute level of any reform response is not a calibrated quantity. Its sign, its stability, and its composition are, and these are what I carry into the counterfactual.

11 Counterfactual

One core argument behind the choice of this specific reform was its relatively low cost compared to the relatively high growth in the share of entrepreneurial jobs in the total active population it induced. It may, however, be that increasing the generosity of the micro régime while holding M fixed could have produced the same effect at a somewhat comparable cost while affecting the composition of the entrepreneur population in a different way from what the 2018 reform did. I therefore compare, inside the estimated model, the 2018 ceiling reform (the M-reform, $M^{(0)} \to M^{(1)}$) against a flat increase in the micro premium (the τ-subsidy). To make the two instruments comparable I calibrate the flat subsidy so that it induces the same number of new entrepreneurs as the ceiling reform, which requires raising τ by $\Delta\tau = +0.0118$. Matching the two arms on induced entry is what makes the comparison meaningful despite the magnitude limitation established in Section 10: since the induced count is held equal by construction, it cancels in the ratio of costs per induced entrepreneur, so that ratio is invariant to the attenuation that affects each arm's absolute cost.

R is the tax and contributions actually collected by the public purse, summed with the `extri` weights over the population and averaged over the draws. For a solved allocation, each worker and draw contributes its *expected* collected revenue across the four working states,

$$\begin{aligned}\text{tax}_i = {} & P_{i,W}\,\tau_W\,w_1 h_{i,W}^{w,1} + P_{i,WW}\,\tau_W\,(w_1 h_{i,WW}^{w,1} + w_2 h_{i,WW}^{w,2}) \\ & + P_{i,WSE}\,(\tau_W\,w_1 h_{i,WSE}^{w,1} + \rho_i^{\text{coll}} T_{i,WSE}^{se}) + P_{i,SE}\,\rho_i^{\text{coll}} T_{i,SE}^{se},\end{aligned}$$

where τ_W is the wage social-contribution rate of Section 9.3, $T^{se} = \mu_{y,i}\,h^{se}$ is expected entrepreneurial *turnover*, and ρ_i^{coll} is the *collected* rate on that turnover, that is, the share of turnover that goes to contributions and income tax rather than to operating costs or to the entrepreneur's own pocket. With operating-cost ratio c_i and the net income shares ρ_i^m, ρ_i^r of Section 8.3, and

selecting the branch by the row's chosen regime,

$$\rho_i^{\text{coll,micro}} = 1 - c_i - \rho_i^m \ (= \kappa_s^m + t^{IR}(1 - a_s)), \qquad \rho_i^{\text{coll,réel}} = (1 - c_i) - \rho_i^r.$$

Statutory accounting matters here. The micro premium τ raises the entrepreneur's *disposable* income through $(1 + \tau)\rho^m$ but is *absent* from ρ^{coll}, so a τ-subsidy costs the purse only through behaviour (workers choosing micro, or scaling up turnover), never through a direct cut to the collected rate. Aggregating gives the population total,

$$R = \frac{1}{R_{\text{draws}}} \sum_i \text{extri}_i \, \text{tax}_i, \qquad R_{\text{draws}} = 25,$$

and R_{baseline}, R_{reform} are this same object evaluated at the baseline solve and at the relevant arm's solve.

The comparison weighs two objects against each other. The *induced entrepreneurs* ΔE is the reform-induced increase in the entrepreneurship pool, defined as the change in the `extri`-weighted share of workers in SE or WSE between baseline and reform (here $\Delta E = +0.00022$, about 8,057 people once weighted up to the population). The *cost* is the revenue *forgone*, $R_{\text{baseline}} - R_{\text{reform}}$. The **cost per induced entrepreneur** is their ratio,

$$\text{CPIE} = \frac{R_{\text{baseline}} - R_{\text{reform}}}{\Delta E} \qquad \text{(euros of forgone revenue per induced entrepreneur)},$$

that is, how much public revenue is given up to bring one additional worker into entrepreneurship. A negative CPIE means the instrument raises more revenue than it forgoes, while a positive CPIE marks a net drain. The headline compares the two instruments at the same induced response, $\text{CPIE}_M/\text{CPIE}_\tau$. Because ΔE is matched across the arms it cancels in the ratio, so the ratio equals the ratio of revenue changes, which is exactly why the common magnitude attenuation drops out of it.

The cost per induced entrepreneur ratio comes out at

$$\text{CPIE}_M/\text{CPIE}_\tau = 7.39,$$

with both instruments revenue-positive, meaning that they raise more collected revenue than they forgo. The M-reform thus raises about 7.4 times more net revenue per induced entrepreneur than the flat subsidy. Its edge lies almost entirely on the intensive margin. Doubling M lets high-turnover micro-entrepreneurs who were bound at the old cap expand toward the new one and pay micro tax on the larger turnover, a scale-up channel that accounts for roughly 70% of the gap between the two arms and that the flat subsidy, which leaves the ceiling unchanged, cannot unlock. Most of the remainder comes from the additional réel-to-micro switching the higher ceiling permits. Because the two instruments are matched on entry, the efficiency difference cannot come from pulling in more entrepreneurs. It comes from what each instrument does to existing constrained businesses, and only the ceiling acts there. Since both arms share the logit scale and the frozen draws and are matched on the aggregate response, the attenuation documented in the validation cancels in this ratio, so it is interpretable even though the underlying levels are not.

Matched on the same total response, the two instruments nonetheless select entirely different populations:

Induced entrants, by characteristic	**M-reform**	**τ-subsidy**
turnover low / mid / high	0 / 0 / 100%	22 / 34 / 44%
sector retail / services / BNC	3 / 9 / 89%	15 / 36 / 48%
top-2 ability-decile share	100%	26%

The M-reform induces only high-turnover, top-ability, ceiling-bound entrepreneurs concentrated in the BNC[11] sector, exactly the margin the old ceiling bound. The flat τ-subsidy induces a broad

[11] this is the acronym for "bénéfices non commerciaux" which mostly consists in workers in liberal professions.

spread across turnover, ability, and sector: although it too draws in the highest earners, workers at the low end and in the middle of the entrepreneurial earnings distribution also enter, and the range of sectors represented among new entrants is far more diverse. The two instruments are therefore not interchangeable even when calibrated to an identical aggregate entrepreneurship effect. The ceiling reform is a targeted instrument acting on the constrained high-turnover margin, while the flat subsidy spreads broadly across the distribution. This composition contrast, like the revenue ratio, is a matter of shares rather than levels and does not depend on the magnitude being correct.

Underneath the matched aggregate, both instruments also work mainly as a regime switch rather than as entry, the same mechanism the cell-level validation identified. Micro rises while réel falls by nearly as much, so the net entry of +0.00022 sits on top of a within-pool reallocation an order of magnitude larger. The M-reform reallocates about twice as much as the matched subsidy (SE-micro +0.0029 against +0.0015), because doubling the ceiling lets high-turnover réel entrepreneurs who sat just above the old cap re-enter micro, the same scale-up margin behind its revenue-efficiency edge. The hybrid cells barely move under either instrument.

The CPIE ratio is stable across the unidentified setup-cost band ($[6.94, 7.85]$ over S from $(100, 250)$ to $(400, 550)$, with the induced-entrant composition 100% high-turnover at every point), so neither headline depends on S. The ratio is sensitive in magnitude to the one calibration the estimation could not pin, σ_{cost}: it rises monotonically from 6.08 to 8.75 across $\sigma_{\text{cost}} \in \{0.05, 0.07, 0.09\}$. The qualitative conclusion holds across the whole band, with the M-reform always 6 to 9 times more revenue-efficient, so the result is best read as a range of about 6 to 9, central 7.4, with the dependence on σ_{cost} stated, rather than as a point estimate. A direct measurement of σ_{cost} from firm-level cost data (FARE) would pin it.

The absolute revenue figures and induced-entrant counts inherit the same attenuation as the validation, roughly fiftyfold on the aggregate SE response and about threefold on the micro margin itself, from the same cause: bracketed open-topped entrepreneurial revenue and a cap that binds for only 9.4% of micro workers at baseline. The two interpretable objects here are therefore the cross-reform revenue ratio and the composition contrast, both of which are invariant to the attenuation. The absolute euro magnitudes and induced-entrant counts are not, and should not be read as calibrated quantities. The revenue ratio additionally carries the σ_{cost} sensitivity above (range 6 to 9), whereas the composition contrast is invariant to both the attenuation and σ_{cost} and is the most robust object the counterfactual produces.

12 Discussion

The 2018 reform coincided with a marked acceleration of entry into entrepreneurship, both as a primary and as a secondary occupation. Consistent with both the data and the model, the workers who moved into entrepreneurship from another state were for the most part individuals with high earning potential. Within the structural model, which remains exploratory, the reform appears more efficient and better targeted than a tax subsidy aimed at micro-entrepreneurs, for two reasons. The threshold extension drew in almost exclusively high-ability entrepreneurs, the very population the reform was meant to reach and one that a flat subsidy could not have selected. Beyond this difference in composition, the counterfactual showed that the reform achieved this at a very low fiscal cost, in fact raising slightly more revenue than it gave up. The sign of this result holds across the cost-dispersion sensitivity exercise even though its euro magnitude is attenuated, and it sits comfortably with the Senate's judgement that the reform's fiscal footprint was negligible. The evidence is therefore consistent with the micro regime drawing high-ability workers into entrepreneurship, and with the ceiling acting as an efficient and targeted instrument for the constrained high-turnover margin rather than a broad giveaway.

Nonetheless, the gains from the reform do not come without a cost for the broader labour market. Although the data offer only limited evidence on where the new entrepreneurs come from, the model indicates that entry came largely at the expense of wage work. The number of workers

holding a primary or secondary wage job declined in the ITS, and the revenue decomposition shows that most of the new entrants were drawn from wage employment. Since entrepreneurial and wage ability are positively correlated, as documented by French & Taber (2011), the arrival of highly capable new entrepreneurs implies that the reform pulled some qualified workers out of wage jobs. The hybrid margin is more ambiguous. The reduced form shows a sixfold acceleration in hybrid micro-entrepreneurship, but the model generates almost no hybrid response to the ceiling, since the threshold is slack for workers who run only a side business. The model therefore attributes the observed hybrid surge to forces outside the ceiling itself, such as the residual premium and the general growth of the regime, and a learning value of hybrid employment that a static model cannot capture remains a plausible part of the explanation.

These conclusions come with important caveats. The reduced-form break cannot be separated from the abolition of the RSI, which took effect on the same day. The poor quality of the profit data, together with the tractability trade-offs the model makes, compromises the reliability of some parameter estimates, in particular the fixed setup costs S_L and S_H, whose gap captures the administrative saving that is the very rationale for the simplified micro regime. The static structure of the model also omits the option value and the long-run learning effects that recent work in this literature shows to matter (Dillon and Stanton, 2017). It further limits how well the model captures the mechanisms behind dual-jobholding, which it is forced to load onto an implausibly large γ_{MH}.

Further work to assess the relevance of a learning channel in this setting would require longer-run panel data, for instance the base non-salariés, which would track entrepreneurial revenues more accurately than the EEC allows. The VAT decoupling that accompanied the reform also deserves attention in its own right, since it altered incentives in the band between the old and new thresholds in ways the present model does not represent. Lastly, moving from a partial-equilibrium to a general-equilibrium framework would be needed to capture how a large entry response feeds back into the returns to wage work and self-employment.

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A Classification Rules for `indep_type` and `micro_type`

I define two main different categorical variables : indep_type and micro_type. The former is used to classify individuals based on whether they are salaried on non salaried and is meant as a broader categorization, which incorporates microentrepreneurs as well as other independents and distinguishes them from the wage-employed.

To this end, I rely on the following variables from the Enquête Emploi en Continu.

