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In Search of Working Time? Essays on Work Hours Constraints

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A Paris, le 20 juin 2026.

Abstract

This dissertation examines three aspects of working hours in modern labor markets, combining survey data with administrative records to provide new evidence on how hours are set, constrained and, sometimes, misunderstood.

The first chapter studies hours constraints, i.e. barriers for workers to work their desired hours within their current job, in the case of France. Linking self-reported preferences from the French Labour Force Survey to panel employer-employee data, the chapter studies the labor market trajectories of constrained workers in the short-run. Underemployment is by far the most prevalent form of hours constraints in France, affecting around 20% of salaried workers. I first document that underemployed workers are concentrated in precarious jobs, particularly for involuntary part-time workers trapped in low-wage firms and occupations. Tracking these workers over time, I find that constrained part-timers who switch employers tend to increase both their hours and earnings relative to non-movers and to unconstrained movers. Yet most fail to reach their desired hours in the short run, underscoring the persistence of underemployment. Using a revealed preference framework, I quantify the welfare cost for workers of being constrained at 10% of their current wage. The paper highlights the structural nature of hours constraints, and their importance as a job amenity shaping workers' labor market decisions.

The second chapter investigates whether hours constraints contribute to the persistence of the child penalty in hours worked, the well-documented long-run gap in labor market outcomes between mothers and fathers following the birth of a first child. Using the German Socio-Economic Panel, which uniquely combines longitudinal data on both actual and desired hours with detailed birth histories, the chapter estimates a counterfactual child penalty in hours if all workers were to work their desired hours. The central finding is that, at the aggregate level, the penalty on desired hours closely tracks the penalty on actual hours, implying that employer-side frictions are not an important driver of the child penalty in the long-run. However, the share of underem-

ployed mothers doubles in the ten years following childbirth, and for this group, hours constraints account for approximately 40% of the hours penalty. The chapter points to demand-side failures in part-time labor markets for specific groups of workers.

The third chapter turns to workers' awareness of their own working time arrangements, focusing on the French *forfait jours* system, a flexible contract under which working time is counted in days rather than hours, exempting employers from overtime obligations. Combining survey and administrative data, the chapter uncovers that 18% of workers incorrectly believe they hold such a contract. These misreporters work longer hours and more unpaid overtime than correctly informed coworkers. Yet, they also receive higher compensation and report similar job satisfaction, consistent with informal flexible arrangements rather than outright exploitation. Over time, misreporters are more likely to transition to an official day contract, but without the associated wage premium. The chapter hints at workers and firms' attempts to find informal ways to adjust hours and earnings beyond contractual boundaries.

Résumé

Cette thèse examine trois dimensions du temps de travail dans les marchés du travail contemporains, en combinant données d'enquête et données administratives pour apporter de nouveaux éléments sur la façon dont les heures sont fixées, contraintes et, parfois, mal comprises.

Le premier chapitre porte sur les contraintes horaires, c'est-à-dire les obstacles empêchant les travailleurs d'effectuer le nombre d'heures de travail souhaité dans leur emploi. En appariant les préférences déclarées issues de l'Enquête Emploi à des données de panel, le chapitre analyse les trajectoires des travailleurs contraints sur le marché du travail. Le sous-emploi constitue de loin la forme la plus répandue de contraintes horaires en France, touchant environ 20 % des salariés. Je montre d'abord que les travailleurs en situation de sous-emploi se concentrent dans des emplois précaires, notamment les travailleurs à temps partiel involontaire piégés dans des entreprises et des métiers à bas salaires. En suivant ces travailleurs dans le temps, je constate que ces travailleurs tendent à augmenter davantage leurs heures et leurs revenus lorsqu'ils changent d'entreprise. Malgré cette augmentation moyenne, la plupart n'atteignent pas leurs heures souhaitées à court terme, ce qui souligne la persistance des situations de sous-emploi. À partir d'une méthodologie basée sur un critère de préférence révélée, je quantifie le coût des contraintes horaires pour les travailleurs à 10% de leur salaire horaire. Les résultats mettent en évidence le caractère dynamique et structurel des contraintes horaires et leur importance en tant que caractéristique d'emploi dans les décisions des travailleurs sur le marché du travail.

Le deuxième chapitre examine dans quelle mesure les contraintes horaires contribuent à la persistance de la *child penalty* sur les heures travaillées, défini comme l'écart de long terme, bien documenté, entre mères et pères sur le marché du travail à la suite de la naissance d'un premier enfant. S'appuyant sur le Panel Socio-Économique Allemand (SOEP), qui combine des données longitudinales sur les heures travaillées et souhaitées avec des historiques de naissances, le chapitre estime une *child penalty* con-

trefactuelle dans le cas où tous les travailleurs travailleraient leurs heures souhaitées. Le résultat central est qu'au niveau agrégé, la pénalité sur les heures souhaitées est très similaire à la pénalité sur les heures effectivement travaillées, ce qui signifie que les contraintes horaires ne constituent pas un facteur déterminant de la *child penalty* à long terme. Cependant, la part des mères sous-employées double dans les dix années suivant la naissance, et pour ce groupe, les contraintes horaires expliquent environ 40 % de la pénalité en heures. Le chapitre pointe vers des défaillances de la demande dans les marchés du travail à temps partiel pour certains groupes de travailleurs.

Le troisième chapitre s'intéresse à la connaissance que les travailleurs ont de leurs propres modalités de temps de travail, en se concentrant sur le système français du forfait jours, un régime contractuel flexible dans lequel le temps de travail est décompté en jours plutôt qu'en heures. En combinant données d'enquête et données administratives, le chapitre met en évidence que 18 % des travailleurs déclarent à tort être soumis à un tel contrat. Ces déclarants erronés travaillent davantage d'heures et effectuent plus d'heures supplémentaires non rémunérées que leurs collègues correctement informés. Ils bénéficient pourtant d'une rémunération plus élevée et déclarent une satisfaction au travail similaire, ce qui est plus cohérent avec l'existence d'une organisation informelle du temps de travail qu'avec une exploitation pure et simple. A court terme, ces travailleurs sont également plus susceptibles de basculer vers un vrai contrat en forfait jours, mais sans bénéficier de l'augmentation salariale qui est normalement associée à ce type de transition. Ce chapitre esquisse ainsi les tentatives des salariés et des entreprises de trouver des moyens informels pour ajuster heures et rémunérations au-delà des frontières contractuelles.

Note to the Reader

The three chapters of this dissertation are self-contained research articles and can be read separately. They are preceded by an introduction which summarizes the research presented in this dissertation[1]. The terms "paper" or "article" are used to refer to chapters. Chapter 3 is co-authored, which explains the use of the "we" pronoun.

[1] An extended version of this introduction in French is available at the end of this dissertation.

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General Introduction

"Money often costs too much."

– Ralph Waldo Emerson, *Wealth* (1860)

AMONG the most well-documented trends of the past century in most advanced countries is the secular decline in hours worked per worker. This evolution has been shaped by recurring social and political conflicts over how much time a society should devote to work. At the macroeconomic level, hours worked are the fundamental unit of the labor input and a primary driver of wealth creation. But, from the workers' perspective, time spent at work is time foregone from leisure, rest and personal life, making the reduction of working hours a symbol of emancipation. The dual nature of working time, as both a factor of production and an individual source of disutility, places it at the heart of labor studies. Yet, the history of conflicts over working time reveals something that standard economic models often overlook: workers rarely control the number of hours that they work.

In standard labor supply theory, workers choose their hours by solving a tradeoff between consumption and leisure which yields an optimal number of hours at any given wage, their labor supply curve. The idea (in the economic literature) that workers may not be able to implement this optimum in practice dates back to Lewis (1967). In a famous comment, he points out that employers have their own preferences over hours of their employees and can constrain workers in their set of potential hours, a phenomenon later labeled as *hours constraints* (Kahn and Lang, 2001). Working hours are therefore best understood as a non-wage job characteristic, or *amenity* (Mas, 2025), over which both workers and firms have preferences, and upon which they match on the labor market. This naturally raises the question of whether this matching is efficient: are workers, in practice, able to sort into jobs that

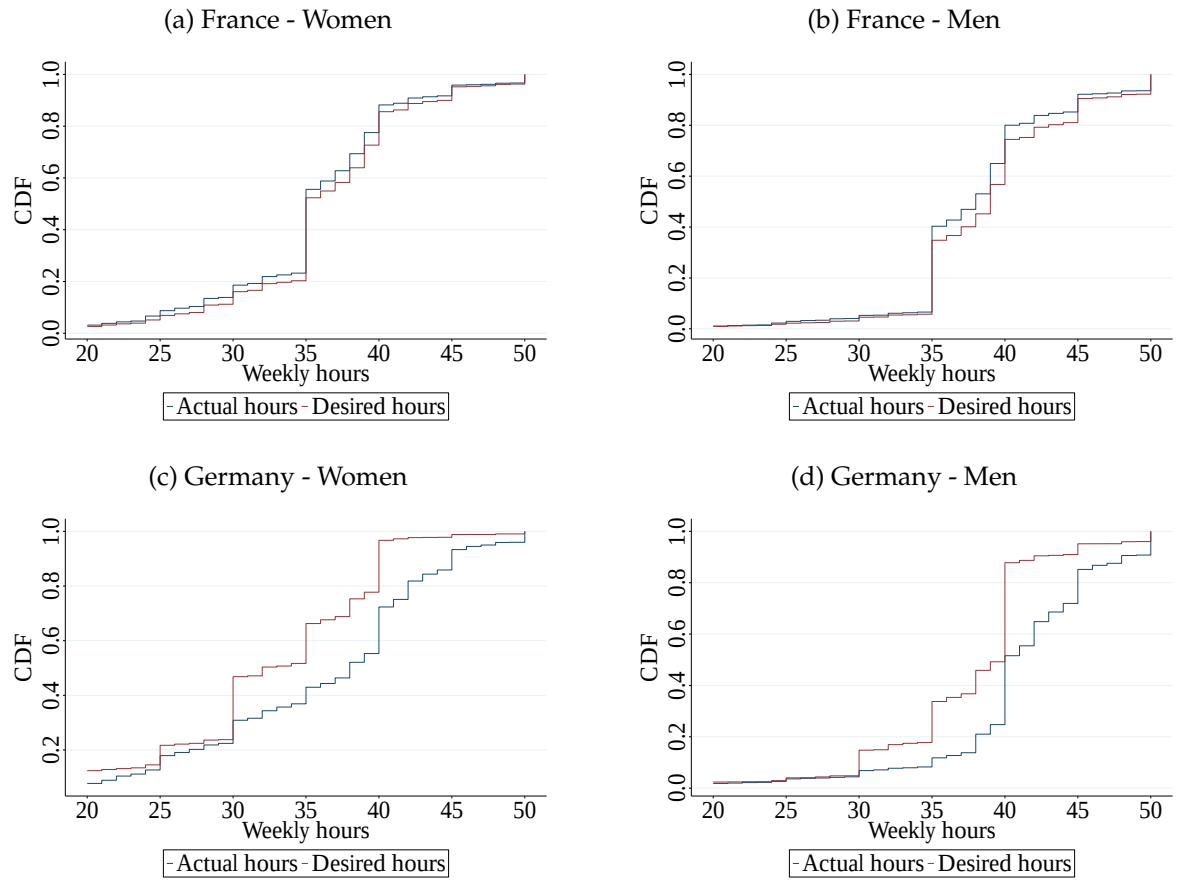
offer their ideal number of hours?

To address this question, researchers have drawn on survey data in which workers report their desired hours at their current wage rate (Ham, 1982; Blundell et al., 1987; Kahn and Lang, 1991; Stewart and Swaffield, 1997; Bloemen, 2008; Tuda, 2020; Bell and Blanchflower, 2021; Jarosch et al., 2025). Comparing desired hours to actual hours provides a direct measure of how far workers are from their labor supply curve, which assesses the quality of the matching on hours. Figure 1 plots the distributions of actual and desired hours in France and Germany. The two countries display markedly different patterns of hours mismatch. In France, the desired hours distribution is shifted slightly to the right of actual hours, pointing to *underemployment*: employees would prefer, on net, to work more than they currently do. In Germany, the reverse holds, and to a larger degree, with desired hours clearly below actual hours, reflecting widespread overemployment. In France, around 20% of employees report being underemployed, rising to 33% among part-time workers. This pattern is strongly gendered: underemployment among part-timers predominantly affects women, who are heavily over-represented in part-time work, while the full-time workers who would like to work more are mostly men.

Gender disparities in full-time and part-time employment are similarly pronounced in Germany, but the direction of the mismatch differs. German women are far more likely to want part-time hours than they currently work, with roughly 50% preferring fewer than 30 hours per week against only 35% who actually do. German men, by contrast, mostly wish to reduce their hours while remaining full-time, rather than switching to part-time work. Beyond France and Germany, the United States resembles the French case, while the United Kingdom is closer to the German pattern (Jarosch et al., 2025), suggesting that while hours mismatch is widespread, its direction varies across countries.

Differences in hours gaps across countries are partly shaped by cultural and institutional features, and France offers a particularly instructive case (Cohen et al., 2025). French working time regulation is notoriously complex and rigid, designed to protect workers from employer abuse but at the cost of limited flexibility in hours. One might therefore expect regulation to be the primary driver of underemployment in France. First, the most prevalent form of hours constraints is involuntary part-time work, which regulation cannot readily explain: full-time jobs are always available in principle. Among full-time workers, of which 17% report wanting more hours, regulation may play a more direct role. Underemployed full-time workers want to

Figure 1: Distribution of Actual and Desired Hours, 2019



Note: This figure plots the weighted empirical cumulative distribution functions (CDFs) of actual and desired weekly working hours, separately by gender, for France and Germany in 2019. Samples are restricted to individuals reporting between 20 and 50 actual hours. French data are from the *Enquête Emploi en Continu* (EEC) 2019. Actual hours correspond to usual weekly hours. German data are from the German Socio-Economic Panel (SOEP) 2019, restricted to individuals in employment. Actual hours correspond to current contractual working time. Desired hours correspond in both countries to the self-reported ideal number of hours at the current wage rate, set equal to actual hours for individuals who report being satisfied with their current working time. CDFs are computed using survey sampling weights.

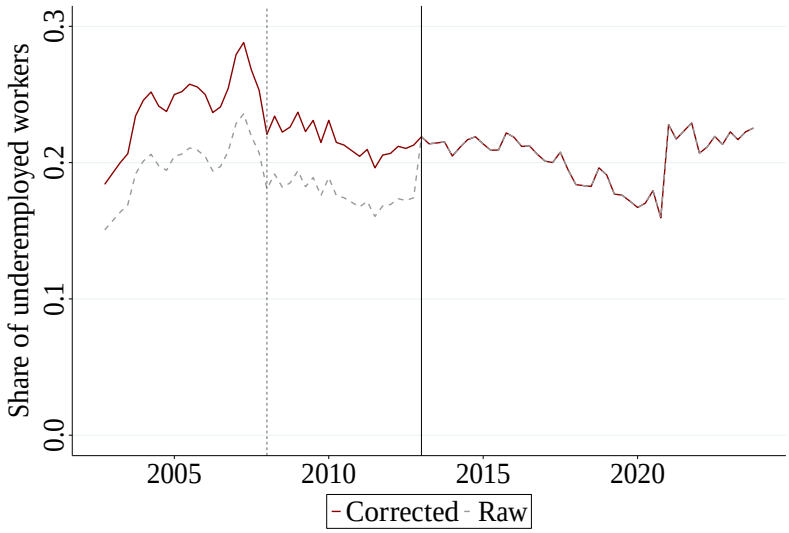
work more than 35 hours, the statutory reference duration, which in France is feasible under the overtime scheme, though at an higher rate. This extra cost may discourage employers from extending hours, leaving some workers unable to work their preferred hours, but these hours are practicable from a legal standpoint. Hence, even in France, considered one of the most regulated labor markets in the world, working time regulation alone cannot account for the full extent of underemployment.

Underemployment is widespread, mostly unexplained, and its consequences are far-reaching, both for individual workers and for the economy as a whole. From a macroeconomic standpoint, underemployed workers represent an unused labor force that could be mobilized to increase aggregate output (Bick et al., 2018; Bell and Blanchflower, 2021; Gethin and Saez, 2025). At the individual level, consequences over workers' welfare can also be important. Underemployment, involuntary part-time work in particular, is a marker of precarious employment: workers who cannot access jobs with regular hours lose in earnings and face deteriorated living standards. In both regards, hours constraints are a first-order concern for policy.

Then, understanding why workers end up constrained in their hours has been a central question in the labor literature. A first strand emphasizes the role of business cycle fluctuations. Because firing workers is costly, firms tend to adjust hours rather than employment in response to changes in demand (Hart and Sharot, 1978), particularly when wages are rigid. This margin of adjustment implies that hours constraints are, at least in part, a cyclical phenomenon: when economic activity is high and labor demand is strong, workers are more likely to find jobs that match their preferred hours (Bell and Blanchflower, 2021). Tuda (2020) and Borowczyk-Martins and Lalé (2019) provide evidence on this relationship, respectively focusing on desired hours and involuntary part-time work. This literature defends the view that hours constraints are not a structural phenomenon of the labor market but is rather primarily driven by macroeconomic trends. Figure 2 plots trends in underemployment between 2003 and 2023 in the case of France, applying a methodological correction for the break in survey design introduced in 2013. The share of underemployed workers remains relatively stable over this period and bears no significant correlation to the business cycle, e.g. underemployment does not rise markedly in the years following 2008. This pattern is difficult to reconcile with a purely cyclical account of hours constraints.

A second strand of research has instead attributed hours constraints to structural features of the labor market. Constraints in this view are built into the job itself:

Figure 2: Share of Underemployed Workers in France, 2003-2023



Note: The figure plots the quarterly share of employed workers reporting that they want to work more hours. The dashed grey series shows the raw data and the solid red series applies a multiplicative correction to account for a methodological break in the French Labour Force Survey (EEC) occurring in January 2013. The correction anchors on the post-2013 methodology and rescales the 2003-2012 segment so that December 2012 and January 2013 are level-consistent. The vertical dashed line corresponds to the break date.

workers cannot work their preferred hours because schedules are fixed by occupation (Altonji and Paxson, 1986; Dickens and Lundberg, 1993) or determined by firm-specific production requirements (Labanca and Pozzoli, 2022; Lachowska et al., 2026). Building on Lewis (1967) and Rosen (1974), Lachowska et al. (2026) formalize this idea by showing that hours constraints arise when the marginal benefit to the firm of an additional hour worked falls below the worker's hourly wage, making it optimal for the employer to cap hours. Kahn and Lang (2001) document further reasons as to why employers may not want their workers to work more hours. Yet, this literature does not speak to the role of market-level adjustment. If a firm is unwilling to offer a job with more hours because of their specific characteristics, others might be. Hence, whether hours constraints persist ultimately depends on how well workers can sort across jobs.