Variable	**Definition (EEC documentation, summarised)**
`stc`	Status declared in the main job: `1` self-employed, `2` salaried CEO / corporate officer, `3` salaried (non-CEO), `4` family worker without pay.
`plract`	Multiple-activity flag: `1` yes, `2` no.
`uneprof`	Several different professions: `1` one, `2` several.
`nbtemp`	Number of employers in the main profession: `1` single, `2` several with a main one, `3` several without a main one.
`autoent`	Main activity is an auto-entreprise: `1` yes, `2` no.
`autoenta`	Second-profession activity is an auto-entreprise: `1` yes, `2` no.
`autoentb`,`autoentc`	Same flag for third / fourth professions.
`statuts2`	Status in the second profession (same coding as `stc`).
`statuts3`,`statuts4`	Status in the third / fourth profession.

In both classifications, I exclude workers who are family workers without pay or who are salaried CEOs as they do not correspond to the definitions of both wage and self-employment I adopt throughout this paper. Similarly, as mentioned earlier, I exclude people with more than two different occupations to avoid wrongfully classifying individuals for whom it can be argued that they fit in more categories than one (for instance people with two wage jobs as well as a side business). Both exclusions are fairly minor in size but I do not exclude them from the working population, only from the two primary classifications. This explains why the sum of the shares of people in all categories of indep_type or micro_type in the working active population does not necessarily sum to one.

Micro_type classification

Categories : `Wage only`, `Micro only`, `Wage + Wage`, `Wage + Micro`, `Micro + Wage`, `Micro + Micro`.

Rule table :

#	Condition	Assigned value
1	`!is.na(autoentb) | !is.na(autoentc)`	NA *(3rd/4th auto-entreprise slot used)*
2	`!is.na(statuts3) | !is.na(statuts4)`	NA *(3rd/4th profession declared)*
3	`stc == 3 & plract == 2`	Wage only
4	`autoent == 1 & plract == 2`	Micro only
5	`plract == 1 & stc == 3 & autoenta == 1`	Wage + Micro
6	`plract == 1 & stc == 3 & uneprof == 2 & statuts2 == 3`	Wage + Wage
7	`plract == 1 & stc == 3 & uneprof == 1 & nbtemp ∈ {2,3}`	Wage + Wage
8	`plract == 1 & autoent == 1 & autoenta == 1`	Micro + Micro
9	`plract == 1 & autoent == 1 & statuts2 == 3`	Micro + Wage
10	otherwise	NA

From a coding perspective, rules are evaluated top-to-bottom via `dplyr::case_when`. The fall-through (`TRUE`) assigns `NA`.

In line with the INSEE definition of multiple jobholding I consider both people with several professional activities or with several employers but a single professional activity as dual jobholders. As the number of employers is necessarily relevant for the wage-employed only, I classify people in this category who report having more than one employer as dual-wage jobholders.

Indep_type classification

Categories : `Wage only`, `Independent only`, `Wage + Wage`, `Wage + Independent`, `Independent + Wage`, `Independent + Independent`.

Rule table :

#	Condition	Assigned value
1	`stc ∈ {2,4}`	NA *(salaried CEO or family worker)*
2	`!is.na(statuts2) & statuts2 ∈ {2,4}`	NA *(secondary slot is salaried CEO/family)*
3	`!is.na(statuts3) | !is.na(statuts4)`	NA *(3rd/4th profession declared)*
4	`stc == 3 & plract == 2`	Wage only
5	`stc == 1 & plract == 2`	Independent only
6	`plract == 1 & stc == 3 & uneprof == 2 & statuts2 == 1`	Wage + Independent
7	`plract == 1 & stc == 3 & uneprof == 2 & statuts2 == 3`	Wage + Wage
8	`plract == 1 & stc == 3 & uneprof == 1 & nbtemp ∈ {2,3}`	Wage + Wage
9	`plract == 1 & stc == 1 & uneprof == 2 & statuts2 == 1`	Independent + Independent
10	`plract == 1 & stc == 1 & uneprof == 2 & statuts2 == 3`	Independent + Wage
11	otherwise	NA

This classification follows the same overall logic, but I distinguish people who are self-employed from the wage employed instead of adopting the previous narrower definition which restricts self-employment to microentrepreneurs. As stated above, salaried CEOs are explicitly removed by rules 1–2 because they are not self-employed in the sense relevant for this analysis.

B Robustness Checks for the Aggregate and Individual-Level ITS Designs

Aggregate ITS robustness

Reduced estimation window

The baseline aggregate ITS is estimated on the full 2015-Q1 to 2019-Q4 window, yielding 12 pre-reform and 8 post-reform quarters. To verify that the results are not driven by the earliest pre-reform quarters, which are furthest from the reform and therefore most susceptible to confounding by earlier policy changes (notably the progressive implementation of the Loi Pinel between 2014 and 2016), I re-estimate the specification on the shorter 2016-Q1 to 2019-Q4 window (8 pre, 8 post). If the estimated coefficients change substantially, this would suggest that the pre-reform trend is sensitive to the inclusion of the 2015 observations and may not be well captured by a linear specification over the full window.

Table 14: Aggregate ITS: reduced window (2016-Q1 to 2019-Q4) — Micro only and Wage only

	Wage only	Micro only
Intercept (α)	85.473^{***}	1.799^{***}
	(0.036)	(0.022)
Pre-reform trend ($\hat{\beta}_1$)	-0.004	0.034^{***}
	(0.009)	(0.006)
Level shift ($\hat{\beta}_2$)	-0.203^{***}	-0.120^{*}
	(0.035)	(0.041)
Post-reform slope ($\hat{\beta}_3$)	-0.100^{***}	0.076^{***}
	(0.012)	(0.007)
Seasonal controls	Yes	Yes
Observations	16	16
R^2	0.961	0.970
HAC lag L	5	5

Notes: OLS with Newey–West HAC standard errors (Bartlett kernel, fixed bandwidth $L = 5$), quarter FE. Classification: `micro_type`. Sample: `acteu` $= 1$, age ≥ 15, 2016-Q1 to 2019-Q4.
$^{***}p < 0.001$, $^{**}p < 0.01$, $^{*}p < 0.05$, $^{\dagger}p < 0.1$.

Table 15: Aggregate ITS: reduced window (2016-Q1 to 2019-Q4) — Wage + Wage and Wage + Micro

	Wage + Wage	Wage + Micro
Intercept (α)	3.312^{***}	0.403^{***}
	(0.017)	(0.014)
Pre-reform trend ($\hat{\beta}_1$)	-0.008^{*}	0.010^{***}
	(0.004)	(0.002)
Level shift ($\hat{\beta}_2$)	0.359^{***}	-0.057^{*}
	(0.056)	(0.020)
Post-reform slope ($\hat{\beta}_3$)	-0.052^{***}	0.025^{***}
	(0.010)	(0.004)
Seasonal controls	Yes	Yes
Observations	16	16
R^2	0.797	0.933
HAC lag L	5	5

Notes: OLS with Newey–West HAC standard errors (Bartlett kernel, fixed bandwidth $L = 5$), quarter FE. Classification: `micro_type`. Sample: `acteu` $= 1$, age ≥ 15, 2016-Q1 to 2019-Q4.
$^{***}p < 0.001$, $^{**}p < 0.01$, $^{*}p < 0.05$, $^{\dagger}p < 0.1$.

The reduced-window estimates are very close to the baseline. For Micro only, the post-reform slope change is 0.076^{***} on the shorter window compared to 0.083^{***} on the full window, and the pre-reform trend rises from 0.028 to 0.034 pp/quarter, consistent with the Loi Pinel having slightly depressed growth in the earliest quarters of the full sample. For Wage + Micro, $\hat{\beta}_3$ is 0.025^{***} versus 0.030^{***} on the full window, a difference well within the confidence interval. The level shifts and seasonal controls are likewise stable. These results confirm that the main findings are not an artifact of the choice of pre-reform window length.

Placebo reform date

I re-estimate the ITS specification using 2016-Q1 as a placebo reform date, restricting the sample to pre-treatment data only (2014-Q2 to 2017-Q4, 7 pre and 8 post quarters) to avoid contamination by the true reform. If the ITS design is valid, the placebo should produce no significant slope change for Micro only or Wage + Micro workers, while the true reform date should yield the significant effects documented in the main text. I report both the placebo and the true-reform estimates side by side, where the true-reform column uses a symmetric 8-pre/8-post window (2016-Q1 to 2019-Q4).

Table 16: Placebo test: Wage only vs Micro only (classification: `micro_type`)

	2016-Q1 (placebo)		2018-Q1 (true)	
	Wage only	Micro only	Wage only	Micro only
Level shift ($\hat{\beta}_2$)	-0.020	$-0.073^{\dagger}$	-0.203^{***}	-0.120^{*}
	(0.059)	(0.034)	(0.035)	(0.041)
Post-reform slope ($\hat{\beta}_3$)	-0.049^{*}	0.002	-0.100^{***}	0.076^{***}
	(0.021)	(0.011)	(0.012)	(0.007)

Notes: OLS with Newey–West HAC SEs (Bartlett, $L = 5$) and quarter FE. Placebo uses 2014-Q2 to 2017-Q4 (7 pre / 8 post quarters), true reform uses 2016-Q1 to 2019-Q4 (8 pre / 8 post). Classification: `micro_type`.
$^{***}p < 0.001$, $^{**}p < 0.01$, $^{*}p < 0.05$, $^{\dagger}p < 0.1$.

Table 17: Placebo test: Wage + Wage vs Wage + Micro (classification: `micro_type`)

	2016-Q1 (placebo)		2018-Q1 (true)	
	W+W	W+Micro	W+W	W+Micro
Level shift ($\hat{\beta}_2$)	-0.180^{**}	-0.000	0.359^{***}	-0.057^{*}
	(0.039)	(0.010)	(0.056)	(0.020)
Post-reform slope ($\hat{\beta}_3$)	0.006	0.019^{***}	-0.052^{***}	0.025^{***}
	(0.007)	(0.003)	(0.010)	(0.004)

Notes: OLS with Newey–West HAC SEs (Bartlett, $L = 5$) and quarter FE. Placebo uses 2014-Q2 to 2017-Q4 (7 pre / 8 post quarters), true reform uses 2016-Q1 to 2019-Q4 (8 pre / 8 post). Classification: `micro_type`. $^{***}p < 0.001$, $^{**}p < 0.01$, $^{*}p < 0.05$, $^{\dagger}p < 0.1$.

For Micro only, the placebo slope change is essentially zero (0.002, $p > 0.8$), while the true reform yields a highly significant 0.076^{***}. The level shift under the placebo is marginally significant at the 10% level ($-0.073^{\dagger}$), which is plausibly attributable to residual effects of the Loi Pinel's implementation in late 2015 and early 2016. For Wage + Micro, the placebo slope change is significant (0.019^{***}), indicating that hybrid micro-entrepreneurship was already on an accelerating trend prior to the 2018 reform. However, the true-reform slope change (0.025^{***}) is 30% larger in magnitude and estimated on a sample that includes the reform period, so the additional acceleration attributable to the 2018 threshold doubling remains economically meaningful. The placebo level shift for Wage + Micro is essentially zero, confirming no discrete jump at the placebo date.

HAC bandwidth sensitivity

The primary specification uses Newey–West HAC standard errors with a Bartlett kernel and a fixed truncation lag of $L = 5$, chosen because the Enquête Emploi en Continu operates as a 6-quarter rotating panel with up to 5 overlapping cohorts contributing to each quarterly aggregate. If the lag is set too short, residual serial correlation is not fully absorbed and standard errors are downward-biased. Conversely, if it is too long, the finite-sample correction inflates standard errors unnecessarily. To assess the sensitivity of my results to the choice of bandwidth, I re-estimate both the baseline (2015-Q1 to 2019-Q4) and reduced (2016-Q1 to 2019-Q4) specifications under three different configurations: $L \in \{3, 5, 7\}$.

Table 18: HAC bandwidth sensitivity — Micro only

	Reduced (2016-Q1–2019-Q4)		Baseline (2015-Q1–2019-Q4)	
	$\hat{\beta}_2$	$\hat{\beta}_3$	$\hat{\beta}_2$	$\hat{\beta}_3$
Point estimate	-0.120	0.076	-0.113	0.083
HAC $L = 3$	$(0.042)^{*}$	$(0.007)^{***}$	$(0.038)^{*}$	$(0.008)^{***}$
HAC $L = 5$	$(0.041)^{*}$	$(0.007)^{***}$	$(0.036)^{**}$	$(0.007)^{***}$
HAC $L = 7$	$(0.038)^{*}$	$(0.005)^{***}$	$(0.031)^{**}$	$(0.006)^{***}$
N (quarters)	16		20	

Notes: HAC $L = k$: Newey–West with Bartlett kernel and fixed truncation lag k. $L = 5$ is the primary specification. Point estimates are identical across SE flavors (OLS).
$^{***}p < 0.001$, $^{**}p < 0.01$, $^{*}p < 0.05$, $^{\dagger}p < 0.1$.

Table 19: HAC bandwidth sensitivity — Wage + Micro

	Reduced (2016-Q1–2019-Q4)		Baseline (2015-Q1–2019-Q4)	
	$\hat{\beta}_2$	$\hat{\beta}_3$	$\hat{\beta}_2$	$\hat{\beta}_3$
Point estimate	−0.057	0.025	−0.045	0.030
HAC $L = 3$	$(0.020)^{*}$	$(0.003)^{***}$	$(0.019)^{*}$	$(0.004)^{***}$
HAC $L = 5$	$(0.020)^{*}$	$(0.004)^{***}$	$(0.017)^{*}$	$(0.004)^{***}$
HAC $L = 7$	$(0.018)^{*}$	$(0.003)^{***}$	$(0.016)^{*}$	$(0.004)^{***}$
N (quarters)	16		20	

Notes: HAC $L = k$: Newey–West with Bartlett kernel and fixed truncation lag k. $L = 5$ is the primary specification. Point estimates are identical across SE flavors (OLS).
$^{***}p < 0.001$, $^{**}p < 0.01$, $^{*}p < 0.05$, $^{\dagger}p < 0.1$.

For both categories, the post-reform slope change $\hat{\beta}_3$ is significant at the 0.1% level under every bandwidth and every window length. The level shift $\hat{\beta}_2$ is significant at the 5% level throughout, with standard errors varying only modestly across bandwidths. Varying L from 3 to 7 produces only minor fluctuations in standard errors, confirming that the choice of $L = 5$ does not artificially drive significance.

RESET test for nonlinearity

A key assumption of the ITS design is that the pre-reform and post-reform trends are adequately captured by linear functions of time. If the true data-generating process involves a nonlinear trend, the linear ITS specification could attribute curvature to a spurious level shift or slope change at the reform date. I report below the results of a Ramsey RESET (Regression Equation Specification Error Test) test which provides a formal diagnostic for this type of misspecification. The test augments the original regression with powers of the fitted values (here, the second and third powers $\hat{Y}^2$ and $\hat{Y}^3$) and tests whether these additional regressors are jointly significant. Under the null hypothesis that the linear specification is correct, the augmented regressors should have no explanatory power and the F-statistic should be small.

Table 20: Ramsey RESET test for nonlinearity in the aggregate ITS

	Micro only	Wage + Micro
RESET F-statistic	1.078	1.026
Degrees of freedom	(2, 11)	(2, 11)
p-value	0.374	0.390
Observations	20	20

Notes: RESET test with powers 2 and 3 of the OLS fitted values. Null hypothesis: the linear specification is correct. Sample: 2015-Q1 to 2019-Q4.

The RESET test fails to reject the null of correct linear specification for both Micro only ($F = 1.078$, $p = 0.374$) and Wage + Micro ($F = 1.026$, $p = 0.390$) which indicates that nonlinearities are unlikely to be playing a significant role here.

Residual diagnostics

As a complementary visual diagnostic, I plot the OLS residuals against fitted values for both target categories and overlay a LOESS smoother to detect any systematic pattern that would indicate nonlinearity missed by the parametric RESET test.

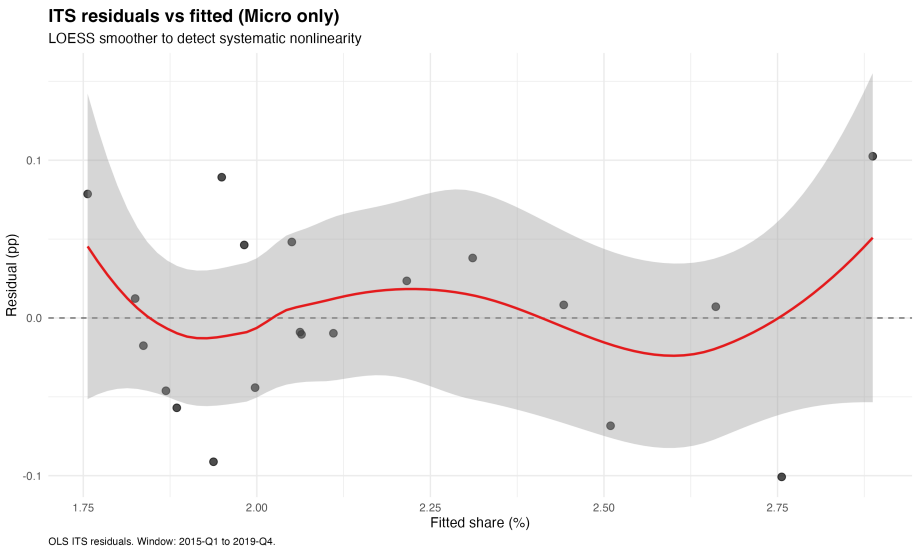


Figure 11: Residuals vs fitted values — Micro only (aggregate ITS, 2015-Q1 to 2019-Q4)

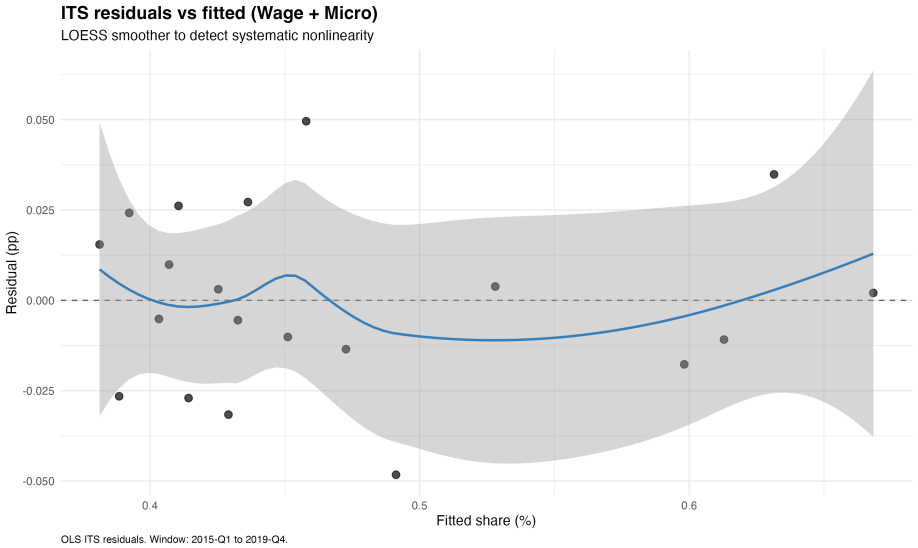


Figure 12: Residuals vs fitted values — Wage + Micro (aggregate ITS, 2015-Q1 to 2019-Q4)

For both categories, the LOESS smoother remains close to zero across the full range of fitted values, and the 95% confidence band comfortably contains the zero line throughout. Together with the RESET test results, these plots confirm that the linear ITS specification provides an adequate fit for both target categories.

Individual-level ITS robustness

Rolling placebo analysis

To assess whether the individual-level ITS captures a genuine structural break at 2018-Q1 rather than a spurious pattern, I conduct a rolling placebo analysis. For each candidate reform date from 2015-Q3 to 2017-Q2, I re-estimate the individual-level logit specification (M3, with full controls) on the pre-reform window only (2014-Q2 to 2017-Q4), treating the candidate date as if it were the true reform. This produces a sequence of placebo $\hat{\beta}_3$ estimates, each measuring the slope change at a date where no reform occurred. I then compare these to the headline $\hat{\beta}_3$ obtained from the true reform specification (2015-Q1 to 2019-Q4, break at 2018-Q1).

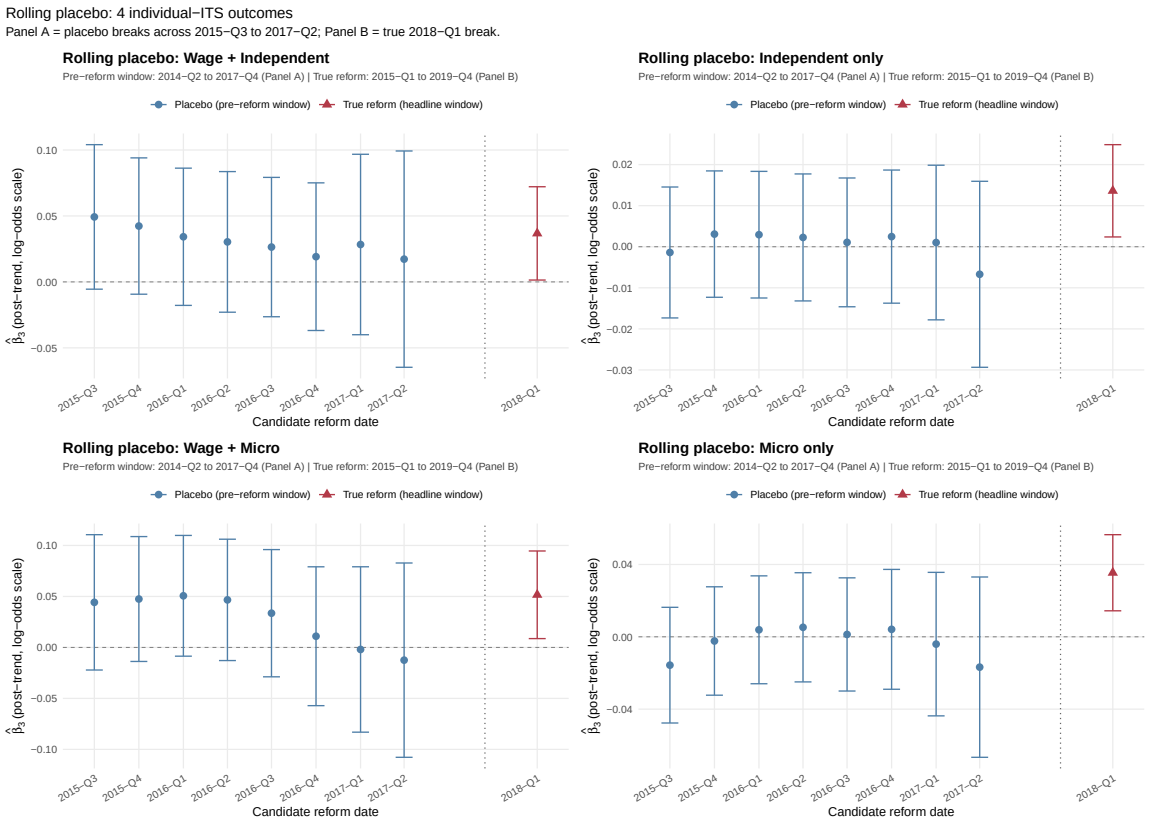


Figure 13: Rolling placebo: individual-level ITS $\hat{\beta}_3$ (post-reform slope change, log-odds scale) across four outcomes. Panel A (circles) shows placebo estimates for candidate reform dates from 2015-Q3 to 2017-Q2, estimated on the pre-reform window (2014-Q2 to 2017-Q4). Panel B (triangle) shows the true-reform estimate (2015-Q1 to 2019-Q4, break at 2018-Q1). Whiskers represent 95% confidence intervals based on cluster-robust sandwich SEs. Classification: `micro_type` for Micro only and Wage + Micro, `indep_type` for Independent only and Wage + Independent.