A key limitation of existing research on hours constraints is the lack of suitable data to study them. Hours preferences yet are a complex object to capture. Aside from a few exceptions (Labanca and Pozzoli, 2022; Lachowska et al., 2026), the most common way to measure them is through worker surveys, which are rarely linked to employer-employee administrative records. This disconnect makes it difficult to jointly observe workers' desired hours, their actual labor market trajectories, and the characteristics of the firms they work for. To overcome these limitations, I build a

unique linkage between the French Labour Force Survey (*Enquête Emploi en Continu*, EEC) and the French matched employer-employee dataset (*Base Tous Salariés*, or DADS). Leveraging the panelization procedure developed by Godechot et al. (2025), this linked dataset combines the richness of the EEC's individual-level variables with the longitudinal depth of administrative records, enabling me to track workers across firms over time. The combination of survey and administrative data is at the heart of this dissertation, and this linkage in particular opens new perspectives on the study of hours constraints that were previously out of reach.

My first chapter asks whether workers constrained in their hours can circumvent hours constraints, and increase their paid hours, over time. To answer this, I use the EEC-DADS linked panel, which allows me to track labor market trajectories of workers after their report, and an event-study design comparing similar constrained and unconstrained workers around employer-to-employer moves. I find that constrained and unconstrained workers exhibit similar mobility rates conditional on observable characteristics but that, for part-time workers, moving to another employer is associated with a higher increase in hours and earnings for constrained workers. The positive effect is mostly driven by moves to a different occupation or to a firm with long hours policies, as proxied by an AKM (Abowd et al., 1999) firm fixed effect on hours. Results are consistent with the view of hours constraints as firm-specific or occupation-specific requirements such that constrained workers must switch jobs or move up the firm quality ladder to increase their hours. Despite average improvements in hours and earnings, I find that a majority of constrained workers do not reach their self-reported preferred hours within few years after the report.

The chapter also provides evidence that, while underemployed workers are disproportionately concentrated in certain occupations and firms, jobs with longer hours do exist in their (very) local labor market segment. For instance, 80% of involuntary part-time workers in the sample share a workplace and occupation with at least one full-time worker. Yet, most are unable to switch to full-time employment in the short-run. This points to a form of worker segmentation that operates even at the most local level of the labor market, beyond what firm- or industry-level hours policies can explain. I find that some dimensions of worker heterogeneity, such as labor market experience and gender, play a role in driving this segmentation. In the French context, this segmentation may be especially pronounced, as the labor market is characterized by a sharp separation between part-time and full-time work. Because employers do not internalize the cost that short-hours jobs impose on workers, good

and bad jobs (Acemoglu, 2001) tend to coexist within the same local labor market.

My second chapter zooms in on a specific population of underemployed individuals: mothers returning to work after childbirth. The over-representation of underemployment in part-time work implies that women may be the most affected by hours constraints, and mothers in particular face a well-documented shift toward part-time employment around childbirth. As observed in Figure 1, Germany is not a prominent example for women's involuntary part-time work, but the large proportion of part-time workers makes it a relevant case to study. Previous research (Kleven et al., 2019a,b, 2024a) has shown that the birth of a child generates a persistent divergence in hours and earnings between mothers and fathers, a phenomenon referred to as the *child penalty*. Using the German Socio-Economic Panel (SOEP), which contains the same type of information on hours preferences as the French Labour Force Survey, I quantify the role played by hours constraints in perpetuating this penalty. The underlying argument is that mothers who switched to part-time work around childbirth may struggle to return to a full-time job once their children are older (Goldin et al., 2022). To capture the role played by hours constraints, I estimate a counterfactual child penalty in hours if all workers were to work their desired hours, and comparing it to the child penalty in actual hours, following in both estimations the imputation approach of Kaeppel (2025). At the aggregate level, hours constraints account for a negligible share of the child penalty. However, the share of underemployed mothers roughly doubles in the decade following childbirth relative to the year before, and for this group, hours constraints account for approximately 40% of the hours penalty. This chapter illustrates how hours constraints can shape labor market outcomes well beyond the question of hours itself.

A legitimate concern is that the number of hours worked may be a less relevant margin in a labor market increasingly characterized by remote work, flexible arrangements, and fragmented employment relationships. Recent research has indeed shown that flexibility (Mas and Pallais, 2017; Erhel et al., 2024) and remote work (Cullen et al., 2025) are highly valued job amenities. Yet the number of hours remains central, for two reasons. First, working time is the primary determinant of the work-life balance, regardless of where or how flexibly work is organized. Second, hours directly drive earnings, the most important job attribute for most workers, particularly in a context of rising costs of living. Dube et al. (2022) shows that additional hours of paid work are the most valued change by Walmart workers, a setting representative of low-wage, underemployed workers. The example of the

four-day workweek is also illustrative: in a survey conducted on 10,000 workers (ADP, 2019), 78% expressed a preference for working four days a week conditional on their income remaining unchanged. This share falls to 22% when the reduction in days implies a proportional cut in earnings. Hence, the valuation of time-related amenities is, for most workers, contingent on paid hours and earnings being stable. This evidence also speaks directly to the motivations of self-reported underemployed workers in the EEC. This dissertation thus is nominally about working hours, but it is perhaps even more fundamentally about earnings.

Some workers, however, do not have contractual working hours at all. My third chapter, co-authored with Thomas Breda and Vladimir Pecheu, focuses on the *forfait jours* system, a flexible working arrangement covering 17% of French employees in 2024, under which working time is counted in days rather than hours. Employers operating under this system are exempt from overtime obligations, while workers receive higher pay and additional rest days in compensation. Combining survey and administrative data on working time regulation, we document that 18% of workers on a standard hours contract incorrectly believe they are employed under the *forfait jours* system. These misreporters work longer hours and accumulate more unpaid overtime than correctly informed coworkers, yet also receive higher compensation and report similar levels of job satisfaction. We interpret this pattern as potential evidence that workers and firms use informal ways to adjust hours and earnings beyond contractual boundaries. Such arrangements allow workers to earn more, possibly at the cost of longer hours, and give employers greater flexibility and relief from hours-tracking obligations. The existence of informal arrangements yet calls for a clearer regulation of hours practices to protect workers against risks of extreme workweeks. This chapter sheds light on a segment of the labor market where the very concept of hours constraints loses its meaning.

If this dissertation has one simple claim, it is that hours constraints are costly for workers. In my first chapter, I use a revealed preference approach to estimate workers' willingness to pay, in terms of hourly wage, in exchange for working their preferred hours. The key intuition is that when a worker accepts a new job, the destination wage-hours bundle must yield at least as much utility as the original one. Exploiting employer-to-employer moves of constrained workers, I recover indifference curves over wage-hours bundles by finding the parameter that best rationalizes observed job mobility, under this revealed preference criterion. I find that underemployed workers would on average accept a 10% reduction in their hourly wage to close the hours gap, 15% for part-time ones, which is consistent with

estimates by Lachowska et al. (2026) for the US. The persistence of hours constraints, documented above, and the welfare costs they impose on workers, make a strong case for policy intervention.

What policies could most effectively reduce underemployment? This dissertation hints at three potential avenues. The first is to raise hourly wages: workers' desire to work more hours is largely driven by the prospect of higher earnings, so policies that increase the return to an hour of work may reduce the prevalence of involuntary part-time. In this regard, studying the effect of minimum wage changes on hours preferences would be of prime interest. This approach directly estimates the prevalence of substitution and income effects in the tradition of the classic labor supply framework.

The second avenue is to act on work organization. One approach is to design innovative working contracts that lead employers to internalize the implicit costs of short-hour jobs. Another, complementary approach concerns task centralization. Hours constraints may arise in part because certain workers are confined to short-hour positions simply because the volume of work they perform within a firm does not justify a full-time contract. This reflects the imperfect substitutability of workers across tasks within a given firm. On specific labor markets, e.g. cleaning, one could imagine a centralized system in which all demand for a given type of work is pooled across employers and addressed by a common workforce, allowing most workers to access longer hours. Such centralization would likely increase average hours worked, though potentially at the cost of some unemployment among the least productive workers (Carry, 2024).

The third avenue is to treat underemployment as an intensive-margin counterpart to unemployment, and to draw on the rich literature on job search and matching to design tools, such as job training policies, that help underemployed workers transition to jobs with longer hours. Underemployment is, at its core, a problem of employment quality. Labor market policy has long been preoccupied with the quantity of work, whether people have jobs, but ensuring that those in work can sustain a decent living from it is no less a first-order concern. This dissertation hopes to contribute to a better understanding of underemployment and to stimulate research into the policies best suited to address it.

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Chapter 1

In Search of Working Time? Hours Constraints, Firms and Mobility

Abstract

Can workers find a job with their ideal working hours? This paper provides novel empirical evidence on hours constraints, i.e. barriers for workers to work their desired hours at a given wage rate, by linking self-reported hour preferences from large-scale survey data with administrative employer-employee data between 2003 and 2023. Twenty percent of French salaried workers report wanting to increase their hours at their given wage. Leveraging the panel dimension of my data, I show that constrained workers experience larger increases in hours and earnings than other workers by switching employers. However, most constrained workers remain unable to adjust their hours to their desired level within 3 years after their report. Next, I develop a revealed preference method to quantify welfare effects associated with constraints and find that workers would on average accept a 10% reduction in hourly wages to work in a job offering their desired number of hours. The results highlight the important role of hours worked as a job amenity in shaping labor market sorting.

1 Introduction

Both a source of income and disutility, working hours are a central element of workers' lives (Dube et al., 2022; Mas, 2025). However, most workers cannot freely choose their hours since employers have a clear interest in the hours worked by their employees, as first emphasized by Lewis (1967). This implies that several workers may be *constrained* in jobs where they cannot work their preferred number of hours. When unable to choose their hours, a crucial question is whether they can, and at what cost, circumvent hours constraints to find a job that better suits their preferences.

This paper provides novel empirical evidence on the topic of hours constraints, focusing on the dynamics of the phenomenon. A large literature has documented the prevalence of hours constraints, but little is known about their persistence and welfare impacts. I ask two related questions: can most constrained workers reach their desired hours through labor market mobility, and how much of their hourly wage are they willing to give up to do so? Combining self-reported hours preferences from the French Labour Force Survey with panel employer-employee data, I can track workers after their report and observe their changes in hours, and earnings, over the following years. Mobilizing employer-to-employer moves in a revealed preference framework, I quantify the welfare impacts of hours constraints on workers. The richness of my data finally allows me to document other aspects of hours constraints, such as the sorting of constrained workers across firms and occupations.

Hours constraints have received significant attention in the labor literature (see Kahn and Lang (2001) for an introduction). Empirical studies consistently find that a large proportion of workers are not working their desired hours, although the direction of constraints varies across countries. Jarosch et al. (2025) show in a recent paper that German and British workers tend to be *overworked*, or constrained from below, while US workers are mostly *underworked* or constrained from above. In the German case, more than two thirds of workers report wanting to work fewer hours. France is closer to the US case : evidence from the *Enquête Emploi*, the French Labour Force Survey, indicates that 20% of salaried workers would work more hours at their given wage rate, the most common type of constraints in France. The magnitude of the shares across countries points to hours constraints as a widespread labor market phenomenon.

A first question concerns the origins of constraints: what prevents workers from

working their preferred hours? Working hours are heavily regulated, particularly in France[1], which implies that employers may have to bear additional (overtime) costs to increase hours of their employees. This restriction yet does not apply to the frontier between part-time and full-time work, which is at the heart of this paper. At least for involuntary part-time workers, working time regulation cannot be the sole reason why they cannot work their preferred hours. Early research on the topic (Altonji and Paxson, 1986; Dickens and Lundberg, 1993) rather emphasized the importance of occupation in hours practices. Certain jobs, e.g. train drivers or school teachers, are associated with specific hours requirements that may leave little room for adjustment. However, recent work has rather focused on the role of firm-specific features, following the idea that hours worked likely depend on each firm's organization and technology. Kahn and Lang (2001) provide a broad discussion of the potential sources of firms' preferences over hours, e.g. highlighting the role played by coordination in team production contexts, as in Rosen (1986). Labanca and Pozzoli (2023) build on this idea to rationalize hours constraints as compensated by wage differentials arising from productivity gains. Another line of argument connects hours constraints to monopsony power (Manning, 2003), in that firms may be able and have an interest in keeping some of their workers underemployed to freely adjust their hours when the activity fluctuates (Bell and Blanchflower, 2021). Lachowska et al. (2026) includes the most comprehensive theoretical framework to date for the study of constraints, using an extension of the Lewis-Rosen model (Lewis, 1969; Rosen, 1974) under imperfect competition. Their findings point to the existence of a job ladder on wages and hours, i.e. a hierarchical ranking of employers based on job desirability, as the source of hours constraints, and conclude that long-hour jobs are too costly for most employers.

A second question concerns the welfare implications of hours constraints. Survey data suggest the distance to desired hours may be large, particularly for part-time workers who mostly want to increase their hours to a full-time schedule. This implies that constrained workers may be far from their labor supply curve and would accept a large wage reduction to close the gap. Lachowska et al. (2026) take a revealed preference approach to estimate this gap and find that workers would on average require a 12% higher wage to be as well off as they would be while working their ideal hours. They also find a 15% average distance between actual and desired hours, consistent with survey data. Their methodology reflects the magnitude of welfare effects associated with constraints at the labor market level, but it does not rely on actual moves of workers who are in a constrained situation, which is precisely what

[1]See Breda et al. (2025) for more on the French working time regulation.

my data allow.

The study of hours constraints has been hampered by a lack of suitable data. Preferences over hours are hard to identify, and aside from a few exceptions, e.g. Labanca and Pozzoli (2023) use a firm-level proxy based on the within-firm dispersion of hours, the most common approach relies on surveys. In addition, surveys that directly elicit hours preferences are rarely panel data or linked to firm-level information, with the notable exception of the data used in Jarosch et al. (2025), and their measures of hours and earnings are likely imperfect, relying on self-reports rather than administrative records.

In this paper, I construct a novel dataset by linking self-reported hour preferences from a large-scale survey with panel employer-employee data. I exploit the presence of establishments' identifiers in the French Labour Force Survey, conducted by Insee[2], and use them to link survey data to administrative records. As there are no common individual identifiers between both sources, I adopt a "1-to-1" matching approach based on variables such as age, gender or birth department combined with the firm identifier. This method allows me to retain information for a majority of surveyed salaried workers (67%, 435,472 individuals) between 2003 and 2023, capturing their self-reported hour preferences over six quarters and their administrative job characteristics, including paid hours and labor earnings, over a large number of years. By exploiting the panel structure of the administrative data, I can study the labor market trajectories of constrained workers and examine the welfare effects associated with their job changes. This unique linkage extends beyond the scope of hours constraints and contributes to bridging survey and administrative sources for economic research. The remainder of this paper is organized in three steps.

The first step examines the employment context of workers who report hours constraints to improve our understanding of the phenomenon. Constrained workers are concentrated at the bottom of the (hourly) wage distribution and primarily seek to increase earnings through additional work. This is especially the case for involuntary part-time workers, who report being unable to switch to a full-time schedule and are constrained in particular low-wage jobs. On the other hand, full-time constrained workers work a similar number of hours than unconstrained workers and seem to mostly differ in terms of preferences rather than actual working conditions. Occupational sorting emerges as a major factor for involuntary part-time work, as concerned workers are heavily concentrated in few low-wage occupations

[2]The French National Institute for Statistics and Economic Studies.

notoriously intensive in part-time jobs. Firm sorting also plays an important role, as previously hinted in the literature (Kahn and Lang, 2001; Lachowska et al., 2026) but rarely shown empirically. Using an AKM (Abowd et al., 1999) decomposition to identify firm effects in both hours and wages, I find that constrained workers are overrepresented in firms offering low hours and low wages, consistent with the existence of a job ladder. Yet, there remains non-negligible variation in hours within firms, e.g. most involuntary part-time workers have at least one full-time worker employed in the same workplace and occupation as them. Tackling this within-firm heterogeneity, I provide suggestive evidence of worker segmentation over access to full-time jobs associated with gender and experience.

The second and main part of the paper provides the first dynamic study of hours constraints at the worker-level. Leveraging the panel dimension of my data, I track the labor market trajectories of constrained workers in the years following their survey report. Conditional on characteristics, constrained workers are not more likely than their unconstrained counterparts to switch employers, yet when they move, they benefit more from mobility in terms of hours and earnings. Using an event-study design, I estimate that constrained part-time workers increase their hours and earnings through mobility by roughly 6% more than unconstrained movers, and by 8% and 4% more than non-movers, respectively. This effect is concentrated among part-time workers, as I find no evidence of differential mobility outcomes in the full-time group. The richness of my data also allows me to provide a thorough description of adjustment mechanisms. Workers are more likely to adjust their hours by switching occupation or moving to firms with long-hour policies, consistent with the prior identified role of occupational and firm rigidities. However, mobility does not appear sufficient to close the hours gap, as most constrained workers are unable to reach their self-reported preferred hours in the short-run after their report.

The third step develops a method to quantify workers' willingness to pay (WTP) in hourly wages to work their preferred hours, providing a welfare measure of hours constraints. Since the primary motivation for wanting additional hours is higher monthly earnings, the WTP is best interpreted as the hourly wage reduction a worker is willing to accept in exchange for an increase in monthly earnings. The method, adapted from Le Barbanchon et al. (2020) on the relation between wage and commute, takes advantage of workers' self-reported preferred hours and of their employer-to-employer moves. Workers start from a job with a given wage and hours and report their desired hours at that wage (as in the Labour Force Survey). A simple revealed preference implies that workers would only switch employers if the move

raises their utility. I then estimate the main utility parameter by recovering the iso-utility curve that best rationalizes employer-to-employer moves given this criterion. I solve the optimization problem using a grid search algorithm and obtain an individual WTP estimate for each constrained worker who switch firms after they report. The average WTP is equal to 10% of workers' current wage, consistent with estimates by Lachowska et al. (2026) in the US. This answers the second question asked above: workers are willing to significantly reduce their hourly wages to increase their hours and earnings.

Related Literature. This work falls within a prominent, although specialized, literature on hour constraints. The theoretical foundations of hour constraints have been established in seminal work by Rosen (1974), then developed and refined (Abowd and Card, 1987; Dickens and Lundberg, 1993; Kahn and Lang, 2001; Bloemen, 2008). This literature intends to provide a framework in order to understand how hour constraints emerge and affect labor markets. Recent contributions to this literature relate hours constraints to the effects of imperfect competition on hours worked (Manning, 2003; Germain, 2025). Specifically on the question of part-time work, Devicienti et al. (2020) discusses the monetary (dis)incentives for firms to offer part-time contracts. More closely related, Carry (2024) studies the impact of a minimum workweek reform in the case of France and find evidence of imperfect substituability between part-time and full-time jobs. The main reference for this paper is Lachowska et al. (2026), who build on a revealed preference estimation to quantify welfare effects of constraints. I contribute to this literature by combining a micro-level measure of hours constraints with administrative panel data to reassess important findings of this literature, including welfare effects, in a more direct way.

This research also relates to a literature considering hours worked as a job amenity that influences workers' job choices and satisfaction. Hwang et al. (1998), Lang and Majumdar (2004), Lavetti and Schmutte (2016), Sorkin (2018), Lamadon et al. (2022), and Dube et al. (2022) have examined how hours worked affect workers' utility and job preferences. This paper adds to this body of work by estimating how much workers value their working hours.