The results are reassuring across all four outcomes. For Micro only, the placebo $\hat{\beta}_3$ estimates fluctuate in a narrow band around zero, with confidence intervals consistently covering zero, while the true-reform estimate stands clearly above the placebo range. The same pattern holds for Independent only, confirming that the acceleration in solo self-employment is specific to the 2018 reform date. For Wage + Micro, the placebo estimates are again centered near zero with wide confidence intervals reflecting the smaller cell size, and the true-reform estimate is the only one to reach significance. For Wage + Independent, the true-reform estimate is positive and clearly separated from the cluster of placebo values, which hover near zero throughout the pre-reform window.

All of this confirms that the individual-level results documented in the main text are not an artifact of pre-existing trend breaks or specification sensitivity, and that the 2018 threshold reform represents a genuine structural change in the trajectory of micro-entrepreneurship in the French labor market.

C Individual-Level Interaction Terms and Covariate Coefficients

This appendix section reports the full set of covariate coefficients and post-reform slope interaction terms for the individual-level ITS models. All coefficients in the logit models are on the log-odds scale.

Table 21: Individual ITS (Logit): Micro Only — Full Coefficients

	(1) No controls	(2) Demographics	(3) Full controls	(4) Full + interactions
Intercept	-4.036^{***}	-4.886^{***}	-5.184^{***}	-5.295^{***}
	(0.044)	(0.220)	(0.222)	(0.275)
T_t	0.015^{**}	0.015^{**}	0.016^{**}	0.016^{**}
	(0.006)	(0.006)	(0.006)	(0.006)
D_t	-0.009	-0.008	-0.015	-0.014
	(0.050)	(0.050)	(0.050)	(0.050)
P_t	0.031^{**}	0.031^{**}	0.034^{**}	0.095
	(0.011)	(0.011)	(0.011)	(0.078)
Demographics				
Upper-intermediate (bac+2)		-0.057	-0.073	-0.054
		(0.057)	(0.058)	(0.072)
Upper-secondary (bac)		-0.015	-0.123^{*}	-0.136^{*}
		(0.050)	(0.052)	(0.065)
Lower-secondary or below		-0.011	-0.172^{***}	-0.167^{**}
		(0.044)	(0.046)	(0.056)
Children		-0.076^{***}	-0.074^{***}	-0.079^{***}
		(0.019)	(0.019)	(0.024)
Female		-0.270^{***}	-0.404^{***}	-0.432^{***}
		(0.034)	(0.037)	(0.046)
Age		0.049^{***}	0.061^{***}	0.066^{***}
		(0.012)	(0.012)	(0.014)
Age^2		-0.001^{***}	-0.001^{***}	-0.001^{***}
		(0.000)	(0.000)	(0.000)
Professional controls				
Underemployed			1.615^{***}	1.667^{***}
			(0.040)	(0.049)
Sector B (services)			-0.169^{***}	-0.167^{***}
			(0.037)	(0.045)
$P_t \times$ *covariate interactions*				
$P_t \times$ Upper-intermediate				-0.011
				(0.021)
$P_t \times$ Upper-secondary				0.008
				(0.018)
$P_t \times$ Lower-secondary				-0.003
				(0.016)
$P_t \times$ Children				0.003
				(0.007)
$P_t \times$ Female				0.016
				(0.013)
$P_t \times$ Age				-0.003
				(0.004)
$P_t \times \text{Age}^2$				0.000
				(0.000)
$P_t \times$ Underemployed				-0.032^{*}
				(0.015)
$P_t \times$ Sector B				-0.001
				(0.013)
Observations	894,374	894,374	884,013	884,013

Notes: Weighted logit with cluster-robust sandwich SEs on `individual_id`. All coefficients on the log-odds scale. Reference category for education: Tertiary (bac+3 or above). $^{***}p < 0.001$, $^{**}p < 0.01$, $^{*}p < 0.05$.

Table 22: Individual ITS (Logit): Wage + Micro — Full Coefficients

	(1) No controls	(2) Demographics	(3) Full controls	(4) Full + interactions
Intercept	-5.518^{***}	-8.828^{***}	-9.122^{***}	-8.829^{***}
	(0.084)	(0.536)	(0.534)	(0.649)
T_t	0.013	0.012	0.013	0.013
	(0.011)	(0.011)	(0.011)	(0.011)
D_t	−0.021	−0.019	−0.018	−0.015
	(0.101)	(0.101)	(0.101)	(0.101)
P_t	0.052^{*}	0.051^{*}	0.051^{*}	−0.108
	(0.022)	(0.022)	(0.022)	(0.197)
Demographics				
Upper-intermediate (bac+2)		−0.151	−0.126	−0.105
		(0.094)	(0.095)	(0.117)
Upper-secondary (bac)		-0.387^{***}	-0.374^{***}	-0.318^{**}
		(0.096)	(0.099)	(0.120)
Lower-secondary or below		-0.761^{***}	-0.765^{***}	-0.755^{***}
		(0.094)	(0.095)	(0.115)
Children		-0.111^{**}	-0.109^{**}	-0.095^{*}
		(0.036)	(0.036)	(0.044)
Female		-0.272^{***}	-0.391^{***}	-0.436^{***}
		(0.069)	(0.072)	(0.088)
Age		0.210^{***}	0.215^{***}	0.197^{***}
		(0.027)	(0.027)	(0.033)
Age^2		-0.003^{***}	-0.003^{***}	-0.002^{***}
		(0.000)	(0.000)	(0.000)
Professional controls				
Underemployed			0.949^{***}	0.847^{***}
			(0.088)	(0.104)
Sector B (services)			0.238^{**}	0.277^{**}
			(0.074)	(0.090)
$P_t \times$ *covariate interactions*				
$P_t \times$ Upper-intermediate				−0.010
				(0.035)
$P_t \times$ Upper-secondary				−0.030
				(0.035)
$P_t \times$ Lower-secondary				−0.004
				(0.036)
$P_t \times$ Children				−0.007
				(0.013)
$P_t \times$ Female				0.024
				(0.026)
$P_t \times$ Age				0.010
				(0.010)
$P_t \times \text{Age}^2$				0.000
				(0.000)
$P_t \times$ Underemployed				0.056
				(0.032)
$P_t \times$ Sector B				−0.022
				(0.027)
Observations	894,374	894,374	884,013	884,013

Notes: Weighted logit with cluster-robust sandwich SEs on `individual_id`. All coefficients on the log-odds scale. Reference category for education: Tertiary (bac+3 or above). $^{***}p < 0.001$, $^{**}p < 0.01$, $^{*}p < 0.05$.

Table 23: Individual ITS (Linear): Secondary Hours (nbtot − hhc) — Full Coefficients, Wage + Micro

	(1) No controls	(2) Demographics	(3) Full controls	(4) Full + interactions
Intercept	9.854***	16.608***	15.315**	13.673*
	(0.760)	(4.682)	(4.993)	(5.950)
T_t	−0.069	−0.054	−0.058	−0.070
	(0.082)	(0.079)	(0.079)	(0.078)
D_t	0.657	0.606	0.696	0.772
	(0.979)	(0.937)	(0.934)	(0.927)
P_t	0.075	0.051	0.042	0.940
	(0.187)	(0.181)	(0.180)	(1.723)
Demographics				
Upper-intermediate (bac+2)		−0.410	−0.296	0.038
		(0.722)	(0.716)	(0.861)
Upper-secondary (bac)		−0.232	−0.095	−0.480
		(0.766)	(0.755)	(0.943)
Lower-secondary or below		−1.134	−0.883	−0.424
		(0.744)	(0.720)	(0.901)
Female		−0.873	−0.925	−1.840**
		(0.535)	(0.559)	(0.683)
Age		−0.268	−0.217	−0.118
		(0.221)	(0.245)	(0.294)
Age^2		0.003	0.002	0.001
		(0.003)	(0.003)	(0.003)
Professional controls				
Children			−0.182	−0.393
			(0.273)	(0.326)
Underemployed			−0.656	−0.372
			(0.666)	(0.807)
Sector B (services)			0.739	1.390*
			(0.522)	(0.628)
P_t × *covariate interactions*				
P_t × Upper-intermediate				−0.206
				(0.275)
P_t × Upper-secondary				0.154
				(0.272)
P_t × Lower-secondary				−0.321
				(0.253)
P_t × Children				0.098
				(0.107)
P_t × Female				0.476*
				(0.205)
P_t × Age				−0.052
				(0.084)
P_t × Age^2				0.001
				(0.001)
P_t × Underemployed				−0.141
				(0.272)
P_t × Sector B				−0.361
				(0.200)
Observations	3,523	3,523	3,517	3,517

Notes: Weighted OLS with cluster-robust sandwich SEs on `individual_id`. Reference category for education: Tertiary (bac+3 or above). $^{***}p < 0.001$, $^{**}p < 0.01$, $^{*}p < 0.05$.

Table 24: Individual ITS (Linear): Primary Hours (hhc) — Reallocation Check, Full Coefficients, Wage + Micro

	(1) No controls	(2) Demographics	(3) Full controls	(4) Full + interactions
Intercept	32.707***	23.574***	22.990***	22.979***
	(0.798)	(5.142)	(4.728)	(5.651)
T_t	0.009	0.023	0.017	0.015
	(0.109)	(0.101)	(0.091)	(0.090)
D_t	0.250	0.087	0.541	0.546
	(1.063)	(1.023)	(0.847)	(0.843)
P_t	−0.022	0.013	−0.012	−0.026
	(0.213)	(0.198)	(0.174)	(1.762)
Demographics				
Upper-intermediate (bac+2)		1.492	0.570	0.453
		(0.862)	(0.751)	(0.954)
Upper-secondary (bac)		−0.111	−0.180	−0.345
		(0.950)	(0.824)	(1.035)
Lower-secondary or below		1.759*	1.007	0.794
		(0.885)	(0.799)	(0.923)
Female		−5.779***	−4.306***	−4.674***
		(0.690)	(0.610)	(0.733)
Age		0.625*	0.748**	0.755**
		(0.257)	(0.238)	(0.288)
Age^2		−0.008**	−0.009**	−0.009**
		(0.003)	(0.003)	(0.004)
Professional controls				
Children			−0.485	−0.424
			(0.280)	(0.354)
Underemployed			−13.746***	−13.234***
			(0.711)	(0.794)
Sector B (services)			−1.109*	−1.218
			(0.560)	(0.686)
P_t × *covariate interactions*				
P_t × Upper-intermediate				0.038
				(0.278)
P_t × Upper-secondary				0.077
				(0.287)
P_t × Lower-secondary				0.115
				(0.294)
P_t × Children				−0.040
				(0.107)
P_t × Female				0.195
				(0.225)
P_t × Age				−0.002
				(0.088)
P_t × Age^2				0.000
				(0.001)
P_t × Underemployed				−0.248
				(0.266)
P_t × Sector B				0.056
				(0.205)
Observations	4,122	4,122	4,115	4,115

Notes: Weighted OLS with cluster-robust sandwich SEs on `individual_id`. Reference category for education: Tertiary (bac+3 or above). $^{***}p < 0.001$, $^{**}p < 0.01$, $^{*}p < 0.05$.

D Socio Professional Categories of Hybrid Microentrepreneurs

Table 25: Wage + Micro — CSP (PCS 2-digit) ranking, Pre-reform

	Primary job ($n = 2{,}751$)			Secondary job ($n = 2{,}751$)		
Rank	Category	n	%	Category	n	%
1	42 Prof. des écoles, instituteurs	232	8.4	22 Commerçants	599	21.8
2	46 Prof. interm. admin/comm. d'entr.	212	7.7	21 Artisans	533	19.4
3	52 Employés civils fonction publique	207	7.5	46 Prof. interm. admin/comm. d'entr.	335	12.2
4	43 Prof. interm. santé et social	194	7.1	31 Professions libérales	307	11.2
5	47 Techniciens	186	6.8	42 Prof. des écoles, instituteurs	302	11.0
6	56 Pers. services directs aux part.	178	6.5	43 Prof. interm. santé et social	173	6.3
7	34 Professeurs, prof. scientifiques	152	5.5	35 Prof. info / arts / spectacles	153	5.6
8	38 Ingénieurs et cadres techniques	138	5.0	54 Employés admin. d'entreprise	62	2.3
9	55 Employés de commerce	133	4.8	47 Techniciens	60	2.2
10	63 Ouvriers qualifiés (artisanal)	118	4.3	56 Pers. services directs aux part.	60	2.2
11	35 Prof. info / arts / spectacles	115	4.2	55 Employés de commerce	28	1.0
12	62 Ouvriers qualifiés (industriel)	113	4.1	63 Ouvriers qualifiés (artisanal)	27	1.0
13	54 Employés admin. d'entreprise	108	3.9	67 Ouvriers non qual. (industriel)	19	0.7
14	48 Contremaîtres, agents de maîtrise	85	3.1	34 Professeurs, prof. scientifiques	17	0.6
15	67 Ouvriers non qual. (industriel)	85	3.1	62 Ouvriers qualifiés (industriel)	15	0.5
16	31 Professions libérales	82	3.0	38 Ingénieurs et cadres techniques	13	0.5
17	37 Cadres admin. et commerciaux	77	2.8	68 Ouvriers non qual. (artisanal)	11	0.4
18	53 Policiers, militaires	66	2.4	52 Employés civils fonction publique	9	0.3
19	68 Ouvriers non qual. (artisanal)	65	2.4	0 Other / unspecified	7	0.3
20	45 Clergé, religieux	61	2.2	53 Policiers, militaires	6	0.2
21	64 Chauffeurs	58	2.1	64 Chauffeurs	4	0.1
22	33 Cadres de la fonction publique	44	1.6	11 Farmers (small)	3	0.1
23	65 Ouvriers qualifiés (manutention)	35	1.3	23 Chefs d'entreprise ($\leq$10 sal.)	3	0.1
24	69 Ouvriers agricoles	5	0.2	45 Clergé, religieux	3	0.1
25	0 Other / unspecified	2	0.1	37 Cadres admin. et commerciaux	1	0.0
26	–	0	–	69 Ouvriers agricoles	1	0.0

Table 26: Wage + Micro — CSP (PCS 2-digit) ranking, Post-reform

	Primary job ($n = 2{,}798$)			Secondary job ($n = 2{,}798$)		
Rank	Category	n	%	Category	n	%
1	46 Prof. interm. admin/comm. d'entr.	260	9.3	22 Commerçants	655	23.4
2	42 Prof. des écoles, instituteurs	214	7.6	21 Artisans	604	21.6
3	43 Prof. interm. santé et social	198	7.1	42 Prof. des écoles, instituteurs	303	10.8
4	47 Techniciens	175	6.3	31 Professions libérales	290	10.4
5	56 Pers. services directs aux part.	171	6.1	46 Prof. interm. admin/comm. d'entr.	288	10.3
6	52 Employés civils fonction publique	168	6.0	35 Prof. info / arts / spectacles	173	6.2
7	54 Employés admin. d'entreprise	167	6.0	43 Prof. interm. santé et social	112	4.0
8	37 Cadres admin. et commerciaux	152	5.4	54 Employés admin. d'entreprise	85	3.0
9	38 Ingénieurs et cadres techniques	152	5.4	56 Pers. services directs aux part.	68	2.4
10	63 Ouvriers qualifiés (artisanal)	138	4.9	47 Techniciens	48	1.7
11	55 Employés de commerce	129	4.6	68 Ouvriers non qual. (artisanal)	35	1.3
12	34 Professeurs, prof. scientifiques	118	4.2	67 Ouvriers non qual. (industriel)	19	0.7
13	62 Ouvriers qualifiés (industriel)	113	4.0	34 Professeurs, prof. scientifiques	17	0.6
14	35 Prof. info / arts / spectacles	98	3.5	63 Ouvriers qualifiés (artisanal)	16	0.6
15	64 Chauffeurs	98	3.5	52 Employés civils fonction publique	13	0.5
16	48 Contremaîtres, agents de maîtrise	79	2.8	37 Cadres admin. et commerciaux	11	0.4
17	31 Professions libérales	70	2.5	55 Employés de commerce	10	0.4
18	68 Ouvriers non qual. (artisanal)	67	2.4	11 Farmers (small)	8	0.3
19	53 Policiers, militaires	53	1.9	23 Chefs d'entreprise ($\leq$10 sal.)	8	0.3
20	67 Ouvriers non qual. (industriel)	52	1.9	33 Cadres de la fonction publique	6	0.2
21	45 Clergé, religieux	49	1.8	38 Ingénieurs et cadres techniques	5	0.2
22	33 Cadres de la fonction publique	37	1.3	62 Ouvriers qualifiés (industriel)	5	0.2
23	65 Ouvriers qualifiés (manutention)	23	0.8	64 Chauffeurs	5	0.2
24	22 Commerçants	10	0.4	69 Ouvriers agricoles	4	0.1
25	23 Chefs d'entreprise ($\leq$10 sal.)	6	0.2	12 Farmers (medium)	3	0.1
26	0 Other / unspecified	1	0.0	45 Clergé, religieux	3	0.1
27	–	0	–	48 Contremaîtres, agents de maîtrise	3	0.1
28	–	0	–	0 Other / unspecified	1	0.0

E Earnings Distributions (Bar Charts)

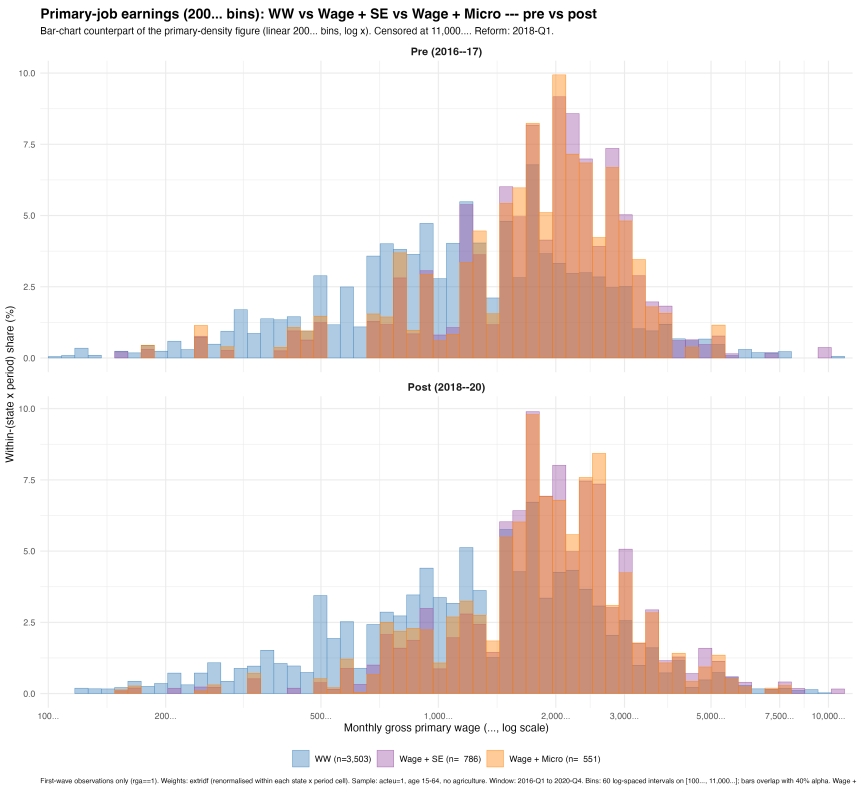


Figure 14: Distribution of primary earnings for dual-jobholders

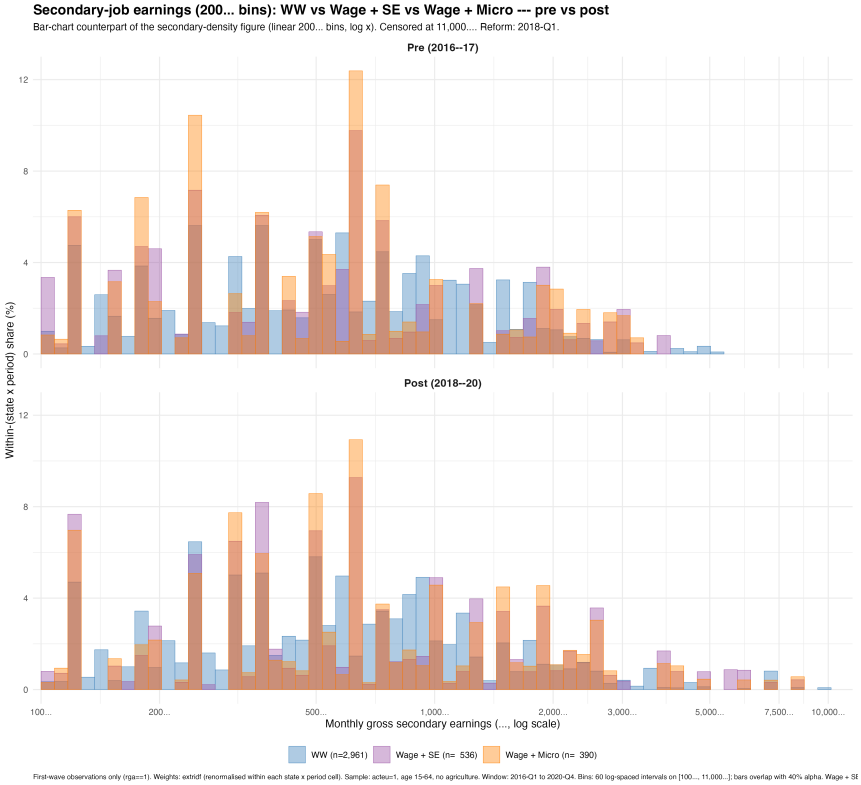


Figure 15: Distribution of secondary earnings for dual-jobholders

F Full Model Derivations of the Constrained Model

In the constrained model, primary wage hours are exogenously fixed at $\bar{h}_i$. I present the FOCs, existence and uniqueness results, and the derivations underlying the propositions stated in the main text.

Dual wage employment (WW): FOC and concavity

The dual jobholder solves

$$V_i^{WW} = \max_{h^{w,2}} \frac{(w_1\bar{h} + w_2 h^{w,2})^{1-\sigma}}{1-\sigma} - \chi \frac{\bar{h}^{1+\eta_{w_1}}}{1+\eta_{w_1}} - \chi \frac{(h^{w,2})^{1+\eta_{w_2}}}{1+\eta_{w_2}} - \gamma_{MH}, \quad \underline{h} \le h^{w,2} \le T - \bar{h}.$$

The dual-jobholding cost γ_{MH} is an additive constant, so it shifts the value without entering the hours problem. Denoting $c = w_1\bar{h} + w_2 h^{w,2}$, the interior FOC is

$$w_2\, c^{-\sigma} = \chi\, (h^{w,2})^{\eta_{w_2}}. \tag{FOC-WW}$$

The second derivative of the objective is

$$\Phi''(h) = -\sigma w_2^2 c^{-\sigma-1} - \chi\, \eta_{w_2}\, h^{\eta_{w_2}-1} < 0 \quad \text{for all } h > 0,$$

so the objective is strictly concave and the interior optimum is unique.