This paper also relates to a macro literature documenting the countercyclical relation of underemployment to business cycles (Borowczyk-Martins and Lalé, 2020; Bell and Blanchflower, 2021; Tuda, 2020). This literature highlights underemployment as a transitory phenomenon, driven by employment adjustment to economic activity. With this paper, I contribute to this discussion by assessing the persistence of

underemployment over a certain number of years. The result that most constrained workers remain unable to adjust their hours as wanted points to underemployment as a structural feature of the labor market.

Because of its relevance for the public economics literature, the relationship between hour constraints and labor supply responses to shocks has been largely explored. Kahn and Lang (1991) discusses the bias in labor supply elasticities due to the presence of hours constraints. Chetty et al. (2011) assess the implications of hours constraints for quasi-experimental estimation of labor supply elasticities. Labanca and Pozzoli (2022) show the unresponsiveness to tax changes in the context of hours constraints. This paper contributes to this literature by assessing the extent of hours rigidities in the labor market and whether they can be circumvented.

Lastly, this paper makes an important contribution to the measurement of true labor supply, to be distinguished from observed hours worked (Pencavel, 2015). The study of hours constraints complements extensive macroeconomic research (Costa, 2000; Bick et al., 2018, 2022) that directly interprets trends in hours worked as evidence of labor supply changes. Recent research by Jarosch et al. (2025) also belongs to this literature by estimating the implied macroeconomic effects of relaxing constraints. In the same vein, another strand of literature (see Bell and Blanchflower (2021)) has focused on the empirical assessment of underemployment, focusing on different countries and discussing the potential origins of this phenomenon. This paper reinforces the claim that hours constraints are a major feature of labor markets and should be invoked in all discussions related to working time.

The rest of the paper proceeds as follows. Section 2 introduces a theoretical framework. Section 3 presents the institutional context and data, including the procedure to link the French Labour Force Survey to administrative data. Section 4 provides descriptive statistics on constrained workers and studies the role of occupational and firm effects in shaping constraints. Section 5 tracks the evolution of constrained workers in the labor market, focusing on their ability to increase their hours and earnings. Section 6 estimates the workers' willingness-to-pay to reach their preferred hours in a revealed preference framework.

2 Model of Hours Constraints and Job Mobility

This section provides a theoretical framework for the study of hours constraints. Most of the framework is directly derived from the Lewis-Rosen model under imperfect competition introduced by Lachowska et al. (2026). The main difference is the introduction of heterogeneity in worker productivity θ_i, which intervenes in the employer's technology. This addition implies that an employer may have heterogeneous preferences on working hours for different workers, even if they have similar preferences. In the second part of the section, I introduce a dynamic extension of the Lewis-Rosen model and discuss conditions under which constrained workers are able to adjust their hours. This framework serves as an illustration to the empirical work realized in the further sections.

2.1 Static Bargaining

Workers are indexed by $i = 1, \ldots, N$ and have preferences on earnings and hours represented by the utility function $u_i(.)$, increasing in earnings and decreasing in hours. The (hourly) wage w is defined as the ratio between earnings and hours. For each worker, the optimal number of hours worked h^* is defined by the equality between the marginal rate of substitution (MRS) between earnings and hours and the observed wage:

$$\text{MRS}_{e,h}(e, h^*) = -\frac{\partial u_i(e,h)}{\partial h} \Big/ \frac{\partial u_i(e,h)}{\partial e}\bigg|_{h=h^*} = w$$

This equality is a direct consequence of the utility maximization. If the MRS is superior to the wage, the cost of working one extra hour is superior to the gain, hence the worker is overemployed. Likewise, the worker is underemployed if the MRS is inferior to the wage.

Employers are indexed by $j = 1, \ldots, J$ and have heterogeneous technologies inducing employer-specific revenue functions $R_j(.)$. The revenue function is assumed increasing concave in hours worked, and depends on a worker-specific parameter θ_i introducing heterogeneity in worker productivity. As in Carry (2024), firms have heterogeneous technologies of production T_j and a maximum number of productive hours requirement z_j. The parameter T_j captures any specificity of the firm's production process and can be thought of as a TFP parameter. The profit function of employer j for a given match with worker i is $\Pi_j(h, \theta_i, w) = R_j(h, \theta_i) - wh$.

Following Lachowska et al. (2026), imperfect competition is incorporated through a

firm-specific surplus k_j, positive for all j's, that firms are able to extract. All firm-specific parameters are jointly drawn from a distribution $\Gamma(T, z, k)$, with T_j and k_j assumed independent. The bargaining problem[3] that generates hours and wages at the equilibrium is given by:

$$\left(w_{ij}^b, h_{ij}^b\right) = \underset{w,h}{\text{argmax}}\, u_i(e, h) \text{ s.t. } \Pi_j(h, \theta_i, w) = k_j \tag{1.1}$$

In the case of an interior solution ($h \leq z_j$), the number of hours that solves the optimization problem, h_{ij}^b, is defined by the equality between the MRS and the marginal revenue of hours[4]:

$$\text{MRS}_{e,h}(e, h) = \frac{\partial R_j(h, \theta_i)}{\partial h} \tag{1.2}$$

The number of hours worked in a given firm is generated by the properties of its revenue function R_j and the worker's productivity θ_i. Since the revenue function depends on this productivity, the number of hours worked in a given firm can vary between workers with identical preferences. If the marginal revenue of an additional hour of work is increasing in θ_i, bargained hours are increasing in θ_i, i.e. employers offer long-hour jobs to workers that they perceive as more productive.

The bargained wage w_{ij}^b is then derived as the average revenue per hour marked down by a profit margin that depends on the firm-specific surplus k_j[4][0]:

$$w_{ij}^b = \frac{R_j(h_{ij}^b, \theta_i)}{h_{ij}^b}\left[1 - \frac{k_j}{R_j(h_{ij}^b, \theta_i)}\right] \tag{1.3}$$

Then, the bargained wage varies based on the firm-specific revenue function R_j, the firm-specific surplus k_j, and the worker's productivity θ_i.

Workers are constrained from above at the equilibrium if their MRS is lower than the bargained wage, as they would accept to work one more hour for less than the bargained wage. Using Equations 1.2 and 1.3, this leads to the condition:

$$\left.\frac{\partial R_j(h, \theta_i)}{\partial h}\right|_{h=h_{ij}^b} < \frac{R_j(h_{ij}^b, \theta_i)}{h_{ij}^b}\left[1 - \frac{k_j}{R_j(h_{ij}^b, \theta_i)}\right]$$

Hence, a given worker i in firm j is constrained from above if the marginal benefit of

[3] As discussed in Lachowska et al. (2026), this problem yields the same hours allocation that would be obtained in a Nash bargaining problem where the joint surplus of the match is maximized.

[4] See Appendix C.1 for the proof.

one additional hour, the gain in revenue for the firm, is lower than its marginal cost, the wage. While increasing hours is beneficial to the worker, the firm would lose from hiring the worker for one more hour, as the marginal product of this additional hour is too low as compared to the wage. This idea, already present in Kahn and Lang (2001), is at the heart of hours constraints: workers want to work more hours *at their current wage*, while their productivity is lower and lower due to the concavity of the revenue function. Following Lachowska et al. (2026), I write as α_{ij} the elasticity of the revenue function of firm j with respect to hours worked of worker i and assume it is constant[5]. With the profit margin $p_{ij} \equiv k_j / R_j(h^b_{ij}, \theta_i)$, hours constraints from above are observed if and only if :

$$\alpha_{ij} < 1 - p_{ij} \tag{1.4}$$

Equation 1.4 highlights that hours constraints are driven by demand-side characteristics: the revenue elasticity α_{ij}, which reflects the firm's efficiency in using one extra hour of work, and the profit margin p_{ij}. Since bargained hours and wages both vary with worker productivity θ_i, workers matched to the same firm but differing in productivity have different hours and wage outcomes, which affects their probability to be constrained from above.

2.2 Dynamic Lewis-Rosen Model

This section focuses on the ability for constrained workers to secure a better wage-hour bundle over time. To do this, I develop a dynamic extension of the Lewis-Rosen model, drawing on the sequential auction framework of Postel–Vinay and Robin (2002) and its adaptation in Appendix D.2 of Lachowska et al. (2026). In Postel–Vinay and Robin (2002)'s framework, firms make take-it-or-leave-it wage offers to workers and can counter outside offers received by their employees. Then, a worker moves to a poaching firm if the latter can offer a higher lifetime utility than the maximum the incumbent is willing to provide. I extend their model by making the job arrival rate endogenous to search intensity and varying along worker productivity to characterize under which conditions can workers adjust their hours.

Maximum Utility at Incumbent Firm. The bargained utility of worker i at firm j is denoted $u^b_{ij} = u_i(w^b_{ij} h^b_{ij}, h^b_{ij})$, and is derived from the procedure presented in the previous section. Define $_{ij}$ as the maximum flow utility firm j can offer to worker i,

[5]This assumption is verified upon using an isoelastic revenue function, e.g. $R_j(h, \theta_i) = \theta_i T_j h^{\alpha_{ij}}$.

i.e. the highest flow utility it can provide with a non-negative profit. This implicitly corresponds to a reduction of k_j, the firm-specific surplus associated with the job, to 0. As shown in Equation 1.2, bargained hours remain at the same level, $_{ij} =^b$, but the bargained wage increases after the markdown drops to zero in Equation 1.3, which implies that $_{ij} \geq u_{ij}^b$.

Value Function. An employed worker i at firm j chooses search intensity to find another job $s_i \geq 0$ at a flow cost $c(s_i)$. Job offers arrive to employed workers at a Poisson rate, with $\lambda > 0$:

$$\lambda(s_i, \theta_i) = \lambda \cdot \phi(\theta_i) \cdot s_i \tag{1.5}$$

where $\phi(\theta_i)$ is increasing in θ_i, capturing that high-productivity workers are more visible to or more easily matched with new firms. Each offer is a draw of a new firm j' from the distribution Γ.

Let V_{ij} denote the lifetime utility of a worker i being employed by firm j, and V_i^u the value of unemployment. The poaching utility $u_{i\ell,j}^{poaching}$ that firm ℓ has to offer to hire worker i from firm j solves: $V_{ij}(u_{i\ell,j}^{poaching}) = V_{ij}(u_{ij}^{max})$. This is only possible for firms with a better technology than firm j, i.e. for firms with $T_\ell > T_j$, using those notations to capture the technological component of the revenue function in both firms. The Bellman equation for the employed worker writes:

$$\left(\beta + \delta + \lambda\left(s_i, \theta_i\right)\bar{\Gamma}\left(T_j\right)\right) V_{ij}(u) = u - c\left(s_i\right) + \delta V_i^u + \lambda\left(s_i, \theta_i\right) \int_{T_j}^{\bar{T}} V_{ix}\left(u_{ix}^{\text{poaching}}\right) d\Gamma(x) \tag{1.6}$$

where β is the discount rate, δ is the exogenous separation rate, and $\bar{\Gamma}\left(T_j\right) = \int_{T_j}^{\bar{T}} d\Gamma(x)$ is the probability of drawing a firm with a technology parameter strictly above T_j. The first term on the right-hand side is the flow utility net of search costs. The second term captures the loss from exogenous separation to unemployment. The third term is the option value of search. The following poaching utility directly stems from Postel–Vinay and Robin (2002):

$$u_{i\ell,j}^{\text{poaching}} = u_{ij}^{\text{max}} - \lambda\left(s_i, \theta_i\right) \int_{T_\ell}^{T_j} \frac{\bar{\Gamma}(x)}{\beta + \delta + \lambda\left(s_i, \theta_i\right)\bar{\Gamma}(x)} dx \tag{1.7}$$

Optimal Search Intensity. The worker chooses s_i to maximize $V_{ij}(u)$. Taking the first-order condition with respect to s_i leads to[6]:

$$c'(s_i) = \lambda \cdot \phi(\theta_i) \int_{T_j}^{\bar{T}} \left[V_{ix}(u_{ix}^{poaching}) - V_{ij}(u) \right] d\Gamma(x) \tag{1.8}$$

At the optimum, the marginal cost of search effort $c'(s_i)$ equals the marginal benefit of search, i.e. the expected gain in lifetime utility from an additional unit of effort, weighted by the probability that an arriving offer comes from a firm better than j.

Two comparative statics follow directly from Equation 1.8. First, equilibrium search intensity s_i^* is increasing in θ_i: all things equal, high-productivity workers have a stronger incentive to search because a higher $\phi(\theta_i)$ raises the marginal product of search effort. Second, search intensity is decreasing in T_j and current utility u. As T_j rises toward $\bar{T}$, the integration domain $[T_j, \bar{T}]$ shrinks, so workers near the top of the job ladder search less because they are already working at one of the best firms and have little gains to expect from moving.

Job Mobility. I then derive the mobility rate of worker i, i.e. the rate at which they successfully move to a better firm. Using the job arrival function $\lambda(s_i, \theta_i)$, a move actually occurs when the arriving firm has productivity strictly above T_j, which happens with probability $\bar{\Gamma}(T_j)$. Hence, the mobility rate of worker i currently at firm j is:

$$m_{ij} = \lambda \cdot \phi(\theta_i) \cdot s_i^* \cdot \bar{\Gamma}(T_j) \tag{1.9}$$

Conditional on moving, hours and wages adjust following the static bargaining problem. Hours solely depend on the firm's technology T_ℓ and the worker's type θ_i, i.e. the poaching firm sets hours at the efficient level given its own technology, regardless of where the worker came from (Di Addario et al., 2023). Simultaneously, the wage must be set, by adjustment of k_j, so that the resulting flow utility equals $u_{i\ell,j}^{\text{poaching}}$. Note that the wage can thus decrease through the job change, in particular if hours move closer to the preferred level of hours at the initial level of wage.

Model Predictions. The model generates three sets of predictions. First, whether a worker is constrained depends on firm characteristics. Specifically, workers are more

[6] See Appendix C.1 for the proof.

likely to be constrained in firms with a low α_{ij}, i.e. firms where an extra hour of work generates little additional revenue. The relation of the elasticity parameter with the productivity of the firm T_j is unclear. As T_j increases, bargained hours increase, but so do bargained wages, which may update workers' preferences towards longer hours (depending on the specification of u_i). Moreover, the profit margin p_{ij} is also likely to be correlated with T_j. Hence, the relation between hours constraints and firm's quality is ambiguous, and should be studied in the empirical section.

Second, the effect of being constrained on job mobility is also ambiguous. Constrained workers have stronger incentives to search for a better job: they have more firms to move up to, and the utility cost of working too few hours makes other jobs job more valuable (Equation 1.8). On the other hand, they face search frictions and implicit queuing at the top of the distribution, which can offset their stronger incentives to move. All in all, the net effect of constraints on mobility is ambiguous and remains an empirical question.

Third, when a constrained worker moves to a better firm, their hours should increase, since the poaching employer sets hours efficiently given its superior technology T_j. Earnings also increase to ensure that the worker has a higher utility despite working more, but the effect on hourly wages is uncertain. Because the poaching wage is set to match the maximum utility at the incumbent firm, some of the gain in earnings from working more hours may be offset by a lower hourly wage.

3 Context and Data

In this section, I present the main aspects of the French working time regulation that are relevant for the study of hours constraints, as well as the data used throughout the paper.

3.1 French Working Time Regulation

A large range of rules and mechanisms shape French working time regulation, mostly stemming from the *Lois Aubry*, implemented between 2000 and 2002, which introduced the 35-hour workweek[7]. The standard workweek is set at 35 hours, below which part-time contracts typically operate at fixed fractions of full-time hours (60%, 80%, etc.), while a statutory maximum of 48 hours per week applies to all workers. Working hours are primarily governed by the employment contract, as hourly-paid

[7]See Askenazy (2013) for more details.

arrangements are almost entirely absent outside a few industries. Part-time work concerns employees whose contractual hours are below the 35-hour reference duration. A key institutional feature is that part-time and full-time workers enjoy identical non-wage benefits, including healthcare and retirement rights, thereby eliminating any non-monetary incentive to prefer full-time employment.

As this paper focuses on hours constraints in France, a goal is to understand whether workers have legal ways to adjust hours in their job. The main way to do so is through overtime hours, hours worked above the contractual level, which can be performed within the limit of 220 hours per year. Overtime hours can be compensated in two different ways: either through a wage premium, as in many countries, or through additional rest (half-)days (*réduction du temps de travail*, RTT). Crucially, their completion yet solely depends on employer's decision, following the legal principle of *"employer as only judge"*. As a result, workers lack any legal authority over their overtime hours.

The system of overtime hours was primarily designed to respond to temporary activity shocks, but can also be used to lengthen the workweek permanently, typically when compensated by RTT days. The 35-hour reference duration is then annualized by redistributing extra weekly hours across the year, ensuring that the total annual hours remain equivalent to those of an employee without overtime. As introduced, the *RTT* scheme is unlikely to address the needs of constrained employees, as it reorganizes rather than increases weekly hours. However, employees do have options to convert these rest days into additional income, either by using a time savings account[8], or by requesting direct compensation from their employer. The *RTT* scheme can thus theoretically serve as a mechanism to adjust annual earnings and hours.

The overtime system applies to both part-time and full-time workers[9]. Another concern is the capacity for involuntary part-time workers to move to a full-time job. The French Labor Code[10] states that incumbent part-time workers have to be informed about full-time vacancies in their job category by their employer and have priority to fill them. However, employers may reject such changes if they can justify

[8]The *Compte épargne-temps*, or time savings account, allows the employee to accumulate paid leave entitlements or to receive remuneration (immediate or deferred), in return for leave or rest periods not taken. The establishment of this system in the firm is yet non mandatory.

[9]The terms *heures complémentaires* and *heures supplémentaires* are respectively used for part-time and full-time workers to denote overtime hours.

[10]See Article L3123-3.

that it would harm the firm's activity[11]. Then, involuntary part-time work is also, to a large extent, contingent on employer-driven choices.

Finally, some employees are on a *forfait* ("package") system, which means they have established with their employer an agreement to spread out the periods for measuring working time. The most common type, *forfaits jours*[12], is an arrangement that allow employers to count working time by days, hence not to have to monitor hours of their workers. Forfaits jours are distinguished by the high flexibility granted to workers in organizing their work, but come with a risk of excessive workweeks. They are therefore restricted to employees who are autonomous in organizing their schedules (e.g journalists, corporate executives) and heavily regulated. Hence, because this type of arrangement concerns a limited number of high-wage occupations and requires the employer's agreement, it cannot provide a solution to most underemployed workers.

In summary, this regulatory framework highlights that employers have important leeway in determining the number of hours of their employees, typically choosing to rely more on full-time jobs or overtime hours. On the other hand, workers do not have much margin to adjust their hours without the consent of their employer, which can lead to discrepancies between workers' preferred and actual working hours. Overall, hours constraints cannot be legitimated solely by the French working time regulation as adjustment can be made by employers. The rest of the paper examines different channels to explain why workers in practice cannot easily switch to a full-time job or work overtime hours.

3.2 Data

I mobilize for the period between 2003 and 2023 two classic data sources for the study of the labor market in France: the French Labour Force Survey, the *EEC*, and the French matched employer-employee dataset, the *DADS*[13]. Furthermore, both sources are used to build a newly matched dataset, the $EEC \times DADS$ which combines their information at the individual level. Beyond its purpose for this paper, this unique linkage constitutes an important contribution to the integration of survey and administrative datasets.