Pure self-employment (SE): FOC and concavity

Microentrepreneur interval ($\mathbb{E}[\tilde{y}]\, h^{se} \le M$)

The objective function on this interval is

$$\Phi(h) = \frac{\mathcal{R}^m\, h^{1-\sigma}}{1-\sigma} - \chi\gamma \frac{(h + S_L)^{1+\eta_{se}}}{1+\eta_{se}},$$

where $\mathcal{R}^m = \left[(1+\tau)\rho^m\right]^{1-\sigma} \mu_y^{1-\sigma} \exp\!\left(-\frac{1}{2}\sigma(1-\sigma)\sigma_y^2\right)$ is the micro effective return of (11). The lognormal moment formula $\mathbb{E}[\tilde{y}^{1-\sigma}] = \mu_y^{1-\sigma} \exp(-\frac{1}{2}\sigma(1-\sigma)\sigma_y^2)$ makes this closed form the exact value of the expected-utility objective $\mathbb{E}_{\tilde{y}}[u((1+\tau)\rho^m\, \tilde{y}\, h)]$. The interior FOC is

$$\mathcal{R}^m\, (h^*)^{-\sigma} = \chi\gamma\, (h^* + S_L)^{\eta_{se}}. \tag{FOC-Micro}$$

The derivative $G(h) \equiv \mathcal{R}^m\, h^{-\sigma} - \chi\gamma(h + S_L)^{\eta_{se}}$ satisfies $G'(h) < 0$, so the FOC has at most one root and the interior solution is unique.

Standard entrepreneur interval ($\mathbb{E}[\tilde{y}]\, h^{se} > M$)

The objective becomes

$$\Phi(h) = \frac{\mathcal{R}^r\, h^{1-\sigma}}{1-\sigma} - \chi\gamma \frac{(h + S_H)^{1+\eta_{se}}}{1+\eta_{se}},$$

where $\mathcal{R}^r = (\rho^r)^{1-\sigma}\, \mu_y^{1-\sigma} \exp\!\left(-\frac{1}{2}\sigma(1-\sigma)\sigma_y^2\right)$ is the réel effective return, without the micro premium and with the réel net income share. The FOC is

$$\mathcal{R}^r\, (h^*)^{-\sigma} = \chi\gamma\, (h^* + S_H)^{\eta_{se}}. \tag{FOC-Standard}$$

Uniqueness follows from the same monotonicity argument.

Hybrid entrepreneurship (WSE): FOC and concavity

Microentrepreneur interval ($\mathbb{E}[\tilde{y}]\, h^{se} \leq M$)

The objective function, net of the additive constants $-\chi\, \bar{h}^{1+\eta_{w_1}}/(1+\eta_{w_1})$ and $-\gamma_{MH}$ which play no role in the hours problem, is

$$\Psi(h) = \mathbb{E}_{\tilde{y}}\left[\frac{\left(w_1\bar{h} + (1+\tau)\rho^m\, \tilde{y}\, h\right)^{1-\sigma}}{1-\sigma}\right] - \chi\gamma\phi\, \frac{(h+S_L)^{1+\eta_{se}}}{1+\eta_{se}}.$$

The interior FOC is

$$\mathbb{E}\Big[\tilde{y}(1+\tau)\rho^m\big(w_1\bar{h} + (1+\tau)\rho^m\, \tilde{y}\, h^*\big)^{-\sigma}\Big] = \chi\gamma\phi\, (h^* + S_L)^{\eta_{se}}. \qquad \text{(FOC-WSE-Micro)}$$

The second derivative is

$$\Psi''(h) = -\sigma(1+\tau)^2(\rho^m)^2\, \mathbb{E}\Big[\tilde{y}^2\big(w_1\bar{h} + (1+\tau)\rho^m\, \tilde{y}\, h\big)^{-\sigma-1}\Big] - \chi\gamma\phi\, \eta_{se}\, (h+S_L)^{\eta_{se}-1} < 0,$$

so strict concavity and uniqueness hold.

Standard entrepreneur interval ($\mathbb{E}[\tilde{y}]\, h^{se} > M$)

The FOC becomes

$$\mathbb{E}\Big[\tilde{y}\, \rho^r\big(w_1\bar{h} + \rho^r\, \tilde{y}\, h^*\big)^{-\sigma}\Big] = \chi\gamma\phi\, (h^* + S_H)^{\eta_{se}}. \qquad \text{(FOC-WSE-Standard)}$$

Concavity follows from the same argument with $(1+\tau)\rho^m$ replaced by ρ^r and S_H replacing S_L.

Derivations for Proposition 1: reform favors entrepreneurship

The critical hours threshold below which the micro regime is accessible is $\bar{m} = M/\mu_y$, so $\partial\bar{m}/\partial M = 1/\mu_y > 0$. I say an agent bunches at the ceiling when her interior micro optimum exceeds $\bar{m}$, so that her effective optimum is $h^c = \bar{m}$.

SE state. Substituting $h^c = \bar{m}$ into the objective and differentiating by the chain rule:

$$\frac{\partial V^{SE}}{\partial M} = \Phi'(\bar{m}) \cdot \frac{1}{\mu_y}.$$

At a bunching optimum, $\Phi'(\bar{m}) > 0$ (the objective is still increasing at the cap), so

$$\frac{\partial V^{SE}}{\partial M} = \frac{\mathcal{R}^m\, \bar{m}^{-\sigma} - \chi\gamma(\bar{m} + S_L)^{\eta_{se}}}{\mu_y} > 0.$$

WSE state. The same logic gives

$$\frac{\partial V^{WSE}}{\partial M} = \frac{\Psi'(\bar{m})}{\mu_y} = \frac{\mathbb{E}\Big[\tilde{y}(1+\tau)\rho^m\big(w_1\bar{h} + (1+\tau)\rho^m\, \tilde{y}\, \bar{m}\big)^{-\sigma}\Big] - \chi\gamma\phi\, (\bar{m} + S_L)^{\eta_{se}}}{\mu_y} > 0.$$

Since V^W, V^{WW}, and the additive γ_{MH} do not depend on M, the result $\partial\Delta^{j,k}/\partial M > 0$ for all frontiers $j \in \{SE, WSE\}$ against $k \in \{W, WW\}$ follows immediately.

Derivations for Proposition 2: SE benefits more than WSE

Both derivatives are evaluated at a common cap $\bar{m}$ and a common micro share ρ^m. Since $w_1\bar{h} > 0$, for every realization of $\tilde{y}$:

$$\left(w_1\bar{h} + (1+\tau)\rho^m\,\tilde{y}\,\bar{m}\right)^{-\sigma} < \left((1+\tau)\rho^m\,\tilde{y}\,\bar{m}\right)^{-\sigma}.$$

Multiplying both sides by $\tilde{y}(1+\tau)\rho^m > 0$ and taking expectations:

$$\mathbb{E}\Big[\tilde{y}(1+\tau)\rho^m\left(w_1\bar{h} + (1+\tau)\rho^m\,\tilde{y}\,\bar{m}\right)^{-\sigma}\Big] < \left[(1+\tau)\rho^m\right]^{1-\sigma}\bar{m}^{-\sigma}\,\mathbb{E}\Big[\tilde{y}^{1-\sigma}\Big] = \mathcal{R}^m\,\bar{m}^{-\sigma},$$

using the lognormal moment formula. This establishes that the wage-buffer wedge of Proposition 2 is strictly positive:

$$\mathcal{W} \equiv \mathcal{R}^m\,\bar{m}^{-\sigma} - \mathbb{E}\Big[\tilde{y}(1+\tau)\rho^m\left(w_1\bar{h} + (1+\tau)\rho^m\,\tilde{y}\,\bar{m}\right)^{-\sigma}\Big] > 0.$$

Differencing the two Proposition 1 derivatives then gives

$$\frac{\partial V^{SE}}{\partial M} - \frac{\partial V^{WSE}}{\partial M} = \frac{1}{\mu_y}\Big[\,\mathcal{W} - \chi\gamma(1-\phi)(\bar{m}+S_L)^{\eta_{se}}\,\Big],$$

since the disutility terms enter as $-\chi\gamma$ and $-\chi\gamma\phi$ respectively. For $\phi \le 1$ the second bracketed term is non-negative and works against the wedge, so $\partial\Delta^{WSE,SE}/\partial M < 0$ holds if and only if $\chi\gamma(1-\phi)(\bar{m}+S_L)^{\eta_{se}} < \mathcal{W}$, with the strict ranking guaranteed at $\phi = 1$. The additive γ_{MH} cancels from the comparison.

Derivations for Proposition 3: substitution dominates for $\sigma \le 1$

This proposition concerns the intensive margin response of entrepreneurial hours to τ and to the micro net income share, in both the solo and the hybrid state.

Solo SE. The micro return satisfies $\mathcal{R}^m \propto \left[(1+\tau)\rho^m\right]^{1-\sigma}$, so $\partial\mathcal{R}^m/\partial\tau = (1-\sigma)\mathcal{R}^m/(1+\tau)$. Applying the implicit function theorem to $G(h,\tau) \equiv \mathcal{R}^m\,h^{-\sigma} - \chi\gamma(h+S_L)^{\eta_{se}} = 0$:

$$G_\tau = \frac{(1-\sigma)}{1+\tau}\,\mathcal{R}^m\,h^{-\sigma} > 0 \quad (\sigma < 1), \qquad G_h < 0, \qquad \text{hence} \qquad \frac{\partial h^*_{se}}{\partial\tau} = -\frac{G_\tau}{G_h} > 0.$$

The response to ρ^m is identical with the factor $(1-\sigma)/\rho^m$ in place of $(1-\sigma)/(1+\tau)$. This is the $s_e = 1$ limit of the hybrid argument below, since solo consumption is entirely entrepreneurial.

Hybrid WSE. I apply the implicit function theorem to the FOC residual

$$G(h^*,\theta) \equiv \mathbb{E}\Big[\tilde{y}(1+\tau)\rho^m\left(w_1\bar{h} + (1+\tau)\rho^m\,\tilde{y}\,h^*\right)^{-\sigma}\Big] - \chi\gamma\phi\,(h^*+S_L)^{\eta_{se}} = 0.$$

The denominator of the IFT is $G_h < 0$ (from the concavity of Ψ). Differentiating G with respect to τ and factoring the integrand:

$$G_\tau = \rho^m\,\mathbb{E}\left[\tilde{y}\,c^{-\sigma}\left(1 - \sigma\,s_e(\tilde{y})\right)\right],$$

where $c = w_1\bar{h} + (1+\tau)\rho^m\,\tilde{y}\,h^*$ and $s_e(\tilde{y}) = (1+\tau)\rho^m\,\tilde{y}\,h^{se}/c \in (0,1)$. For $\sigma < 1$: $\sigma\,s_e < 1$ pointwise (since both $\sigma < 1$ and $s_e < 1$), so the integrand is strictly positive for every realization and $G_\tau > 0$. By the IFT, $\partial h^*_{wse}/\partial\tau = -G_\tau/G_h > 0$. The response to ρ^m has the same structure with the factor $(1+\tau)$ in place of ρ^m in front of the expectation.

Response to μ_y. Using $\partial\tilde{y}/\partial\mu_y = \tilde{y}/\mu_y$ from the mean-preserving reparametrization:

$$G_{\mu_y} = \frac{1}{\mu_y}\,\mathbb{E}\big[\tilde{y}(1+\tau)\rho^m\, c^{-\sigma}\big(1-\sigma\, s_e(\tilde{y})\big)\big]\,.$$

This has the same structure as G_τ up to a factor of $(1+\tau)/\mu_y$. For $\sigma < 1$, the same pointwise argument gives $G_{\mu_y} > 0$, and therefore $\partial h^*_{wse}/\partial\mu_y > 0$.