[11]Following a dispute in October 2023, the *Cour de Cassation*, the French supreme court for civil and criminal cases, reinforced the claim that employers must be able to explain their decision.

[12]In 2024, 17% of salaried workers were working under a *forfait jours* agreement. See Breda et al. (2025) for more on this topic.

[13]To be consistent with previous work, e.g. Godechot et al. (2025) or Bergeaud et al. (2025), I refer to this data as DADS with a slight abuse of notation, as its official name is *Base Tous Salariés* (BTS).

3.2.1 French Labour Force Survey (EEC)

The *Enquête Emploi en Continu* (EEC) is a large-scale nationally representative survey conducted by the French National Institute of Statistics and Economic Studies (*Insee*). Like every other European Labour Force Survey, it complies with the guidelines of the International Labour Organization (ILO) and of Eurostat. Designed to provide a thorough understanding of the labor market dynamics, the EEC collects detailed information on workers' characteristics at a quarterly frequency for a maximum period of 6 quarters. Reported variables include standard demographic and labor market indicators such as age, municipality of residence, occupation, and labor earnings, as well as a broad range of measures capturing worker preferences. The occupation classification system underwent two revisions during the observation period, in 2008 and 2020. I harmonize occupation codes throughout the entire period using correspondence tables provided by Insee[14]. The EEC includes two measures of hours worked, the central outcome of this paper, reported usual hours worked and the number of hours worked during the reference week in which the worker is surveyed, which I do not use in the main text of the paper[15]. The EEC sample consists of 112,523 part-time workers and 512,944 full-time workers, after restricting to non-agricultural salaried workers between 18 and 64 years old with non-missing hours worked and an hourly wage between 0.8 and 1000 times the hourly minimum wage. Most importantly, the survey contains specific variables that I use to provide direct measures of preferences on hours worked.

Hours preferences are measured using binary responses to questions STPLC and STMN, respectively asking workers whether they *"want to work* [more/less] *hours with a corresponding* [increase/decrease] *in earnings"*. Workers who report wanting to work more or less are respectively denoted as constrained *from above* or *from below*, following the terminology of Lachowska et al. (2026). Workers who answer no to both questions are referred to as *unconstrained*. The specification *"with a corresponding income variation"* is designed to elicit workers' optimal hours at their current hourly wage, consistent with traditional labor supply models[16]. The nonresponse rate is less than 1%, making this variable well-suited for analysis. When individuals respond affirmatively to either question, they are subsequently asked *"the number of hours that they would ideally work with a corresponding income variation"*. This follow-up question

[14]When the correspondence tables do not provide a perfect 1-to-1 match at the 4-digit level (497 values), I assign observations to the most common occupation code in the new classification.

[15]Usual hours worked are only used in Appendix B1 and B2 for robustness checks over the validity of variables on worker preferences and paid hours worked.

[16]See Jarosch et al. (2025) for a more thorough discussion of that point.

yields a measure of desired hours for constrained workers, providing an intensive margin component to the measure of hours constraints. In the group of workers constrained from above, I define as *involuntary part-time* workers the individuals who work part-time and report desired hours per week superior or equal to 35, the full-time frontier. More than 70% of part-time workers constrained from above are in this case.

Importantly, the wording of the question associated with the variable STPLC, on which much of the empirical work is based, underwent one substantive change. From 2003 to 2012, the question was framed with reference to the specific survey reference week, asking whether the respondent wished to work more hours *during that particular week*. Starting in January 2013, following a comprehensive questionnaire redesign, the question was broadened to ask whether the respondent would like to work more hours with a corresponding increase in income without any temporal anchor. According to INSEE's own documentation (INSEE, 2014), this change in framing raised the measured stock of underemployed workers by approximately 200,000 persons, constituting a well-documented series break. A further restructuring of the questionnaire took place in 2021 to comply with the new European regulation, which reorganised question modules and introduced internet self-administration, but did not alter the conceptual scope of STPLC.
The presence of a break in 2013 is addressed in two complementary ways. First, all regressions include year fixed effects, which absorb any level shift in STPLC that is common across workers in a given year. Second, as a robustness check in Section 4.1, I apply a multiplicative correction that anchors on the post-2013 methodology and rescales the 2003–2012 segment so that December 2012 and January 2013 are level-consistent (Figure A.2). This correction allows to represent the long-run descriptive picture of hours constraints.

Similar questions appear in other Labour Force Surveys, and have been frequently used to measure hours preferences in previous research (see e.g. Gaini and Vicard (2012); Beckmannschagen and Schröder (2022); Asai (2024) or more recently Jarosch et al. (2025)). However, the reliability of the answers can be questioned as common survey biases apply here (see Stantcheva (2023)). Understanding how workers perceive questions regarding the distance to their ideal hours, and whether their answers are truly indicative of constraints, is a priori challenging. Validity concerns are addressed to a certain extent by exploiting other survey information from the EEC. For instance, 95% of workers who report being constrained from above report their availability to work more, the share being slightly higher for part-time workers.

Also, 89% of them want to adjust their hours in their current primary job and, in the case of part-time workers, are less prone to look for a secondary job. This provides evidence that answers do not reflect mere preferences that are not in regard to real-life constraints (e.g. child caring). These workers have internalized their work environment and are ready to work more, preferably in their current main job. Appendix B1 presents additional evidence on work motivations, persistence of preferences and worker mobility over the 6 quarters of observation to discuss the interpretation and reliability of this variable. It also includes descriptive statistics regarding the distribution of desired hours in the sample.

Importantly, I use a version of the French Labour Force Survey that provides access to the establishment's identifier (the *SIRET*) for each worker's place of employment, as coded by Insee based on information from the worker's payslip. This feature, which to my knowledge is unique to the French version of the survey, is crucial to this study. The remainder of the paper considers only individuals for whom the *SIRET* information is available — 82% of the original sample. This source of data enables the study of hours constraints reported by each worker while accounting for firm-specific effects, a contribution that lies at the heart of this paper.

3.2.2 French Matched Employer-Employee Dataset (DADS)

The second source of data is the French matched employer-employee dataset *Base Tous Salariés* based on social security records (the *Déclarations Annuelles de Données Sociales / Déclaration Sociale Nominative*) and hereafter called *DADS*, notoriously used in Abowd et al. (1999). This dataset is constructed by Insee at an annual frequency, based on administrative employer reports (mandatory for each employee subject to French payroll taxes) containing information on characteristics of the worker. In particular, it includes their income, paid hours worked, and length of employment spell. I use the *Fichiers Postes* version of the *Base Tous Salariés*, an exhaustive version that covers all jobs in the entire salaried workforce in each calendar year. The chaining procedure described by Godechot et al. (2025) is then used to build a quasi-exhaustive DADS panel dataset over the period between 2003 and 2023, which enables the observation of employer-to-employer transitions for almost the entire workforce.

Using employer-reported paid hours worked as a measure of actual hours worked raises methodological concerns. Paid hours, as reported in the DADS, include all remunerated periods, i.e. not only regular working weeks but also paid leave. Hence,

this definition tends to reflect contract hours and may a priori not be able to capture small adjustments. Appendix B2 assesses the quality of hours worked data by reproducing the approach of Lachowska et al. (2022) on Washington state administrative data, augmented with features specific to the French labor regulation and the data I use[17]. The implemented tests suggest that the quality of the data is comparable to the data used in Lachowska et al. (2022). As expected, paid hours tend to be quite concentrated around the reference duration (about 30% of the population works the equivalent of 35 hours per week) but there remains substantial variation likely driven by part-time work and overtime hours.

A particular feature of French working time regulations, presented in Section 3.1, requires special consideration. *Forfait jours* contracts, covering approximately 17% of the workforce in 2024, measure working time in annual days rather than weekly hours. Under this arrangement, employers are not required to monitor or report actual hours worked in DADS records[18]. Insee addresses this data gap by imputing standardized annual hours (typically 1,820 or 2,200 hours depending on the year) of these workers, identifiable through the UNITMESUREREF variable since 2017. Given that these imputed values do not reflect actual working time and would introduce systematic measurement error into the analysis, workers in occupations with a large share of *forfait jours* contracts are excluded from the sample throughout most of the paper, with exclusions explicitly noted. This restriction barely affects the sample of, primarily low-skilled, constrained workers as this type of contracts is only available to high-skill workers with strong autonomy in their job, e.g. journalists or consultants.

3.2.3 EEC $\times$ DADS Sample

Finally, I adopt a fuzzy matching approach to link together the EEC and DADS datasets and build a unique new dataset. Given the quasi-exhaustive nature of the DADS data on employment spells, most individuals surveyed in the EEC should appear in the DADS. In addition, workers should be identifiable based on information, supposedly consistent across sources, on age, sex, occupation, part-time/full-time work, birth department, birth month (only between 2009 and 2012), residence municipality, and, crucially, establishment's ID. This information is

[17] In particular, the linkage of EEC and DADS datasets allows me to compare employer-reported and employee-reported hours for the same worker. Such comparisons have already appeared in previous research by Frazis and Stewart (2010). This work yet stands out as I rely on a much larger sample and on an administrative source of information on the employer's side.

[18] Breda et al. (2025) provides more background on this type of contracts and addresses the implications of workers' misperceptions about them on working conditions.

thus mobilized to build a correspondence table between individual identifiers of both datasets. The procedure works as a "1-to-1"[19] matching algorithm on common variables, i.e. workers surveyed in the EEC are identified in the administrative records based on precise identical information across sources. This linkage is made possible by the presence in the EEC of the worker's establishment's ID (the *SIRET*). Importantly, the method used here relies on fuzzy matching, and thus can theoretically lead to errors in the linkage of IDs. However, I reckon that the high precision of variables used and the conservative decision to remove all "1-to-many"[19] matches ensure a reliable linked dataset. The linkage is performed for every year between 2003 and 2023, keeping all quarterly information from the EEC and yearly information on all employment spells from the DADS. Appendix B3 details the entire matching procedure.

The operation yields a sample of 435,472 perfectly matched individuals between 2003 and 2023, a coverage of 67% of the EEC sample of employees[20] on this period. Cases where individuals cannot be matched across sources occur for three main reasons: (a) the establishment's ID is missing or incorrectly reported by the worker, (b) individuals are dropped during the cleaning process of the DADS as their information on hours or earnings is missing, (c) multiple workers cannot be distinguished based on the matching variables. The quarterly nature of the EEC and the linkage of all DADS employment spells (including secondary jobs) over the period imply multiple observations per worker and year, hence generating a sample of 1,695,359 observations. This sample, hereafter denoted as the EEC-DADS sample, shows reasonably representative as described by summary statistics in Table A.1. The most striking disparity with respect to the original EEC sample is the sizable under-representation of constrained part-time workers (representing 26% of part-time workers in the EEC-DADS sample against 34% in the original). This likely occurs because this population tends to hold more precarious positions with lower compliance on administrative duties, thus affecting the reliability of their information in both sources. As a result, the hours constraints that affect the part-time population in the EEC-DADS sample should reflect more stable and structural constraints than those in the original EEC sample. This is consistent with validity checks in the data: part-time workers who wish to increase their hours hold a permanent job more frequently (72% against 60% in the original sample) and have more experience in

[19] I refer to a "1-to-1" match in this context to describe a situation where exactly one worker in the DADS dataset corresponds to exactly one worker in the EEC dataset based on identical values for the specified matching variables. Likewise, a "1-to-many" match depicts a situation where multiple workers in the DADS dataset corresponds to a unique worker in the EEC.

[20] After removing observations with missing number of hours worked or missing establishment's ID.

their current firm (76% have more than 1 year against 70% in the original sample).

Then, 92% of the workers in the EEC-DADS sample are connected, using their yearly DADS identifier, to the previously chained DADS panel between 2003 and 2023. This dataset is denoted as the *EEC-DADS Panel*. As discussed in Godechot et al. (2025), the DADS panel is not fully exhaustive, which explains why some workers of the EEC-DADS sample cannot be recovered. Their chaining procedure is based on the presence for each individual of information on the current and the previous year of observation, so that workers who are not employed for one calendar year cannot be chained. Hence, the procedure is likely not able to capture very precarious workers who jump in and out of employment, but rather focuses on relatively stable salaried workers. The EEC-DADS Panel combines for each individual EEC-based information over 6 quarters of observation, hereafter the *EEC period*, and DADS-based information over the period of appearance in the panel. In other words, it contains information on individual preferences in terms of hours over a short period of time and on their employment history over a long period. The particular structure of this dataset is illustrated in Figure A.1. The EEC-DADS Panel gathers information on 399,553 individuals appearing 10 years on average in the panel, sometimes with multiple spells of employment over one year, resulting in a total of 9,734,018 observations.

This unique dataset paves the way for new empirical work on the topic of hours constraints by combining a self-reported measure from the Labour Force Survey with the panel dimension and reliability of administrative employer-employee datasets. Beyond this study, this dataset has potential applications across a wide range of research purposes, as the Labour Force Survey includes extensive information on various topics.

4 Sorting of Constrained Workers

This section provides empirical evidence on the sorting of constrained workers by exploiting an individual survey-based measure linked with employer information. Section 4.1 presents the main characteristics of workers who report being constrained in their hours, as well as their distribution across occupations and industries. Section 4.2 examines the role of firm sorting in shaping hours constraints. Section 4.3 tackles the remaining variation in hours between constrained workers and workers from the same workplace.

4.1 Descriptive Statistics

As a first step to the empirical part, I examine the characteristics of workers who report desired hours above their current level. As presented in Section 3.2, three groups of workers are distinguished based on their answer to questions regarding hours preferences in the Labour Force Survey: workers *constrained from above* who report that they ideally want to work more hours at their given wage rate, workers *constrained from below* who report that they ideally want to work less hours at their given wage rate and *unconstrained* workers who report no will to work different hours at their given wage rate. The defined groups respectively represent 19%, 2.5% and 78% of the Labour Force Survey sample between 2003 and 2023. This indicates that nearly one out of five salaried workers is constrained from above, while the share of workers constrained from below is minimal[21]. For this reason, the term *constrained* is used in the rest of the paper to refer to the former situation.

The French working time regulation splits employees in two groups based on their working hours. Workers who are hired in a contract with strictly less than 35 hours per week are part-time workers, while others are full-time workers. This distinction between both types of workers is conserved throughout the paper as the profile of hours preferences differs in both groups. Part-time workers are largely over-represented in the constrained population: 34% of part-time workers report wanting to increase their hours, against 17% in the full-time group (see Table A.1). In addition, about 70% of constrained part-time workers are involuntary part-time workers, i.e. they would ideally work as full-time employees, as derived from their desired hours[22].

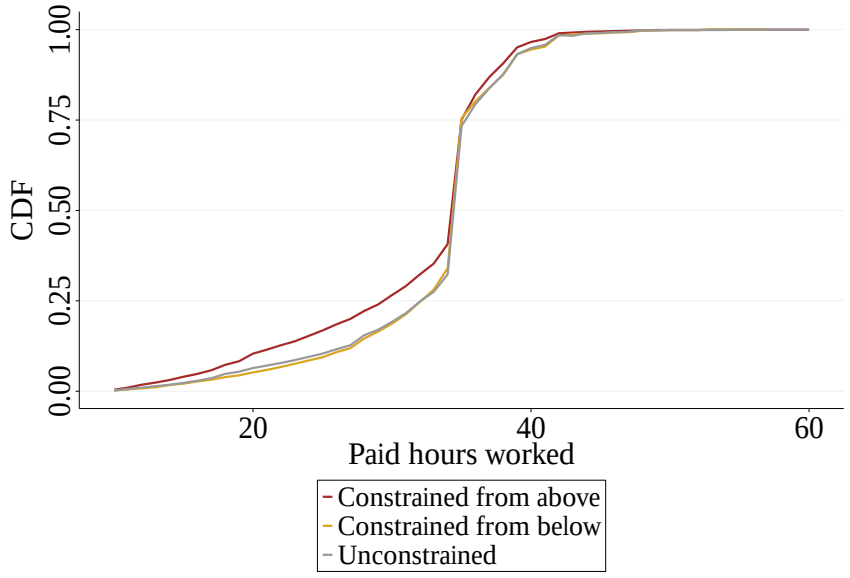
Figure 1.1 displays the cumulative distribution functions of paid hours worked by group of hours preferences. The sample used is the matched EEC-DADS sample in order to use paid hours from the administrative data rather than reported usual hours worked. Workers who want to increase their hours work significantly fewer hours than others, essentially because of the over-representation of part-time workers. In the full-time zone, the three curves are very close, with constrained-from-above workers working only about 0.1 hour per week less than other groups. It means that constrained full-time workers do not significantly differ

[21] This stands in sharp contrast with the prevalence of overwork in the German case, as documented by Jarosch et al. (2025). As mentioned in Cohen et al. (2025), the distributions of desired hours are similar across countries but actual hours are higher in Germany, hence the difference in the direction of constraints.

[22] This corresponds to the PTWFT category in previous work on underemployment (Bell and Blanchflower, 2021).

from other full-time workers in terms of hours worked. The figure thus acknowledges a difference in the interpretation of preferences across both types of workers. Part-time workers who want more hours primarily aim to secure a full-time job, the standard employment status in the labor market, to ensure decent conditions of living. On the other hand, full-time constrained workers already have this status and tend to work about the same number of hours as any other worker. Their report thus relates more to particular hours preferences than to being constrained to short-hour jobs. Self-reported underemployment is therefore a weaker signal for full-time workers, and the rest of the paper primarily focuses on the case of part-time constrained workers.

Figure 1.1: Hours Worked by Group of Worker Preferences



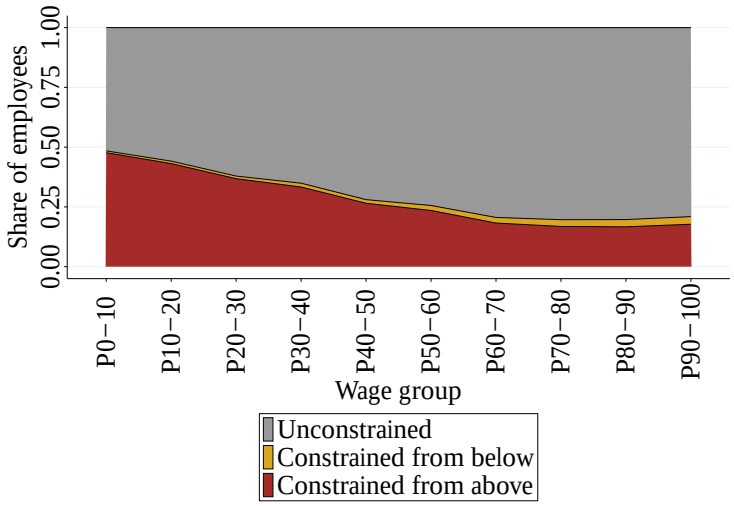
Note: The figure shows the cumulative distribution functions of paid hours worked by group of worker preferences in the EEC-DADS sample. Three groups are considered based on their answers to the following questions in the surveys: *"do you want to work* [more/less] *hours in your job with a corresponding income variation?"*. "Constrained from above" workers report that they want to work more hours ; "Constrained from below" workers report that they want to work less hours ; "Unconstrained" workers answer no to both questions. Hours worked are paid hours from the DADS recomputed as full-year equivalent.