For $\sigma > 1$ and sufficiently large draws of $\tilde{y}$, $\sigma\, s_e$ can exceed 1, making the sign of the integrand ambiguous and the overall response indeterminate. Note that at $\sigma = 1$ exactly the condition $\sigma\, s_e < 1$ still holds pointwise since $s_e < 1$ always, so the threshold for ambiguity is strictly above one.

Derivations for Proposition 4: risk effects

Pure SE: extensive margin. By the envelope theorem, and writing $\mathcal{R}^g$ for the effective return of the selected regime g with fixed cost S_g:

$$\frac{\partial V^{SE}}{\partial\sigma_y^2} = \frac{(h^*)^{1-\sigma}}{1-\sigma}\cdot\frac{\partial\mathcal{R}^g}{\partial\sigma_y^2} = \frac{(h^*)^{1-\sigma}}{1-\sigma}\cdot\big(-\tfrac{1}{2}\sigma(1-\sigma)\big)\mathcal{R}^g = -\tfrac{1}{2}\sigma\,\mathcal{R}^g\,(h^*)^{1-\sigma}.$$

Substituting the FOC $\mathcal{R}^g\,(h^*)^{-\sigma} = \chi\gamma(h^* + S_g)^{\eta_{se}}$:

$$\frac{\partial\Delta^{SE,W}}{\partial\sigma_y^2} = -\tfrac{1}{2}\sigma\,\chi\gamma(h^*+S_g)^{\eta_{se}}\cdot h^* \le 0 \quad \text{for all } \sigma > 0.$$

The sign is unambiguous because the reparametrization isolates the pure risk channel: a mean-preserving spread in $\tilde{y}$ reduces both $\mathcal{R}^m$ and $\mathcal{R}^r$ through the same multiplicative penalty, making entrepreneurship less attractive under either regime and leaving the regime comparison unchanged.

Hybrid WSE: extensive margin. Under the mean-preserving reparametrization, using the envelope theorem with the chain-rule correction $\partial\tilde{y}/\partial\sigma_y^2 = \tilde{y}(\varepsilon/2\sqrt{\sigma_y^2} - 1/2)$:

$$\frac{\partial\Delta^{WSE,W}}{\partial\sigma_y^2} = \frac{h^*_{wse}}{2}\left[\frac{D}{\sqrt{\sigma_y^2}} - \chi\gamma\phi\,(h^*_{wse}+S_L)^{\eta_{se}}\right],$$

where $D \equiv \mathbb{E}\Big[\varepsilon\,\tilde{y}(1+\tau)\rho^m\big(w_1\bar{h} + (1+\tau)\rho^m\,\tilde{y}\,h^*_{wse}\big)^{-\sigma}\Big] > 0$. The second term uses the FOC substitution $\mathbb{E}[\tilde{y}(1+\tau)\rho^m\,c^{-\sigma}] = \chi\gamma\phi\,(h^*_{wse}+S_L)^{\eta_{se}}$. Total consumption $c = w_1\bar{h} + (1+\tau)\rho^m\,\tilde{y}\,h^*_{wse}$ is affine in $\tilde{y}$ and u is strictly concave, so a mean-preserving spread in $\tilde{y}$ lowers expected utility by second-order stochastic dominance. Since V^W does not depend on σ_y^2, the frontier derivative satisfies $\partial V^{WSE}/\partial\sigma_y^2 \le 0$. The wage buffer $w_1\bar{h}$ dampens the magnitude relative to the SE case by raising the consumption level at which the dispersion term is evaluated, but the overall sign remains non-positive: the two bracketed terms do not produce a genuine ambiguity at the participation frontier. The expressions above are written for the micro branch and hold for the réel branch with $(1+\tau)\rho^m$ replaced by ρ^r and S_L by S_H.

Derivations for Proposition 5: intensive margin response

For a bunching agent ($h^{m*} > \bar{m}$), effective hours are $h^c = \bar{m} = M/\mu_y$. Differentiating:

$$\frac{\partial h^c}{\partial M} = \frac{1}{\mu_y} > 0.$$

For a micro agent with a slack cap ($h^{m*} < \bar{m}$), M does not appear in the FOC, hence $\partial h^*/\partial M = 0$, and the same holds for a réel agent whose FOC never involves M.

Derivations for Proposition 8: non-pecuniary preferences

The WSE versus WW gap involves both states. By the envelope theorem, with S_g the fixed cost of the regime selected in the WSE state:

In γ. Only V^{WSE} depends on γ (through the $\chi\gamma\phi$ coefficient of the entrepreneurial disutility):

$$\frac{\partial \Delta^{WSE,WW}}{\partial \gamma} = -\chi\,\phi\,\frac{(h^*_{wse}+S_g)^{1+\eta_{se}}}{1+\eta_{se}} < 0.$$

In ϕ. Only V^{WSE} depends on ϕ:

$$\frac{\partial \Delta^{WSE,WW}}{\partial \phi} = -\chi\,\gamma\,\frac{(h^*_{wse}+S_g)^{1+\eta_{se}}}{1+\eta_{se}} < 0.$$

In γ_{MH}. The cost enters both dual states as the same additive constant, so

$$\frac{\partial V^{WW}}{\partial \gamma_{MH}} = -1, \qquad \frac{\partial V^{WSE}}{\partial \gamma_{MH}} = -1, \qquad \text{hence} \qquad \frac{\partial \Delta^{WSE,WW}}{\partial \gamma_{MH}} = 0.$$

Against the single-job states, whose values do not involve γ_{MH}, the frontier derivatives are $\partial\Delta^{WW,W}/\partial\gamma_{MH} = \partial\Delta^{WSE,W}/\partial\gamma_{MH} = -1 < 0$. Thus γ_{MH} shifts the level of dual employment while leaving its composition untouched, which is the separation stated in Proposition 8.

G Full Model Derivations of the Unconstrained Model

In the unconstrained model, primary wage hours $h^{w,1} \in [\underline{h}, T]$ are optimized jointly with secondary hours. The SE program is identical to the constrained model (no primary wage job to adjust), so I refer to Appendix F for the SE FOCs, concavity, and comparative statics. I present here the derivations for W, WW, and WSE that differ from the constrained case, and for the propositions that rely on the unconstrained specification.

Wage employment (W): FOC and closed form

The worker solves

$$V_i^W = \max_{h^{w,1}\in[\underline{h},\,T]} \left\{ \frac{(w_1\,h^{w,1})^{1-\sigma}}{1-\sigma} - \chi\,\frac{(h^{w,1})^{1+\eta_{w_1}}}{1+\eta_{w_1}} \right\}.$$

The interior FOC is

$$w_1^{1-\sigma}\,(h^{w,1})^{-\sigma} = \chi\,(h^{w,1})^{\eta_{w_1}}, \tag{FOC-W}$$

which solves to

$$h^{*,W} = \left(\frac{w_1^{1-\sigma}}{\chi}\right)^{1/(\eta_{w_1}+\sigma)}.$$

The second derivative is $\Phi''(h) = -\sigma w_1^2 (w_1 h)^{-\sigma-1} - \chi\,\eta_{w_1}\,h^{\eta_{w_1}-1} < 0$, so the objective is strictly concave and the optimum is unique. This closed form is also what the calibration of χ inverts at the median wage-only worker (Section 9.3).

Dual wage employment (WW): FOC and Hessian

Program and FOCs

The dual jobholder jointly optimizes primary and secondary wage hours:

$$V_i^{WW} = \max_{h^{w,1},\, h^{w,2}} \left\{ \frac{(w_1 h^{w,1} + w_2 h^{w,2})^{1-\sigma}}{1-\sigma} - \chi \, \frac{(h^{w,1})^{1+\eta_{w_1}}}{1+\eta_{w_1}} - \chi \, \frac{(h^{w,2})^{1+\eta_{w_2}}}{1+\eta_{w_2}} \right\} - \gamma_{MH},$$

subject to $\underline{h} \leq h^{w,1}$, $\underline{h} \leq h^{w,2}$, and $h^{w,1} + h^{w,2} \leq T$. The additive γ_{MH} sits outside the maximisation. Denoting $c = w_1 h^{w,1} + w_2 h^{w,2}$, the interior FOCs are

$$\begin{aligned} w_1 \, c^{-\sigma} &= \chi \, (h^{w,1})^{\eta_{w_1}}, \\ w_2 \, c^{-\sigma} &= \chi \, (h^{w,2})^{\eta_{w_2}}, \end{aligned} \tag{FOC-WW}$$

and a time-boundary corner with $h^{w,1} + h^{w,2} = T$ is solved when the interior solution is infeasible.

Negative definiteness of the Hessian

The Hessian with respect to $(h^{w,1}, h^{w,2})$ is

$$H = \begin{pmatrix} -(a+b) & -f \\ -f & -(d+e) \end{pmatrix},$$

where

$$a = \sigma w_1^2 c^{-\sigma-1}, \quad b = \chi \, \eta_{w_1} (h^{w,1})^{\eta_{w_1}-1}, \quad d = \sigma w_2^2 c^{-\sigma-1}, \quad e = \chi \, \eta_{w_2} (h^{w,2})^{\eta_{w_2}-1},$$

and $f = \sigma w_1 w_2 \, c^{-\sigma-1}$. All five quantities are strictly positive. The off-diagonal term satisfies $f^2 = a \cdot d$ exactly (since both are products of $\sigma^2 w_1^2 w_2^2 c^{-2\sigma-2}$). Hence

$$|H| = (a+b)(d+e) - f^2 = (a+b)(d+e) - ad = ae + bd + be > 0.$$

Since $H_{11} < 0$ and $|H| > 0$, the Hessian is negative definite by Sylvester's criterion. The optimum is unique.

Hybrid entrepreneurship (WSE): FOC and Hessian

Program and FOCs

The worker jointly optimizes primary wage hours and entrepreneurial hours:

$$\tilde{V}_i^{WSE} = \max_{h^{w,1},\, h^{se}} \left\{ \mathbb{E}_{\tilde{y}} \left[\frac{\left(w_1 h^{w,1} + (1+\tau)\rho^m \, \tilde{y} \, h^{se}\right)^{1-\sigma}}{1-\sigma} \right] - \chi\gamma\phi \, \frac{(h^{se} + S_L)^{1+\eta_{se}}}{1+\eta_{se}} - \chi \, \frac{(h^{w,1})^{1+\eta_{w_1}}}{1+\eta_{w_1}} \right\} - \gamma_{MH},$$

subject to $\underline{h} \leq h^{w,1} \leq T$ and $0 < h^{se} \leq T - h^{w,1}$, with the additive γ_{MH} outside the maximisation. I focus on the micro interval ($\mathbb{E}[\tilde{y}]\, h^{se} \leq M$). Denoting $c = w_1 h^{w,1} + (1+\tau)\rho^m \, \tilde{y} \, h^{se}$, the interior FOCs are

$$\begin{aligned} w_1 \, \mathbb{E}\big[c^{-\sigma}\big] &= \chi \, (h^{w,1})^{\eta_{w_1}}, \\ \mathbb{E}\big[\tilde{y}(1+\tau)\rho^m \, c^{-\sigma}\big] &= \chi\gamma\phi \, (h^{se} + S_L)^{\eta_{se}}. \end{aligned} \tag{FOC-WSE}$$

The standard entrepreneur FOCs are obtained by replacing $(1+\tau)\rho^m$ with ρ^r and S_L with S_H.