Figures 1.2a and 1.2b illustrate how the shares of constrained workers vary in the (hourly) wage distribution, separately for part-time and full-time workers. Both figures show that hours constraints are sizable and that the probability to want more hours is regressive in wages, particularly in the part-time case. At the bottom of the distribution, about half of part-time workers are constrained. A simple interpretation is that some workers aim to increase their earnings through hours worked to compensate for low wages (consistently with Figure B.1b), i.e. a cross-sectional "income effect" is at work. Conversely, the probability to be constrained from below is

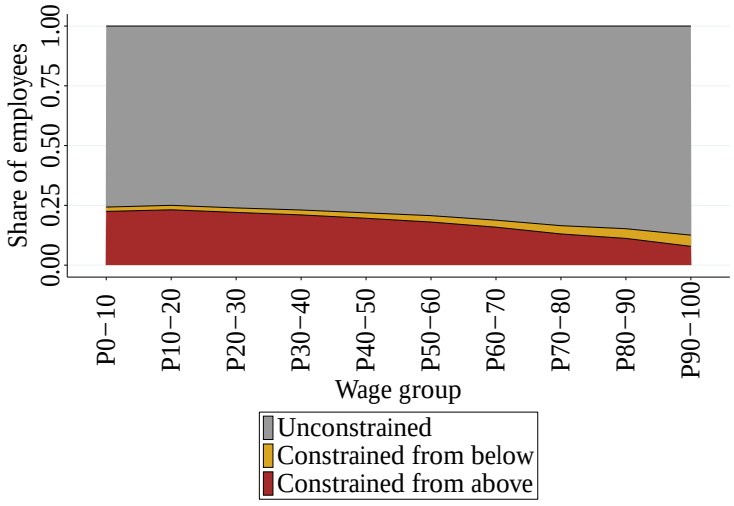
positively correlated with wages, though it remains marginal even at the top of the wage distribution.

Figure 1.2: Worker Preferences in Hours in the Wage Distribution

(a) Part-Time



(b) Full-Time



Note: The figures show the distributions of worker preferences based on Labour Force Surveys pooled between 2003 and 2023. Three groups are considered based on their answers to the following questions in the surveys: *"do you want to work* [more/less] *hours in your job with a corresponding income variation?"*. "Constrained from above" workers report that they want to work more hours ; "Constrained from below" workers report that they want to work less hours ; "Unconstrained" workers answer no to both questions. Wage deciles are defined within year and employment status (part-time/full-time).

Table A.3 presents further details about the composition of each group, although it is well summarized by the relation with wages. Determinants of being constrained from above include being young, low-skilled, born outside of France, employed in a private sector firm, employed in a small firm and in a non-permanent contract. The subgroup of involuntary part-time workers is very different from the rest of

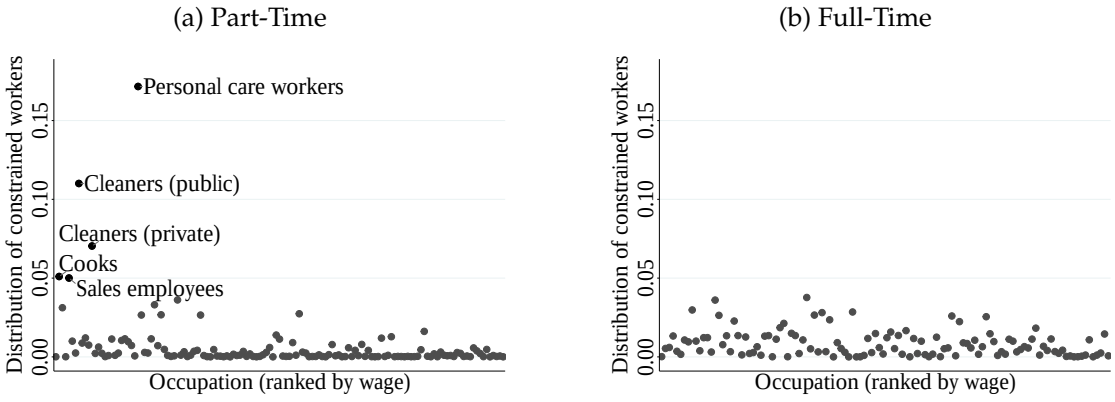
constrained workers. For instance, women, mostly working in low-skill tertiary jobs, represent a large majority (77%) of this group. Note that secondary employment remains marginal even among involuntary part-time workers, which suggests that constrained workers do not accept a part-time job in order to combine it with a secondary job.

A natural concern when studying hours constraints is whether their prevalence reflects structural features of the labor market or simply tracks business cycles. In this regard, Borowczyk-Martins and Lalé (2020) show in the US context that involuntary part-time employment is strongly countercyclical, reflecting that some employers tend to adjust their workers' hours downward rather than destroy jobs during recessions. To assess this, Figure A.2 plots the quarterly share of workers reporting that they want to work more hours over the 2003–2023 period. Before doing so, however, I need to address a methodological break in the French Labour Force Survey that generates an artificial discontinuity in the raw series. As explained in Section 3.2.1, a change in the questionnaire wording introduced in January 2013 produces a sharp upward jump in the measured share of constrained workers that is inconsistent with any plausible labor market development. To recover a comparable series over the full period, I apply a multiplicative correction anchored on the post-2013 methodology: the 2003–2012 segment is rescaled so that its level in December 2012 matches that of January 2013 using the survey reference week date. The corrected series reveals a broadly stable share of constrained workers throughout the period, with no clear cyclical pattern. If anything, the corrected series suggests a mildly procyclical pattern, with the share of constrained workers reaching its peak during the relatively high-growth years of 2003–2007. A simple regression of the annual share of constrained workers on GDP growth yields a positive but statistically insignificant coefficient. The evidence is thus more consistent with hours constraints being a structural feature of the French labor market than a cyclical one.

To end this section, I focus on the relation between occupations and hours constraints. Prior research (Altonji and Paxson, 1986) has often considered that working hours are largely occupation-specific. For instance, assembly line workers exhibit strong uniformity in hours worked due to standardized shift schedules (such as 8-hour shifts) common in manufacturing contexts. Therefore, it seems reasonable that some workers face constraints on their hours because their jobs structurally involve shorter working periods. To address this point, I leverage information on hours constraints from the EEC at the occupation level.

Figures 1.3a and 1.3b represent the probability density function (PDF) of constrained workers, split by working time status, across occupations at the 3-digit level (110 values). Each dot represents one occupation and the y-axis corresponds to the share of all constrained workers who work in that occupation. First, part-time workers who want more hours are heavily concentrated in low-wage jobs. In particular, five occupation groups (personal care workers, cleaners in the public and private sector, sales employees, cooks and waiters) account for half of constrained part-time workers. On the other hand, constrained full-time workers are relatively uniformly distributed across occupations with no clear concentration in low-wage jobs. Occupations with a strong concentration of constrained part-time workers are notorious for their relatively high reliance on part-time employment, but still employ a non-marginal proportion of full-time workers. Figure A.3 plots the cumulative density function (CDF) of paid hours in each of the five main occupations for constrained part-time workers, with the vertical red line representing the frontier between part-time and full-time work. While only 16% of personal care workers are employed at full-time, the shares of part-time and full-time work are balanced in other occupations. In addition, using the DADS data and a simple decomposition, I find that 81% of the variance in paid hours remains within occupations at the 3-digit level. This shows that schedule rigidities specific to certain tasks cannot explain the degree of hours constraints, in particular involuntary part-time work, in most occupations.

Figure 1.3: Distribution of Constrained Workers by Occupation



Note: The figures show the distributions of constrained (from above) workers across occupations for part-time and full-time workers. Data is based on Labour Force Surveys pooled between 2003 and 2023. Each dot corresponds to an occupation (ranked by average wage) at the 3-digit level in the PCS classification (110 values). Average wages are computed from the DADS data between 2009 and 2019, separately for part-time and full-time workers. The y-axis indicates the proportion of the population constrained from above that works in a given occupation.

This section establishes that workers who want to increase their hours work on average less hours than other workers. This gap is almost entirely driven by the higher proportion of part-timers, as average hours of full-time workers are broadly similar across groups of preferences. For full-time workers, to want more hours then mostly reflects idiosyncratic preferences rather than a particularly low level of hours, i.e. constrained workers are, by and large, workers with regular hours who want to work above-average hours. The situation is different for constrained part-time workers, as most of them want a regular full-time job, the benchmark of the labor market, but cannot access them. Underemployment thus carries a different interpretation in both groups. The section also shows that constrained part-time workers are concentrated in a small number of low-wage occupations, but that the latter occupations have, at least, a decent share of full-time workers. This suggests that hours constraints do not fully coincide with occupation-specific requirements but rather depict a segmentation between workers doing the same job. The next section examines whether firm sorting captures this segmentation.

4.2 Firm Sorting

This section studies the role of firm-specific effects in the phenomenon of hours constraints. I take advantage of the presence of establishments' IDs in the French Labour Force Survey to examine the distribution of constrained workers across firms. This approach complements recent work by Labanca and Pozzoli (2023) on the role of firms in hours constraints by using survey-based evidence of underemployment. Here, I also connect worker hour preferences with employer hour policies, a relation at the heart of Lachowska et al. (2026)'s work, by which this section is largely inspired. The section further provides evidence on the interaction between firm effects and occupational effects, i.e. the extent to which firm heterogeneity explains variation in hours within occupations.

To capture firm-specific preferences for hours, I use firm effects estimated from the AKM specification (Abowd et al., 1999), using hours worked as the dependent variable. These effects provide a measure of a firm's premium in hours and are commonly interpreted as employer hour policies (Lachowska et al., 2026). Using a

separate AKM specification, I also estimate firm effects on hourly wages, the original dependent variable used by Abowd et al. (1999). Firm wage effects have been shown to be strongly correlated with firm productivity measures, with more productive firms paying higher wages (Card et al., 2013; Carlsson et al., 2016). In the following, I connect hours constraints to these two types of firm-specific features.

AKM Estimation. As in Babet and Chabaud (2024), I use a chained DADS panel between 2005 and 2019, quasi-exhaustive of the French salaried workforce, and apply several restrictions to the sample[23]. Hours worked are annualized paid hours, and wages correspond to real net hourly wages. The sample is also restricted to the largest weakly connected set of firms, as is common in this literature (Card et al., 2013). The estimation sample contains 29,824,763 workers and 1,318,726 firms, and covers 92% of firms that appear in the EEC-DADS sample between 2005 and 2019[24]. The following model is fitted:

$$y_{it} = \phi_i + \psi_{j(i,t)} + X_{it}\beta + u_{it}$$

with y_{it} the logarithm of the outcome (either hours or wages) of worker i in year t. ϕ_i is the fixed effect of worker i, and $\psi_{j(i,t)}$ is the fixed effect of firm j, the employer of worker i during year t. Time-varying covariates X_{it} are limited to fixed effects for years and age as a cubic polynomial. u_{it} is the idiosyncratic error term. This model can be used to decompose the variance in hours and wages into components associated with worker and firm heterogeneity and sorting, as done by Babet and Chabaud (2024) with the same data[25]. The goal here is rather to use the estimated firm effects for their interpretative value. Figures A.4a and A.4b show an event study check popularized by Card et al. (2013) to assess the plausibility of exogenous

[23]Workers aged between 18 and 64, in ordinary jobs of more than 120 hours and 60 days, with hourly wage greater than 0.8 minimum wage and smaller than 1,000 minimum wages. I also keep only one observation per person-year so I take the annual dominant employer of the worker (defined as the employer from which the worker earns the most during the year). Occupations with more than 20% of *forfait jours* workers in the EEC between 2013 and 2023 are excluded from the sample.

[24]Uncovered firms are firms of less than 10 employees withdrawn of the sample by the connected set restriction. Despite the over-representation of constrained workers in small firms, as shown in Table A.3, the estimation allows the retrieve the AKM firm effect associated with 95% of constrained workers.

[25]They find that 15% of the variance of the (log) number of hours worked can be attributed to firm effects.

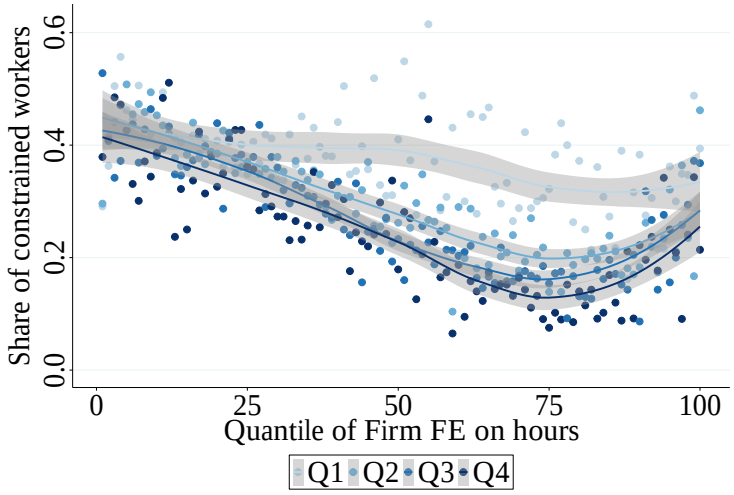
mobility in the sample, respectively for hours and wages. The symmetry of outcome evolutions suggest that the specification with fixed worker and firm effects rationalizes well employer-to-employer moves in the data.

Firm effects are split into percentiles for hours and into quartiles for wages, and each combination of hour-effect percentile and wage-effect quartile is associated with the share of workers within the cell who report being constrained from above. Each such combination thus characterizes groups of firms with similar joint policies on hours and wages. Figures 1.4a and 1.4b illustrate the relation between worker preferences and firm policies, respectively for part-time and full-time workers, and confirm differences between both types documented in previous sections. Two features stand out from Figure 1.4a, which covers part-time workers. First, the share of constrained workers is highest among firms with both low-hours and low-wage policies, and declines steadily as firms offer more hours, with a moderate upturn at the very top of the hours ranking. Second, the curve for the lowest wage quartile sits well above the others and remains relatively flat across the hours distribution, indicating that constrained workers are systematically over-represented in low-paying firms regardless of their hours policies. Figure 1.4b presents a more uniform picture for full-time workers, as the share of constrained workers is particularly stable across all groups of hours and wage firm effects, with all curves flat and confounding each other at 20%, the share of full-time constrained workers in the entire EEC sample.

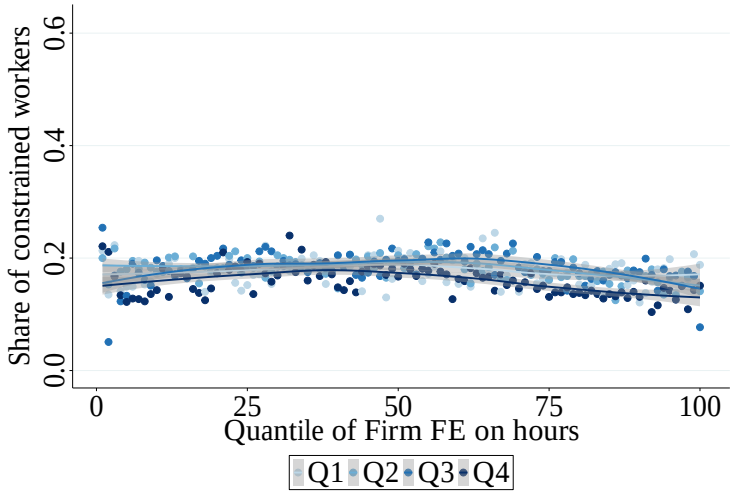
The result for part-time workers is consistent with the existence of a job ladder across firms, previously introduced in Lachowska et al. (2026) as a mechanism for hours constraints. Most constrained workers are employed in low-quality firms, with low hours and wage policies, and seek to climb the ladder to improve their earnings. Yet, the limited availability of such jobs implies that some part-time workers end up constrained. This is consistent with the theoretical framework developed in Section 2, considering that the marginal productivity of an additional hour of work reflects firm quality. By combining individual-level survey information on constraints with firm effects on hours, this figure provides prominent empirical evidence for this mechanism in the case of hours constraints. No such pattern is observed in the case of full-time workers, which I interpret as additional evidence that constrained

Figure 1.4: Hours Constraints and Firm Policies

(a) Part-Time



(b) Full-Time



Note: The figures represent the relationship between hours constraints and AKM firm effects on hours and hourly wages for part-time and full-time workers. The x-axis represents the percentile of firm fixed effect on hours, while the y-axis shows the share of workers constrained in their hours. Groups (Q1-Q4) represent different quartiles of firm effects in wages, with darker points indicating higher wage quartiles. All firm effects are estimated through an AKM decomposition. The data used is a panel based on chained DADS yearly files between 2003 and 2023. Hours worked are paid hours recomputed as full-year equivalent. Curves represent the fit of non-parametric local regressions (LOESS). Shaded areas correspond to 95% heteroskedasticity-robust confidence intervals.

full-time workers are workers in regular jobs with particular preferences.

This section highlights the role of firm sorting in the fact that some individuals are constrained in their hours while others are not. Using a simple ANOVA-style variance decomposition, I find that 52% of the total variance in hours worked is

captured by the intersection of occupation (at the 3-digit level) and firm effects. Then, while constrained workers cannot work long hours partly because of their jobs' requirements, there often exists workers with a similar profile who get to work more hours.

4.3 Local Variation in Hours Worked

Previous sections have documented the sorting of constrained workers across occupations and firms, suggesting that hours constraints partly reflect features specific to certain tasks and employers that structurally limit hours worked. This section shows that a non-negligible variation in hours remains at a *local* level, typically for a given job in a given establishment. Using the EEC-DADS dataset, I can combine administrative information on constrained workers and on other workers from the same firm. This allows me to observe where constrained workers stand in their local hours distribution and to investigate mechanisms that can explain their relative position to other workers performing the same job.

I consider workers in the DADS exhaustive records who work in the same establishment (*SIRET*) and occupation as a worker identified as an involuntary part-time worker in the EEC. Given the exhaustive nature of this data, this definition should gather all simultaneous coworkers of involuntary part-time workers from the EEC sample. Note that the methodology does not capture coworkers' preferences but instead provides a comprehensive view of the hours distribution surrounding constrained workers. The goal is to understand why some workers work more hours, or have a full-time job, while similar workers are unable to do so. Occupations are defined at the 2-digit level (28 values), which, in a given workplace, ensures a comparison to similar workers. I consider the 2-digit rather than the more precise 3-digit level, in order to include all years between 2003 and 2023, across which the PCS classification is not consistent at the 3-digit level. I apply filters to the data similar to Babet and Chabaud (2024) to ensure the relative stability of coworkers in their job[26]. After restrictions, the dataset is composed of 11,689,428 observations of

[26]Workers are aged between 18 and 64, have a stable working contract (*CDD* or *CDI*) lasting at least 60 days, with annual hours above 120, and hourly wage between 0.8 and 1,000 times the minimum wage.

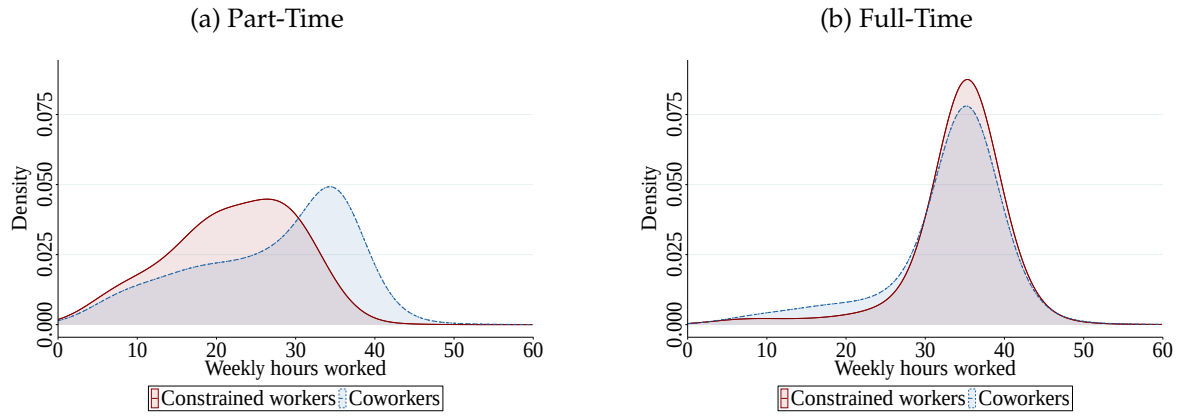
coworkers. Out of the 124,916 constrained workers in the EEC-DADS sample, 101,622 (81%) have at least one worker in the same establishment × occupation × year, including 16,202 involuntary part-time workers. The sample of constrained workers here is implicitly restricted to typical salaried workers who work in a workplace with other workers. Certain occupations with strong hours constraints, e.g. personal care workers, are likely not captured in this section.

Using the triplet establishment × occupation × year as the definition of a job, a simple variance decomposition yields that 42% of the total variance in hours remains within-job. Figures 1.5a and 1.5b plot the kernel density estimates of weekly hours worked separately for constrained workers and their coworkers, for part-time and full-time workers respectively. To account for the unequal number of coworkers across firms, the coworker distribution is constructed using inverse group-size weights, so that each constrained worker's coworker group contributes equally to the coworker distribution. For involuntary part-time workers, the distribution of hours is shifted to the left relative to that of their coworkers, indicating that constrained workers tend to work fewer hours even within the same job. In addition, 85% of involuntary part-time workers share their job with at least one full-time worker, and in those jobs the average share of full-time workers is 55%. Involuntary part-time work thus does not stem from an absence of full-time work within the firm, but instead relies on worker-level differences in hours worked. Full-time constrained workers tell a different story. By construction, their hours distribution sits above that of their coworkers, since this group includes part-time workers. When restricting the comparison to full-time coworkers, there is no significant difference between the two curves. The full-time hours distribution is also more compressed, e.g. 6% of full-time coworkers work more than 40 hours per week[27]. Hence, there is limited scope for hours increases within full-time jobs without a change of job or occupation.

The evidence from Figure 1.5a points to a form of within-firm worker segmentation, whereby part-time and full-time workers coexist in the same jobs, yet some workers remain stuck in part-time arrangements. This raises the question of why certain workers fail to secure a full-time job when such jobs demonstrably exist within their

[27] This threshold is arbitrarily chosen as it is the most common target reported by full-time constrained workers.

Figure 1.5: Distribution of Hours Worked by Constrained Workers and Coworkers



Note: The figures plots kernel density estimates of weekly hours worked for constrained workers (solid line) and their coworkers (dashed line). Panel (a) displays part-time constrained workers; panel (b) displays full-time constrained workers. The coworker distribution is constructed using inverse group-size weights, whereby each coworker is assigned a weight equal to the inverse of the number of coworkers associated with the same constrained worker, ensuring that every constrained worker's peer group contributes equally to the distribution.

firm. The theoretical framework introduced in Section 2 offers a rationalization of this within-firm variation in hours based on heterogeneity in worker productivity as perceived by the firm. Under this view, workers who work longer hours are regarded by the firm as sufficiently productive to justify additional costs, so that hours become a signal of the firm's assessment of worker quality. Hours constraints would then reflect not an economy-wide shortage of full-time work, but rather a firm-level mechanism that divides hours unequally between workers of the same establishment.

To investigate the mechanisms behind within-job variation in hours, I compare the characteristics of involuntary part-time workers with those of their full-time coworkers. The DADS data includes information on gender, age, type of contract (permanent or non-permanent), native or foreigner status (derived from the birth department variable), distance to workplace (based on residence and workplace municipalities[28]), and tenure in the firm (derived from the DADS Panel)[29]. Age is split as a set of five categories to allow for non-linearities, and tenure is winsorized at five years.

[28]Distances between municipalities are calculated using the Haversine formula, which computes the great-circle distance between two points on a sphere given their latitude and longitude coordinates.

[29]For this exercise, the sample of constrained workers is restricted to years between 2008 and 2023, in order to measure tenure in the firm for at least 5 years before.

Table 1.1 reports the estimated differences in characteristics between involuntary part-time and full-time workers in the same job. Each coefficient is obtained from a separate regression controlling for all other characteristics. Involuntary part-time workers differ in several dimensions. The age profile follows a clear pattern: involuntary part-time workers are significantly more likely to be under 45, with a positive and significant relationship for the 15-24, 25-34, and 35-44 age brackets, while the relationship turns negative and significant for workers aged 45-54 and 55+. This result should be interpreted with caution given the over-representation of older workers in the EEC-DADS sample (see Table A.1). Gender plays a more reliable role: being an involuntary part-time worker rather than a full-time worker is associated with a significant 14 pp higher probability of being a woman. Tenure exhibits a small negative and significant correlation with hours constraints, suggesting that workers are more likely to obtain a full-time contract after a few years in the same firm. The "Foreigner" dummy is positively and significantly associated with involuntary part-time work, indicating that foreign-born workers are somewhat more likely to be hours-constrained than their native-born coworkers in the same job, conditional on the other characteristics in the regression. Distance to commute is negatively and significantly associated with involuntary part-time status, with involuntary part-time workers living on average 5.2 km closer to their workplace. Finally, holding a permanent contract is negatively and significantly correlated with involuntary part-time work, consistent with hours constraints being more prevalent among workers on non-permanent contracts. Considering results on age and tenure, this section could hint at involuntary part-time work as a labor market entry phenomenon. Over time, workers should be able to find a better quality job, either at their current employer or by switching firms.

The study of the variation in hours around involuntary part-time workers concludes this section on how constrained workers sort across firms and jobs.A key takeaway is the non-negligible coexistence of part-time and full-time workers within the same jobs, which implies that hours are not solely determined by firm-level or occupation-level requirements. Worker-level characteristics also play a role in shaping hours allocation, a pattern that motivates the theoretical framework developed in Section 2.

Table 1.1: Within-Firm Determinants of Hours Constraints

Dependent Variable:	Age					Female	Tenure	Foreigner	Distance	Permanent
	15-24	25-34	35-44	45-54	55+					
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Involuntary Part-Time	0.025***	0.013*	0.024***	-0.028***	-0.031***	0.143***	-0.179***	0.017***	-5.218***	-0.013***
	(0.004)	(0.005)	(0.005)	(0.005)	(0.003)	(0.005)	(0.016)	(0.003)	(0.802)	(0.004)
Observations	699,991	699,991	699,991	699,991	699,991	699,991	699,991	699,991	699,991	699,991
Clusters	9,814	9,814	9,814	9,814	9,814	9,814	9,814	9,814	9,814	9,814
Adj. R^2	0.19	0.11	0.04	0.07	0.08	0.30	0.37	0.28	0.41	0.77
Controls and Fixed Effects										
Occupation × Workplace × Year	X	X	X	X	X	X	X	X	X	X
Age (Polynomial)						X	X	X	X	X
Female	X	X	X	X	X		X	X	X	X
Tenure	X	X	X	X	X	X		X	X	X
Foreigner	X	X	X	X	X	X	X		X	X
Distance	X	X	X	X	X	X	X	X		X
Permanent	X	X	X	X	X					

*Signif. Codes: ***: 0.001, **: 0.01, *: 0.05.*

Note: This table presents differences in individual characteristics between involuntary part-time workers and their full-time coworkers. The data used is the EEC-DADS sample between 2003 and 2023. The sample is restricted to occupation × workplace combinations with at least one involuntary part-time worker. The sample of coworkers is restricted to full-time employees. Occupations correspond to the 2-digit level in the PCS classification (28 values). Occupations eligible to forfait jours contracts are removed from the sample. Age is split in 5 categories to account for non-linearities. Tenure corresponds to the number of years employed in current firm and is winsorized at 5 years due to data limitations. Foreigner is a dummy variable equal to 1 if the individual is born abroad. Distance corresponds to the distance to commute (in kilometers). Permanent is a dummy variable equal to 1 if the individual holds a permanent contract (*CDI*). Standard errors are clustered at the year × workplace × occupation level and reported in parentheses.

5 Labor Market Trajectories of Constrained Workers

This section provides first evidence on the evolution of constrained workers in the labor market. The depiction of constraints as mostly driven by occupation and firm effects suggests that workers would have to switch firms to align with their hour preferences. A central analytical focus is to understand to what extent constrained workers can improve their situation through mobility. Section 5.1 studies the relation of hours constraints to worker mobility and presents descriptive evidence on the evolution of hours and earnings. Section 5.2 introduces an event-study framework to measure differential changes in hours and earnings experienced by constrained workers. Section 5.3 explores the heterogeneity behind the main findings, both in terms of worker type and mobility channels.

The entire dynamic analysis relies on the EEC-DADS Panel introduced in Section 3.2.3 and represented in Figure A.1. Similar restrictions to those used by Babet and Chabaud (2024) are applied to the sample[30] and their definition of voluntary moves is used for robustness checks. Additionally, I restrict the sample to a balanced panel of observations between 3 years before and 3 years after the last year of the EEC period. After restrictions, the sample is composed of 157,716 workers. 16.2% report wanting to work more hours in the last quarter of their EEC period. This measure of hours constraints is used in the rest of the section and the year of the last EEC quarter serves as the reference year ($t = 0$). In short, the EEC-DADS Panel maintains the same structure as the DADS Panel, supplemented with additional information from the last year of EEC survey administration.

5.1 Worker Mobility

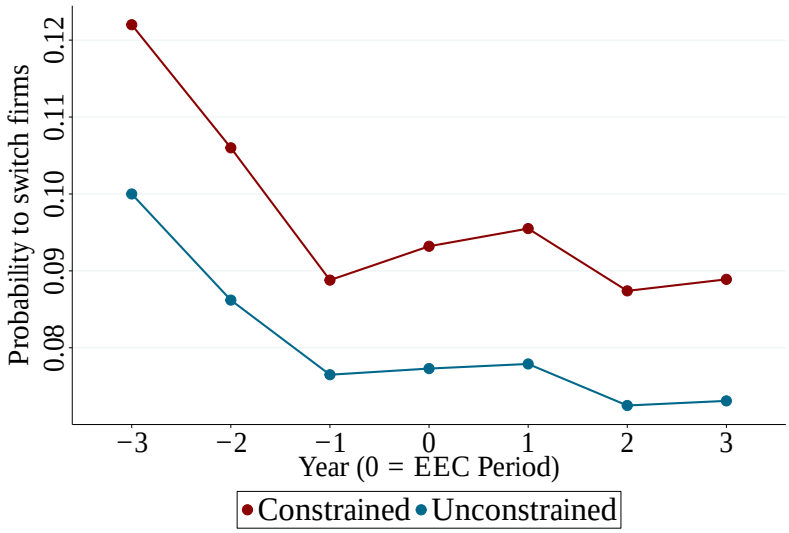
First, the focus is on the relation of hours constraints to mobility. The reference EEC employer is adjusted to the last employer reported in the EEC, thus counting any employer change right after the end of the EEC period as a move in $t = 1$. As discussed in Section 2, the relationship between hours constraints and mobility is theoretically ambiguous. On the one hand, constrained workers suffer a disutility

[30] Workers aged between 18 and 64, stable working contract (*CDD* or *CDI*), annual hours above 120, hourly wage between 0.8 and 1,000 times the minimum wage, and focus on primary employment (defined as the spell that induces highest earnings).

from working short hours, which makes them more willing to move to a job offering more hours. On the other hand, because they are more employed in low-quality firms, their job arrival rate may be lower than that of unconstrained workers, which limits their ability to move to a better job. The empirical results below can therefore be read as informative about which of these two forces dominates.

Figure 1.6 plots the probability of switching firms for constrained versus unconstrained workers, year by year around the EEC reference period. First, the group of constrained workers show a higher switching probability throughout the entire window, including the pre-period. Since this gap predates the EEC report, it likely reflects differences in characteristics between the two groups rather than a correlation with hours preferences. Yet, the gap widens around the EEC period: constrained workers' mobility reincreases after $t = 0$, while the share of moving unconstrained workers is stable through the post-EEC period. The group of constrained workers thus appear more likely to leave their firm specifically at the timing of the report, which is consistent with a disutility associated with being constrained in a short-hour jobs.

Figure 1.6: Worker Mobility in the EEC-DADS Panel



Note: The figure represents the probability of move to another firm by group of hours preferences during the EEC period. The x-axis shows years relative to the EEC period, while the y-axis displays the share of workers whose main employer is different from the year before. The data used is the EEC-DADS Panel, restricted to a balanced panel between 3 years before and 3 years after the EEC period.

Table 1.2 shows the relation with controls on demographics (including occupation)

and an employer fixed effect, thus abstracting from compositional differences between the groups. Mobility here is defined as a dummy equal to 1 if the worker switches employers at least once between $t = 1$ and $t = 3$ after the EEC period, a definition used for the rest of the paper. For this table only, the sample is also restricted to firms with at least 2 workers during the EEC period, so that an EEC employer fixed effect can be included.

The first column confirms that constrained workers are more likely to switch employers over the following three years by 2.3 pp, against a baseline mobility rate of 16%. Adding demographic and occupation controls cuts this effect roughly in half, and it disappears entirely once an employer fixed effect is added in the last specification. In other words, constrained workers do move more than the average worker, but not more than similar workers in the same firm, which fits with the compositional story suggested by the permanent gap in Figure 1.6. This last specification may, however, be too demanding given the data, and should be put into perspective: workers from the same firm are likely to face similar mobility frictions, regardless of whether they are constrained or not.

Table 1.2: Hours Constraints and Worker Mobility

Dependent Variables:	*Move in Years 1-3*		
	(1)	(2)	(3)
Constrained	0.023***	0.014**	0.008
	(0.005)	(0.005)	(0.005)
Controls and Fixed-effects			
EEC Year	X	X	X
Part-/Full-Time (EEC Period)	X	X	X
Demographics (EEC Period)		X	X
Employer (EEC Period)			X
Baseline	0.16	0.16	0.16
Share of Constrained	0.15	0.15	0.15
Observations	52,860	52,860	52,860
Adj. R^2	0.00	0.03	0.38

*Signif. Codes: ***: 0.001, **: 0.01, *: 0.05.*
Note: This table presents estimates of the relationship between groups of hours preferences and job mobility. The data used is the EEC-DADS Panel, restricted to a balanced panel between 3 years before and 3 years after the EEC period. The sample is also restricted to firms with at least 2 workers. The dependent variable is a dummy variable equal to 1 if the individual switches employers between 1 and 3 years after the EEC period. Demographics include age, gender, occupation and county of residence. Occupations correspond to the 2-digit level in the PCS classification (28 values). Standard errors are heteroskedasticity-robust and reported in parentheses.

The next inquiry is whether constrained workers who switch employers tend to increase their hours. Figure 1.7 illustrates the trajectories of weekly paid hours worked for four distinct groups constrained workers and unconstrained workers who switch employers at least once between periods 1 and 3 (respectively *constrained-movers* and *unconstrained-movers*), and their equivalent who remain with the same employer (*constrained-stayers* and *unconstrained-stayers*)[31]. The figure separates workers who were part-time (a) or full-time (b) during their EEC period.

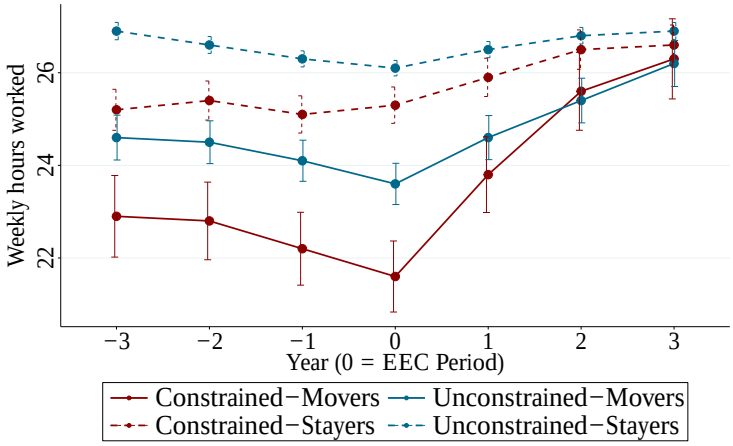
In Figure 1.7a, constrained workers who switch employers experience a large increase in hours through mobility, closing most of the gap with the other groups by $t = 2$ and $t = 3$. By contrast, constrained workers who stay in the same firm see their hours increase modestly after their EEC period. Both types of unconstrained workers, whether movers or stayers, work more hours at the beginning of the period but their hours rise less than those of their equivalent constrained group. Despite the upward evolution for constrained part-time workers, their average hours remain relatively low at $t = 3$, while the majority of them reported wanting to secure a full-time job. Figure 1.7b does not show the same picture: all four groups follow a broadly similar downward trend in hours after $t = -1$, with constrained and unconstrained workers, movers and stayers alike, converging towards a similar level of hours by the end of the window.

For part-time workers, results support the argument that hours constraints drive job mobility as constrained workers who switch firms appear to increase their hours towards their desired level, while those who remain in the same firm show more stability. This contrast suggests that part-time workers classified as constrained cannot adjust their hours within their current firm, and largely rely on switching employers to do so. For full-time workers, the absence of a clear differential pattern suggests that hours constraints play a smaller role in shaping job mobility, likely because their hours preferences are less stringent, as previously emphasized in Section 4. Another potential explanation is that full-time workers cannot easily increase their hours as overtime hours are rarely advertised by employers.

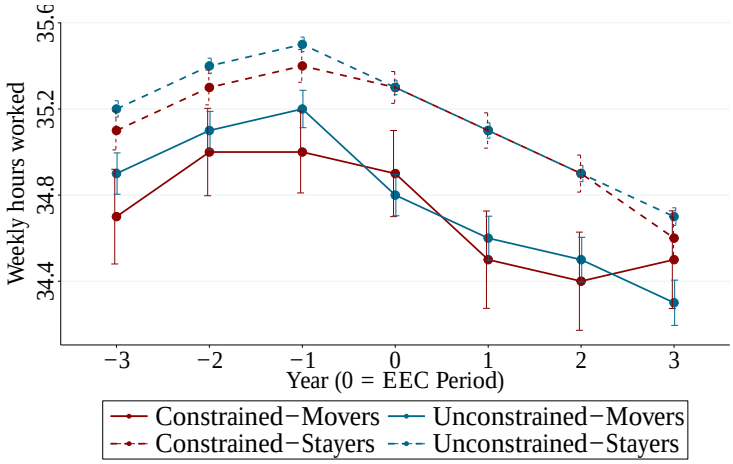
[31] The sample divides across the four groups as follows: 5.2%, 16.0%, 14.3%, and 64.5%.