Negative definiteness of the Hessian

The Hessian with respect to $(h^{w,1}, h^{se})$ is

$$H = \begin{pmatrix} -(a+b) & -f \\ -f & -(d+e) \end{pmatrix},$$

where now

$$a = \sigma w_1^2\, \mathbb{E}[c^{-\sigma-1}], \qquad b = \chi\, \eta_{w_1} (h^{w,1})^{\eta_{w_1}-1},$$
$$d = \sigma(1+\tau)^2 (\rho^m)^2\, \mathbb{E}[\tilde{y}^2\, c^{-\sigma-1}], \qquad e = \chi\gamma\phi\, \eta_{se}\, (h^{se} + S_L)^{\eta_{se}-1},$$

and $f = \sigma w_1 (1+\tau)\rho^m\, \mathbb{E}[\tilde{y}\, c^{-\sigma-1}]$. Unlike the WW case, $f^2 \neq ad$ in general. By the Cauchy–Schwarz inequality applied to the expectations:

$$f^2 = \sigma^2 w_1^2 (1+\tau)^2 (\rho^m)^2 \left(\mathbb{E}[\tilde{y}\, c^{-\sigma-1}]\right)^2 \leq \sigma^2 w_1^2 (1+\tau)^2 (\rho^m)^2\, \mathbb{E}[c^{-\sigma-1}]\, \mathbb{E}[\tilde{y}^2\, c^{-\sigma-1}]$$
$$= a \cdot d.$$

Hence $f^2 \leq ad$ and the same calculation gives $|H| = (a+b)(d+e) - f^2 \geq ae + bd + be > 0$. Since $H_{11} < 0$ and $|H| > 0$, the Hessian is negative definite and the optimum is unique.

Derivations for Proposition 6: cross-wage substitution in WW

The two FOCs define $(h^{w,1}, h^{w,2})$ implicitly as functions of parameters. Totally differentiating with respect to a parameter p and writing in matrix form:

$$H \begin{pmatrix} dh^{w,1}/dp \\ dh^{w,2}/dp \end{pmatrix} = \begin{pmatrix} -F_p^1 \\ -F_p^2 \end{pmatrix},$$

where $F_p^i \equiv \partial F^i / \partial p$ is the direct effect of p on the i-th FOC (holding hours fixed). By Cramer's rule:

$$\frac{dh^{w,1}}{dp} = \frac{-H_{22}\, F_p^1 + H_{12}\, F_p^2}{|H|}, \tag{IFT-1}$$

$$\frac{dh^{w,2}}{dp} = \frac{H_{21}\, F_p^1 - H_{11}\, F_p^2}{|H|}. \tag{IFT-2}$$

Own-wage response $\partial h^{w,2}/\partial w_2$. The direct effects are $F^1_{w_2} = -\sigma w_1 h^{w,2}\, c^{-\sigma-1}$ and $F^2_{w_2} = c^{-\sigma}(1 - \sigma s_2)$, where $s_2 = w_2 h^{w,2}/c$ is the second-job income share. Substituting into (IFT-2) and simplifying (the ad terms cancel using $f^2 = ad$):

$$\frac{\partial h^{w,2}}{\partial w_2} = \frac{c^{-\sigma}[a + b(1 - \sigma s_2)]}{|H|}.$$

For $\sigma < 1$: since $s_2 < 1$, the factor $(1 - \sigma s_2) > 0$ pointwise, so the numerator is strictly positive and $\partial h^{w,2}/\partial w_2 > 0$. The own-wage response of the first job, $\partial h^{w,1}/\partial w_1$, follows by the same argument, mutatis mutandis, with $s_1 = w_1 h^{w,1}/c$ and curvature η_{w_1} in place of η_{w_2}:

$$\frac{\partial h^{w,1}}{\partial w_1} = \frac{c^{-\sigma}[d + e(1 - \sigma s_1)]}{|H|} > 0 \quad (\sigma < 1).$$

Cross-wage response $\partial h^{w,1}/\partial w_2$. Substituting into (IFT-1), expanding, and using the FOC $w_2\, c^{-\sigma} = \chi (h^{w,2})^{\eta_{w_2}}$ to simplify:

$$\frac{\partial h^{w,1}}{\partial w_2} = \frac{-\sigma w_1\, c^{-\sigma-1}\, \chi (1 + \eta_{w_2}) (h^{w,2})^{\eta_{w_2}}}{|H|} < 0 \quad (\text{all } \sigma > 0).$$

The key step is to substitute $w_2\, c^{-\sigma} = \chi(h^{w,2})^{\eta_{w_2}}$ from the second FOC into the $f \cdot c^{-\sigma}(1-\sigma s_2)$ term of the numerator. After expanding, the $(1-\sigma s_2)$ piece and the $e\cdot$ term combine into an expression proportional to $\chi(1+\eta_{w_2})(h^{w,2})^{\eta_{w_2}}$, leaving only products of positive quantities with an overall minus sign. By symmetry:

$$\frac{\partial h^{w,2}}{\partial w_1} = \frac{-\sigma w_2\, c^{-\sigma-1}\,\chi(1+\eta_{w_1})(h^{w,1})^{\eta_{w_1}}}{|H|} < 0 \quad (\text{all } \sigma > 0).$$

Cross-wage effects are unambiguously negative: the two wage jobs act as substitutes at the intensive margin. This is a pure income effect, as a higher wage on one job raises total consumption without making the other job more productive.

Derivations for Proposition 7: reallocation channel in WSE

The two WSE FOCs define $(h^{w,1}, h^{se})$ as functions of parameters. I apply the same IFT approach as above:

$$\frac{\partial h^{*,1}_{wse}}{\partial p} = \frac{-H_{22}\, G^1_p + H_{12}\, G^2_p}{|H|}, \tag{IFT-1$'$}$$

$$\frac{\partial h^{*}_{wse}}{\partial p} = \frac{H_{21}\, G^1_p - H_{11}\, G^2_p}{|H|}. \tag{IFT-2$'$}$$

Response to τ. The direct effects on the two FOCs are:

$$G^1_\tau = -\sigma w_1 \rho^m\, \mathbb{E}\Big[\tilde{y}\, h^{se}\, c^{-\sigma-1}\Big] < 0,$$
$$G^2_\tau = \rho^m\, \mathbb{E}\big[\tilde{y}\, c^{-\sigma}(1-\sigma\, s_e(\tilde{y}))\big]\,,$$

where $s_e(\tilde{y}) = (1+\tau)\rho^m\, \tilde{y}\, h^{se}/c \in (0,1)$ is the realization-specific entrepreneurial income share. For $\sigma < 1$: $\sigma\, s_e < 1$ pointwise, so $G^2_\tau > 0$. The response to ρ^m has the same structure with $(1+\tau)$ in place of ρ^m in front of each expectation.

Substituting into (IFT-1$'$): the first term is $-H_{22}\, G^1_\tau = -(-(d+e))(-) < 0$. The second term is $H_{12}\, G^2_\tau = (-)(+) < 0$. Both terms are negative, so

$$\frac{\partial h^{*,1}_{wse}}{\partial \tau} < 0 \quad (\sigma < 1).$$

Substituting into (IFT-2$'$): the first term is $H_{21}\, G^1_\tau = (-)(-) > 0$. The second term is $-H_{11}\, G^2_\tau = -(-(a+b))(+) > 0$. Both terms are positive, so

$$\frac{\partial h^{*}_{wse}}{\partial \tau} > 0 \quad (\sigma < 1).$$

A more favorable micro regime induces the hybrid entrepreneur to shift hours from wage work to entrepreneurship.

Response to μ_y. Using $\partial\tilde{y}/\partial\mu_y = \tilde{y}/\mu_y$:

$$G^1_{\mu_y} = \frac{-\sigma w_1(1+\tau)\rho^m}{\mu_y}\, \mathbb{E}\Big[\tilde{y}\, h^{se}\, c^{-\sigma-1}\Big] < 0, \qquad G^2_{\mu_y} = \frac{(1+\tau)\rho^m}{\mu_y}\, \mathbb{E}\big[\tilde{y}\, c^{-\sigma}(1-\sigma\, s_e(\tilde{y}))\big]\,.$$

For $\sigma < 1$, $G^2_{\mu_y} > 0$ by the same pointwise argument. The sign analysis is identical to the τ case:

$$\frac{\partial h^{*,1}_{wse}}{\partial \mu_y} < 0, \qquad \frac{\partial h^{*}_{wse}}{\partial \mu_y} > 0 \quad (\sigma < 1).$$

Response to ϕ. Only the second FOC is affected: $G^1_\phi = 0$ and $G^2_\phi = -\chi\gamma(h^{se} + S_L)^{\eta_{se}} < 0$. Substituting into (IFT-1′) and (IFT-2′):

$$\frac{\partial h^{*,1}_{wse}}{\partial \phi} = \frac{H_{12}\, G^2_\phi}{|H|} = \frac{(-)(-)}{(+)} > 0, \qquad \frac{\partial h^{*}_{wse}}{\partial \phi} = \frac{-H_{11}\, G^2_\phi}{|H|} = \frac{(+)(-)}{(+)} < 0.$$

A weaker taste for variety (ϕ closer to 1) reduces entrepreneurial hours and increases primary wage hours: the worker reallocates time back toward the wage job. These reallocation effects are mechanically absent in the constrained model where $\partial \bar{h}/\partial p = 0$ for all p.

For $\sigma > 1$ and sufficiently large draws of $\tilde{y}$, G^2_τ and $G^2_{\mu_y}$ become ambiguous (the income effect can dominate on the entrepreneurial side), and the signs of the reallocation effects can reverse. As in Proposition 3, the threshold for ambiguity is strictly above one: at $\sigma = 1$ exactly, $\sigma\, s_e < 1$ holds pointwise since $s_e < 1$ always.

H Calibrated Parameter Value Grids

Table 27: Micro-entrepreneur social contribution rates κ^m_s by sector (2018)

Sector / Activity type	**Rate κ^m_s**	**Source**
Sale of goods, food for consumption on or off premises (BIC vente)	12.8%	URSSAF 2018
Services (BIC prestation)	22.0%	URSSAF 2018
Liberal professions affiliated to CIPAV	22.2%	URSSAF 2018
Liberal professions affiliated to SSI (ex-RSI)	22.0%	URSSAF 2018

Note: rates include health, retirement, family, and CSG/CRDS contributions. Source: URSSAF, Taux de cotisations applicables aux micro-entrepreneurs (2018), https://www.urssaf.fr/portail/home/taux-et-baremes/taux-de-cotisations/les-autoentrepreneurs.html

Table 28: Fiscal abatement rates a_s under the micro regime (CGI Art. 50-0 and Art. 102 ter)

Activity type	**Rate a_s**	**Tax category**	**Legal basis**
Sale of goods, raw materials, food on or off premises	71%	BIC vente	CGI Art. 50-0
Provision of services (commercial or craft)	50%	BIC prestation	CGI Art. 50-0
Non-commercial professions (liberal professions)	34%	BNC	CGI Art. 102 ter

Note: a minimum abatement floor of €305 applies regardless of turnover. Taxable income = turnover $\times(1 - a_s)$, subject to the micro-regime turnover ceilings $M^{(1)}$.

Table 29: Implied intermediate cost ratio c_s by broad sector — ESANE 2023 (reference year 2023)

Sector	$c_s = 1 -$ **VA rate**	**Source**
Industry	0.761	INSEE, ESANE 2023
Construction	0.685	INSEE, ESANE 2023
Trade	0.843	INSEE, ESANE 2023
Transport and storage	0.618	INSEE, ESANE 2023
Accommodation and food service activities	0.585	INSEE, ESANE 2023
Information and communication	0.557	INSEE, ESANE 2023
Business services	0.480	INSEE, ESANE 2023
Personal services	0.537	INSEE, ESANE 2023

Note: $c_s = 1-$ *(value added / turnover), computed from sector-level aggregates*
source : INSEE, ESANE (2023)
insee. fr/ fr/ statistiques/ 6049362.