Figure 1.7: Evolution of Hours in the EEC-DADS Panel

(a) Part-Time



(b) Full-Time



Note: The figures represent the evolution of weekly hours across employer-to-employer moves for different worker groups, separately for workers who work part-time or full-time in the last quarter of the EEC period. The x-axis shows years relative to the EEC period, while the y-axis displays Hours are paid hours recomputed as full-year equivalent and divided by 52. The data used is the EEC-DADS Panel, restricted to a balanced panel between 3 years before and 3 years after the EEC period. Four distinct groups are tracked: constrained-movers (solid red line), unconstrained-movers (solid blue line), constrained-stayers (dashed red line), and unconstrained-stayers (dashed blue line). Workers are classified as constrained or unconstrained based on their reported hour preferences in the last quarter of the EEC period, and as movers or stayers based on whether they switch employers during years 1 to 3 after the EEC period. Error bars correspond to 95% heteroskedasticity-robust confidence intervals.

5.2 Event-Study Design

This section studies the evolution of constrained workers as compared to unconstrained workers using a more formalized approach. Given that constrained workers are mostly able to adjust their hours by switching firms, I estimate the differential change in outcome associated with employer-to-employer mobility for

both types of workers. Hence, I compare the evolution of hours of constrained and unconstrained workers, conditional on moving. I use an event-study design summarized by the following equation:

$$y_{it} = \beta_1 \times S_{it} + \beta_2 \times S_{it} \times C_i + \alpha_i + \gamma_t + \varepsilon_{it} \tag{1.10}$$

The considered outcomes y_{it} are hours worked, hourly wages, and earnings (in logs). S_{it} is a dummy variable equal to 1 if the individual i is a "*mover*" in year t, where t must be between 1 and 3 years after the EEC period. This restriction on considered moves favors their consistency with hours preferences reported in the EEC[32]. C_i is a dummy variable equal to 1 if the individual i is constrained in the last quarter of their EEC period. α_i and γ_t are respectively worker-specific and year-specific fixed effects. β_1 captures the effect on the outcome associated with employer-to-employer moves. β_2 measures the differential effect for constrained workers. Worker fixed effects are included to control for time invariant unobserved heterogeneity.

Event-study designs are a widely used method for estimating treatment effects. Their validity in capturing causal effects yet relies on two critical identifying assumptions: no-anticipation and parallel trends (Borusyak et al., 2024). The no-anticipation assumption requires that workers do not change their behavior before switching jobs, while the parallel trends assumption holds if workers who change employers or stay would have followed similar trajectories in outcome absent mobility. To test the validity of the assumptions, I examine the similarities of movers and stayers groups in trend during the pre-event window. Figure A.5a plots event-study coefficients for hours worked around employer moves and provides direct evidence of pre-trend violations. The pre-event coefficients, though modest in magnitude, are statistically significant and exhibit a notable decline in hours just prior to the move. This pre-move drop suggests that workers experiencing a relative reduction in hours are more likely to switch employers, consistent with an Ashenfelter (1978)'s dip argument. Figure A.5b shows the equivalent coefficients for the interaction term by comparing constrained and unconstrained workers who switch firms. Both groups

[32]In addition, in the case where the individual experiences multiple transitions shortly after the EEC period, I only consider the first move as it is the one consistent with reported hours preferences.

exhibit similar pre-trends in hours, suggesting that being constrained is not associated with different prior evolution of hours conditional on being a mover. More generally, the parallel trends assumption is not credible here as both employer-to-employer moves and worker preferences are likely endogenous to prior dynamics in working hours and earnings. Then, estimates from this specification cannot be interpreted as treatment effects of mobility. I use the event-study framework as a descriptive tool, as it provides a clear and intuitive quantification of how working hours of constrained and unconstrained workers diverge around employment transitions.

Table 1.3 reports estimates from the event-study model in Equation 3.1, estimated separately for workers who were part-time or full-time during their EEC period. The first row reports the effects of employer-to-employer moves for unconstrained workers. Among part-time workers, switching firms is associated with a 2.4% increase in hours, driven by a 13 pp higher probability of moving to a full-time job, while no such effect appears for full-time workers. Unconstrained movers yet experience a relative decrease in wages, which implies a significant relative reduction in earnings for full-time movers. This reduction may appear as surprising, but (a) it must be interpreted as relative to unconstrained stayers whose trajectories in earnings are increasing over time, (b) this result is consistent with Babet and Chabaud (2024), who study wage dynamics around job switches using the same data and find that cuts in annualized earnings are common even among voluntary moves, and likely rationalized by changes in non-wage amenities[33].

The second row reports the differential effect of mobility for constrained workers, the main focus of this paper. For part-time workers, in line with evidence in Figure 1.7, constrained movers experience larger increases in hours and earnings than unconstrained movers. Their hours increase by 5.9 pp more, reaching a total gain of 8.3% relative to non-movers, driven by a 17 pp higher probability of moving to a full-time job. Earnings of constrained movers also increase relatively more, by 5.4 pp, which implies a 3.8% increase as compared to non-movers, despite a reduction in

[33]Voluntary moves are defined as moves out of a permanent contract (*CDI*) that did not involve a significant unemployment spell. This definition is used as a robustness check at the end of the section and shifts estimates upward for unconstrained movers.

Table 1.3: Event-Study Effects on Hours, Wages and Earnings

Group (EEC Period):	**Part-Time**			**Full-Time**		
Dependent Variable (in logs):	Hours (1)	Wages (2)	Earnings (3)	Hours (4)	Wages (5)	Earnings (6)
Mover	0.024***	-0.039***	-0.016	-0.002	-0.046***	-0.048***
	(0.009)	(0.004)	(0.009)	(0.002)	(0.001)	(0.002)
Mover × Constrained	0.059**	-0.005	0.054**	0.004	0.004	0.008
	(0.019)	(0.007)	(0.018)	(0.005)	(0.004)	(0.005)
Fixed effects						
Worker FE	X	X	X	X	X	X
Year FE	X	X	X	X	X	X
Baseline (in levels)	25.4	13.8	18,341	34.6	16.5	29,595
Observations	60,413	60,413	60,413	483,266	483,266	483,266
Adj. R^2	0.79	0.91	0.89	0.56	0.93	0.91

*Signif. Codes: ***: 0.001, **: 0.01, *: 0.05.*
Note: This table presents estimates from event-study regressions specified in equation 3.1. The data used is the EEC-DADS Panel, restricted to a balanced panel between 3 years before and 3 years after the EEC period. The first three columns of the table correspond to estimates when restricting the sample to workers who primarily worked as part-time during the last year of their EEC period. The last three columns correspond to results in the equivalent full-time sample. The dependent variables are respectively the logs of weekly hours, hourly wages and net annual labor earnings from the DADS data. Hours are paid hours recomputed as full-year equivalent and divided by 52. Earnings are also recomputed as full-year equivalent based on the number of days worked over the year. "Mover" is a dummy variable equal to 1 if the worker's primary employer is different than the year before. The primary employer is defined as the one with highest annual earnings. In addition, moves used for the estimation must occur between 1 and 3 years after the EEC period. "Constrained" is a dummy variable equal to 1 if the worker is constrained (from above) in their hours in the last year of their EEC period. Worker fixed effects (Worker FE) control for time-invariant unobserved heterogeneity. Year fixed effects (Year FE) control for common time trends. Standard errors are heteroskedasticity-robust and reported in parentheses.

wages similar than the one experienced by unconstrained movers. Their larger rise in hours thus offsets the relative drop in wages common to all movers. Hence, employer-to-employer mobility tends to be an effective way for constrained part-time workers to raise their earnings. Among full-time workers, constrained movers experience small non-significant gains in hours and earnings, so that, combined with the negative baseline effect of mobility for this group, their earnings remain 3.4% below those of non-movers.

As discussed earlier, part-time employment is the most stringent form of hours constraints in the French labor market, and it is precisely among these workers that mobility yields the largest relative gains in hours and earnings. The estimates imply an 8.3% increase in hours relative to non-movers, which amounts to about 2

additional hours per week on average. This pattern is consistent with the idea that constrained part-time workers are more likely to move jobs specifically in pursuit of additional hours and higher earnings, rather than for other reasons such as amenities, career progression, or match quality. In other words, their mobility is more purposeful from an hours perspective.

To end this section, I evaluate whether three potential measurement issues affect the validity of the results. Reassuringly, the key findings of the section are robust to alternative specifications.

Voluntary Moves. The interpretation of job mobility as reflecting a preference for more hours relies on the assumption that these moves are voluntary. To address this point, I re-estimate the main specification from Equation 3.1 using a stricter definition of mobility. A move is classified as voluntary if it originates from a permanent contract and involves less than 60 days between jobs[34]. Table A.4 reveals stronger effects than in the original specification. Voluntary moves are, in the baseline case, associated with a larger increase in hours and smaller wage reductions. As a result, the combined effect on earnings becomes positive for part-time workers and smaller in magnitude for full-time workers. For constrained part-time workers specifically, voluntary moves enable a 15% increase in hours and a 10% increase in earnings as compared to non-movers. Conversely, there is no differential change between constrained and unconstrained movers in the full-time sample. This check thus provides a cleaner picture of the ability for constrained part-time workers to increase their hours through job mobility.

Stable Hours Preferences. As discussed in Appendix B1, workers' hours preferences show limited persistence over time. This raises the possibility that hours constraints measured during the EEC period may not persist afterward, i.e. some constrained workers may, in fact, no longer wish to increase their hours after $t = 0$. To limit this concern, I restrict the sample of constrained workers to those who consistently report wanting to work more hours during their EEC period, thereby

[34]This definition differs slightly from Babet and Chabaud (2024), as I use the starting and ending dates of employment rather than unemployment benefit receipts to determine the no-unemployment criterion.

focusing on workers with more stable preferences. Table A.5 shows estimates broadly similar to the original specification. First row estimates remain nearly unchanged as the sample of unconstrained workers is unaffected by the restriction. For constrained workers, the interaction coefficients on hours and earnings are attenuated for part-time workers but roughly doubled for full-time workers. It is plausible that the restriction on stable preferences changes the profile of constrained workers, in particular for full-time workers, for whom the persistence of their EEC report may be driven by stronger constraints.

Period-Specific Estimates. To address the concern that the estimates may be driven by specific time periods, I split the sample into four subsamples, each excluding a different five-year period, and re-estimate the main results. Table A.6 shows a remarkable consistency in estimates across panels for constrained workers. The main exception is a notable decrease in the hours and earnings coefficients (in the first row) for part-time workers when years after 2018 are excluded. It means that estimates are larger in the recent period, i.e. part-time workers have increasingly moved towards jobs with long hours in recent years. Crucially, the drop in the last panel concerns unconstrained movers, but the differential change between constrained and unconstrained movers remains significant

Distance to Work. To limit the role of non-wage amenities other than hours, I re-estimate the main specification restricting the sample to movers who increase their commuting distance by less than 10 kilometers (or reduce it). Distances between municipalities are calculated using the Haversine formula, which computes the great-circle distance between two points on a sphere given their latitude and longitude coordinates. As compared to the original specification, Table A.7 displays slightly larger changes in hours and earnings for unconstrained movers. On the other hand, the coefficients of the interaction term are smaller so that the combined effect for constrained workers is similar in magnitude to the original estimates.

The main finding that constrained part-time workers gain significantly more in hours and earnings when they change jobs is robust across all checks. The next section explores the heterogeneity behind this result, focusing on different types of workers

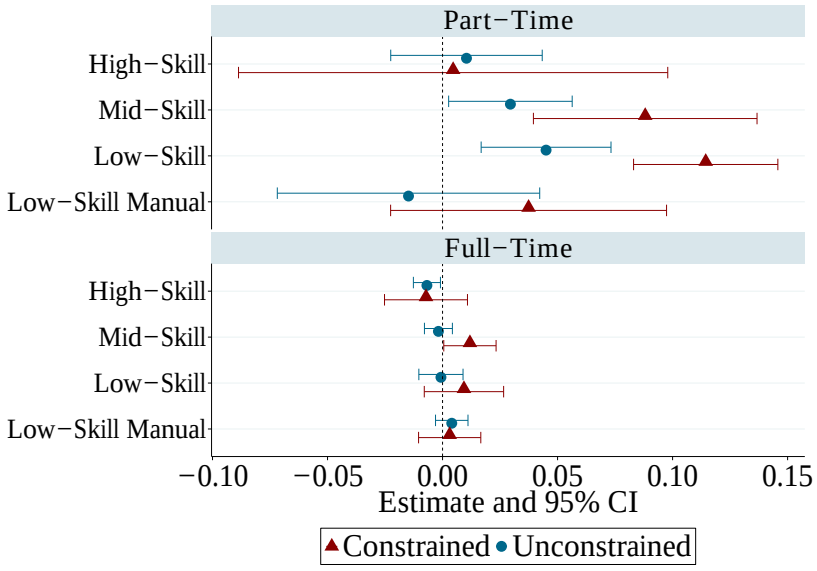
and job mobility.

5.3 Heterogeneity

The rest of this section explores heterogeneity in the effects across worker and mobility types, and asks whether constrained workers manage to close the gap to their desired hours over time.

Worker Type. Figure 1.8 breaks down the main estimates by broad occupation during the EEC period, using the first digit of the PCS classification. For constrained part-time workers, hours gains are primarily concentrated in low-skill and mid-skill non-manual occupations. Workers in low-skill non-manual jobs, who account for 55% of constrained part-time workers, experience an 11% increase in hours relative to non-movers, well above the 4.5% increase for their unconstrained counterparts, alongside a 7% relative increase in earnings. For full-time workers, as in Table 1.3, estimates are insignificant across all occupation groups.

Figure 1.8: Event-Study Effects by Type of Workers



Note: The figure shows event-study estimates on hours worked for constrained (red triangles) and unconstrained (blue circles) workers by type of worker. The data used is the EEC-DADS Panel, restricted to a balanced panel between 3 years before and 3 years after the EEC period. The specification differs from Equation 3.1 (and Table 1.3) as the interaction term is excluded and separate regressions are run on the move dummy variable (S_{it} in Equation 3.1) for constrained and unconstrained workers. In each case, the group of non-movers is composed of both constrained and unconstrained workers. Occupations respectively correspond to the 1st-digit 3, 4, 5 and 6 in the PCS classification.

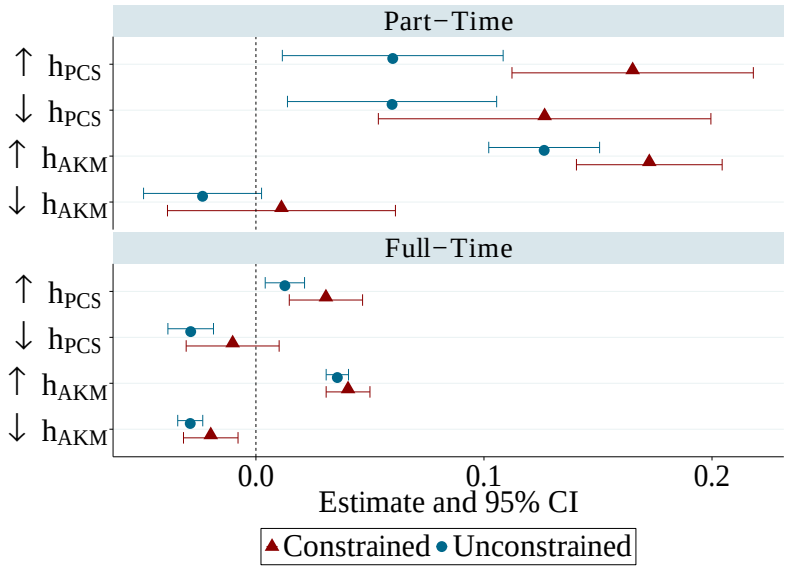
Mobility Type. Figure 1.9 turns to heterogeneity in job moves by examining two dimensions of employer-to-employer mobility: (i) whether it implies an occupational switch and (ii) the change in hours policies at the firm level, measured by AKM firm effects on hours. The first two rows split between-occupation movers by whether they move to an occupation with higher ($\uparrow h_{PCS}$) or lower ($\downarrow h_{PCS}$) hours fixed effects than their origin occupation. The last two rows split all movers by whether they move to a firm with a higher ($\uparrow h_{AKM}$) or lower ($\downarrow h_{AKM}$) AKM firm effect on hours than their origin firm.

Starting with occupations, one natural interpretation of the large increase in hours for constrained part-time workers is that they adjust by moving to different occupations with longer hours requirements. This intuition directly follows from the strong concentration of hours constraints in a limited number of occupations shown in Section 4.1, consistent with previous research (Altonji and Paxson, 1986). For workers to increase their hours, they would need to switch occupations. The evidence from labor market trajectories does not entirely support this view. Table A.8 in Appendix shows that occupation-to-occupation mobility is indeed associated with more hours gains than within-occupation moves, particularly for constrained part-time workers (12% versus 6.5%). However, Figure 1.9 indicates that the direction of the switch, in terms of PCS hours requirement, barely matters: hours increase by more than 10% in both directions, and the coefficients are not statistically different. This result suggests that constrained part-time workers accept to move to a different occupation whenever they find a job with long hours, regardless of the typical hours requirements in the given occupation. Occupation-to-occupation moves are arguably more costly to a worker, e.g. learning costs, so they must generate larger gains for workers to undertake them. For full-time workers, for whom variation in hours is smaller in a given occupation, the direction of occupation-to-occupation mobility matters more. Moves to higher-FE occupations are associated with a significant 3% increase in hours, while moves to lower-FE occupations show no significant effect.

Turning to firm-level hours policies, the picture is strikingly clear. For all workers, moving to a higher h_{AKM} firm raises hours worked, while moving to a lower h_{AKM} firm produces either negative or negligible changes. Constrained and unconstrained

part-time movers are distributed similarly across these two types of moves (60% versus 54% move to higher h_{AKM} firms), and their changes in hours worked are in the same order of magnitude. Constrained part-time workers who move to higher h_{AKM} firms experience a 17% increase in hours, which entirely drives the 8.3% estimate from Table 1.3. The destination firm's hours policy thus appears to be a key determinant of hours gains upon mobility. This is very much in line with the job ladder argument developed in Section 2: constrained workers increase their hours, then earnings, by climbing towards firms with longer hours policies, and job mobility is the main vehicle through which this reallocation takes place.

Figure 1.9: Event-Study Effects by Type of Mobility



Note: The figure shows event-study estimates on hours worked for constrained (red triangles) and unconstrained (blue circles) workers by type of mobility. The data used is the EEC-DADS Panel, restricted to a balanced panel between 3 years before and 3 years after the EEC period. The specification differs from Equation 3.1 (and Table 1.3) as the interaction term is excluded and separate regressions are run for constrained and unconstrained workers to estimate β_1, using the same group of non-movers. See Table 1.3 for details about the variable used for mobility. The sample of movers is alternatively restricted to specific types of mobility. The first two rows show estimates for between-occupation movers split by whether they move to an occupation with more ($\uparrow h_{PCS}$) or fewer ($\downarrow h_{PCS}$) hours than their origin occupation. The last two rows show estimates for all movers (both within-occupation and between-occupation) split by whether they move to a firm with a higher ($\uparrow h_{AKM}$) or lower ($\downarrow h_{AKM}$) AKM firm effect on hours than their origin firm. The estimation of AKM firm effects is detailed in Section 4.2. Non-movers serve as the comparison group for all estimates. Error bars correspond to 95% heteroskedasticity-robust confidence intervals.

Hours Mismatch. Beyond job mobility, I ask to what extent constrained workers manage to close the gap to their self-reported desired hours through their move. I restrict the sample to constrained workers and track the share of them who reach

their preferred hours within three years after the report. Results show that only 18% of constrained part-time workers and 4% of full-time workers achieve to do so. The lower rate for full-time workers reflects their unrealistic desired hours, given the limited variation in hours across full-time jobs. The proportion of workers reaching desired hours also declines through event times, which means that some workers are able to adjust hours in the short-run, as for them hours constraints are a transitory issue, while others cannot find jobs with long hours, thus remain constrained in the following years. This section temper the earlier estimates. While constrained workers tend to significantly increase their hours on average, a large majority does not manage to close the gap to their preferred hours level.

Figure A.6 in Appendix examines what predicts the probability of reaching desired hours within three years, separately for part-time and full-time constrained workers. Age and being a woman both reduce this probability, particularly among part-time workers. Occupation matters differently across groups: mid-skill workers are more likely to reach their desired hours among part-time workers, while low-skill manual workers (the reference group) have better probabilities in the full-time group. As expected from previous results, employer-to-employer mobility is the most effective mechanism for increasing hours, regardless of whether the move involves an occupational switch. In addition, workers with smaller gaps between actual and desired hours are, naturally, more likely to close them. Overall, the workers least likely to escape hours constraints are also the most vulnerable: older workers, women, and those in low-skill part-time jobs, for whom underemployment is both harder to escape and likely to be most costly.

Stepping back, this section shows that constrained workers can increase their hours and earnings through certain types of job mobility, but it is far from a universal remedy. Most constrained workers do not move, and for those who do, a large majority never reaches their preferred hours level. This points to hours constraints as a persistent and structural feature of the labor market, one that job mobility can mitigate but not resolve. If workers cannot easily escape this situation, one may wonder how much this situation costs them. The next section turns to this question and estimates the welfare impacts associated with hours constraints.

6 Willingness-To-Pay

This section aims to identify workers' willingness-to-pay (WTP) to adjust working hours to their desired level, building on the approach of Le Barbanchon et al. (2020). The goal of the estimation is to quantify in monetary terms the welfare costs associated with hours constraints. I start by introducing the framework in Section 6.1 and then describe the estimation procedure as well as the results in Section 6.2.

6.1 Identification

The identification draws on a simple framework is embedded in the theoretical model introduced in Section 2. Following Lachowska et al. (2026), the utility of worker i is specified as $u_i(e,h) = e - \varepsilon_i h^\mu$, where ε_i captures preferences for leisure and μ measures disutility from working, with $\mu > 1$. By definition, earnings are equal to the product of wage and hours: $e \equiv wh$, so that utility can be rewritten: $u_i(w,h) = wh - \varepsilon_i h^\mu$. Suppose that workers are asked (as in the EEC) to report their desired level of hours h_i^* at their given wage level $w_{i,0}$. In this framework, worker i's willingness-to-pay to work their preferred hours corresponds to the gap between the current wage and the wage that would provide the same utility level when working this level of hours:

$$WTP_i \equiv w_{i,0} - w_{i,C} \tag{1.11}$$

where $w_{i,C} = \frac{u_i(w_{i,0},h_i,0)+\varepsilon_i h_i^*}{h_i^*}$ represents this counterfactual wage at h_i^* with utility $u_{i,0}$.

The WTP parameter measures the absolute reduction in the (hourly) wage rate that a worker would accept in exchange for working their preferred hours. For underemployed workers, this wage reduction is more than offset by the implicit increase in hours worked, so that earnings from the counterfactual bundle with preferred hours are higher than current earnings $e_{i,0} \equiv w_{i,0}h_{i,0}$. Expressing WTP in hourly wage terms is therefore subtle: the parameter captures a willingness to forego part of a potential earnings gain, not a willingness to lose in absolute earnings.

The following example illustrates this point. Suppose a worker currently works 20 hours per week for €250 per week (or €1,000 per month) and reports wanting to work 40 hours per week with a corresponding variation in earnings. At the current hourly

wage, doubling hours worked would yield €500 per week (or €2,000 per month). Yet, it is plausible that this worker would accept to work 40 hours for *less* than €500. The question that the estimation aims to answer is how much *less*. If the worker's acceptance threshold is €450 per week, then the WTP to work 40 hours per week equals (500-450)/40 = €1.25 per hour, that is 10% of the baseline hourly wage. This amount reflects the monetary value of the utility gain from hours adjustment: the worker is willing to trade €1.25 per hour in order to move to their preferred hours.

The estimation challenge is to recover the utility parameters needed to identify WTP_i. A key simplification arises from the optimality of the bundle $(w_{i,0}, h_i^*)$: at this point, the marginal utility with respect to hours equals zero, which allows ε_i to be expressed as a closed-form function of μ, $w_{i,0}$, and h_i^* (Equation 1.12). The estimation therefore reduces to a single unknown parameter, μ.

$$\left.\frac{\partial u_i}{\partial h}\right|_{h=h_i^*, w=w_{i,0}} = 0 \Leftrightarrow \varepsilon_i = \frac{w_{i,0}}{\mu h_i^{*\mu-1}} \tag{1.12}$$

The parameter μ plays a central role in the WTP estimation, as it entirely governs the curvature of the disutility of work, i.e. is, how rapidly marginal disutility increases with hours. It is assumed common across workers and directly determines the elasticity of labor supply, which equals $1/(\mu - 1)$ under this specification[35]. On the other hand, the parameter ε_i is worker-specific and controls the level of disutility associated with working more hours. This specification thus allows to disentangle a common response to additional hours of work from idiosyncratic heterogeneity in hours preferences across workers. In addition, as μ is common to all workers (and ε_i is derived from Equation 1.12), differences in the WTP parameter across workers are entirely driven by differences in labor market conditions $(w_{i,0}, h_{i,0})$ and preferred hours h_i^*.

To estimate μ, I exploit employer-to-employer moves and the wage–hour bundles $(w_{i,1}, h_{i,1})$ observed at the destination job, building on Le Barbanchon et al. (2020)'s approach to valuing commuting distance. Their method estimates the parameters of the iso-utility curve by minimizing the distance of downward-utility moves to the

[35] See Appendix C.2 for the proof.

iso-utility curve. The underlying assumption is a revealed preference criterion: a worker accepts a new job only if it yields a higher utility than the current one. The estimated iso-utility curve is thus the one that best rationalizes observed job mobility, i.e. the one that implies $u(w_{i,1}, h_{i,1}) > u(w_{i,0}, h_{i,0})$ for most workers.

Figure 1.10 illustrates the estimation strategy in the hours-wage plane. The original job bundle $(w_{i,0}, h_{i,0})$ and the worker's optimal hours h_i^* are shown. Green points represent destination bundles for workers sharing the original job bundle $(w_{i,0}, h_{i,0})$ and optimal hours h_i^*. The objective is to estimate μ, and ε_i, so as to recover the y-axis coordinate of the blue point, which yields the WTP parameter. The black curve represents the iso-utility curve through $(w_{i,0}, h_{i,0})$ that best fits the observed employer-to-employer moves. The red curve shows the iso-utility curve through the optimal bundle $(w_{i,0}, h_i^*)$. Note that in practice, the parameter μ is simultaneously estimated on the entire sample of workers, with no requirements over the number of destination bundles for a given set of values $(w_{i,0}, h_{i,0}, h_i^*)$.

The optimization problem directly parallels Le Barbanchon et al. (2020)'s estimation of the slope parameter in the wage–commute plane. For a given μ, let $\mathcal{B}_\mu$ denote the set of destination bundles that fall below the current job's iso-utility curve: $\mathcal{B}_\mu = \{i \mid u(w_{i,1}, h_{i,1}) < u(w_{i,0}, h_{i,0})\}$. The estimator of μ minimizes the distance of such revealed-preference violations to the iso-utility curve:

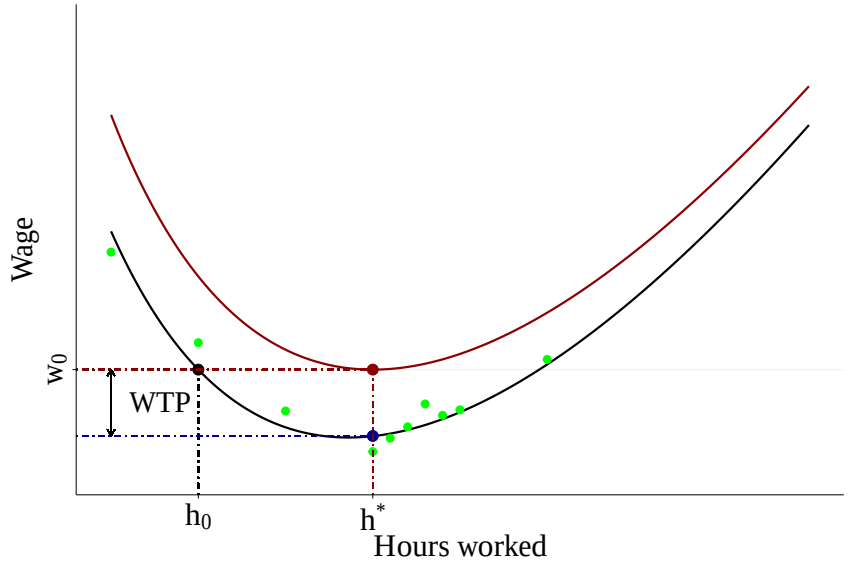
$$\hat{\mu} = \text{argmin}_\mu \sum_{i \in \mathcal{B}_\mu} d_{\mu, w_{i,0}, h_{i,0}} (w_{i,1}, h_{i,1})$$

where $d_{\mu, w_{i,0}, h_{i,0}} (w_{i,1}, h_{i,1})$ denotes the Euclidean distance between the destination bundle $(w_{i,1}, h_{i,1})$ and its orthogonal projection onto the iso-utility curve of parameter μ passing through $(w_{i,0}, h_{i,0})$. In other terms, $d_{\mu, w_{i,0}, h_{i,0}} (w_{i,1}, h_{i,1})$ captures how far the move from $(w_{i,0}, h_{i,0})$ to $(w_{i,1}, h_{i,1})$ is from respecting the revealed preference criterion.

6.2 Estimation

This section describes the implementation of the estimation strategy. I restrict the EEC-DADS Panel to constrained workers who switch firms between 1 and 3 years after their EEC period, starting from a permanent contract. This yields a sample of

Figure 1.10: Willingness-To-Pay Framework



Note: The figure illustrates the framework for estimating workers' willingness-to-pay (WTP) to reach their desired hours. The original job bundle $(w_{i,0}, h_{i,0})$ and the worker's optimal hours h_i^* are shown. Green dots represent observed destination bundles $(w_{i,1}, h_{i,1})$. The estimation method identifies utility parameters by minimizing the Euclidean distance between destination bundles below the iso-utility curve and their projections onto it. The black curve represents the iso-utility curve through $(w_{i,0}, h_{i,0})$ that best fits the observed employer-to-employer moves. The red curve shows the iso-utility curve through the optimal bundle $(w_{i,0}, h_i^*)$. The WTP parameter is the vertical distance between the wage at the blue point and $w_{i,0}$, representing the wage reduction a worker would accept to work optimal hours while maintaining utility.

3,926 workers. As in previous sections, in the case where a worker moves multiple times over this period, I restrict to the first move to ensure consistency with reported hours preferences. For external validity, Table 1.4 compares this sample of movers to the broader population of constrained workers in the EEC-DADS Panel. The two samples are broadly comparable across age, gender, occupation, and hours distributions, with the WTP estimation sample slightly over-representing prime-age workers (25–44) and under-representing the youngest and oldest age groups, which is expected given the requirement of an employer-to-employer transition.

Table 1.4: Representativity of Constrained Workers in the WTP Estimation Sample

Variable	**WTP Sample**	**EEC-DADS Panel**
N	3,926	26,496
Age - 15-24 (%)	2.3	5.4
Age - 25-34 (%)	37.7	30.5
Age - 35-44 (%)	31.8	30.2
Age - 45-54 (%)	22.4	25.7
Age - $>$ 55 (%)	5.9	8.3
Female (%)	37.4	41.3
Occupation - High-Skill (%)	12.0	10.9
Occupation - Mid-Skill (%)	33.0	30.0
Occupation - Low-Skill Non-Manual (%)	26.3	27.9
Occupation - Low-Skill Manual (%)	28.7	31.2
Paid Hours Worked - $<$ 25	8.3	11.6
Paid Hours Worked - 25-34	33.6	31.0
Paid Hours Worked - 35-39	50.8	52.3
Paid Hours Worked - $>$ 40	6.9	5.0

Note: This table compares the WTP estimation sample of constrained workers who switch firms within three years of their EEC interview to the full sample of constrained workers in the EEC-DADS Panel. All variables are measured in the last year of the EEC period.

I solve the optimization problem by using a grid search procedure. The reason is that the objective function is not available in closed form as a function of μ, and cannot be directly optimized. For any candidate value of μ, computing the distance $d_{\mu,w_{i,0},h_{i,0}}(w_{i,1}, h_{i,1})$ requires first solving a numerical inner problem which consists of projecting each destination bundle onto the iso-utility curve induced by that value of μ. The set of violations $\mathcal{B}_\mu$ also depends on μ, as the classification of a destination bundle in the downward-utility group is itself determined by the candidate iso-utility curve. As a result, the mapping from μ to the objective function value cannot be derived analytically. The estimator is therefore computed by evaluating the objective function over a fine grid of candidate values of μ and selecting the value that minimizes the total objective function over all workers.

For a given value of μ, the procedure proceeds as follows:

(i) For each worker i, characterized by their original bundle $(w_{i,0}, h_{i,0})$ and preferred hours h_i^*, I derive ε_i from Equation 1.12. Given μ and ε_i, the iso-utility curve through $(w_{i,0}, h_{i,0})$ is fully determined.

(ii) I retain all employer-to-employer moves for which the destination bundle yields a utility level strictly below $u_i(w_{i,0}, h_{i,0})$, thereby constructing $\mathcal{B}_\mu$.

(iii) For each destination bundle in $\mathcal{B}_\mu$, I compute the Euclidean distance to its orthogonal projection onto the iso-utility curve[36].

[36]The projection is obtained by solving for the point on the iso-utility curve at which the derivative

(iv) The objective function is the sum of distances across all workers in $\mathcal{B}_\mu$.

Steps (i) to (iv) are repeated for each value of μ on a grid from 1.01 to 10 in increments of 0.01, and $\hat{\mu}$ is taken as the minimizer. Once $\hat{\mu}$ is identified, each worker's WTP is recovered via Equations 1.11 and 1.12. To obtain standard errors, the entire procedure is bootstrapped by resampling workers with replacement and re-running the grid search on each bootstrap sample. This approach correctly propagates sampling uncertainty on considered employer-to-employer moves, yielding standard errors for $\hat{\mu}$ and, by extension, for the distribution of WTP estimates. A notable feature of this approach is that it requires no assumption, nor arbitrary parameter calibration, beyond the functional form of preferences.

The grid search estimation yields $\hat{\mu} = 5.76$. This corresponds to a Marshallian labor supply elasticity equal to 0.21, much in line with previous estimates (Kleven et al., 2025). Figure 1.11 shows the distribution of WTP estimates for all workers, relative to their original wage $w_{i,0}$. Estimates are particularly concentrated between 0 and 10%, and the average (represented by the solid red line) is equal to 10.2%. The dashed red lines show the 95% confidence interval around the mean, obtained by bootstrapping the full estimation procedure over 500 replications. The WTP is higher for part-time, about 15%, than for full-time workers, 8%, since part-timers have larger gaps to desired hours.

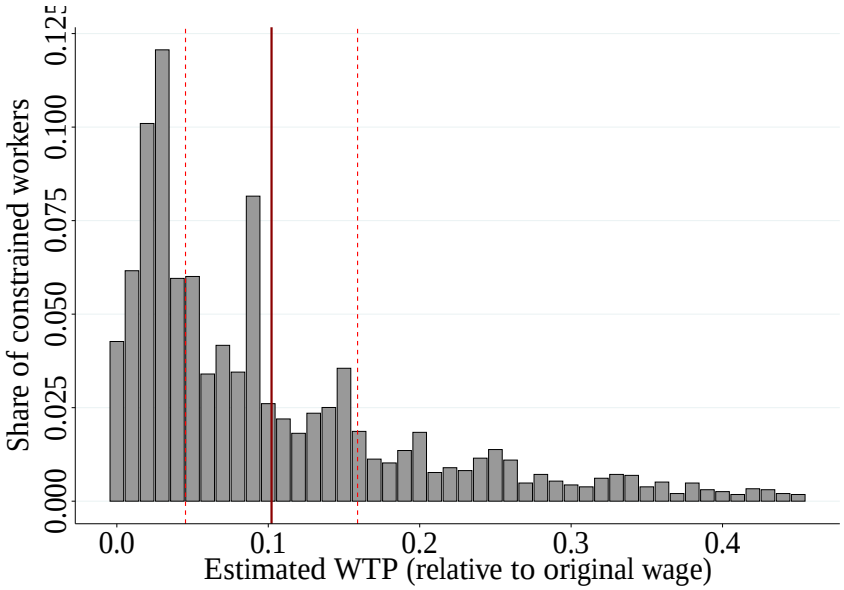
The estimated WTP parameter of approximately 10% of the baseline hourly wage is broadly consistent with the findings of Lachowska et al. (2026), who estimate that workers would require a 12% wage premium from their current employer to be as well off as they would be at an employer offering their ideal hours. The two definitions are nevertheless conceptually distinct[37]. The WTP definition adopted here asks how much the hourly wage could be reduced if hours simultaneously moved to h_i^*, at a given utility level. Lachowska et al. (2026) instead ask how much the wage would need to change, at the worker's current hours, to increase utility to the optimal bundle level. Their approach thus does not identify a WTP parameter strictly speaking, but it provides a utility value of closing the hours gap.

An advantage of their approach is that it avoids a limitation inherent to mine: since h_i^* is reported as desired hours at the current wage $w_{i,0}$, the counterfactual bundle

of the squared distance with respect to hours equals zero.

[37] See Appendix C.2 for a comparison of both definitions.

Figure 1.11: Willingness-To-Pay Estimates



Note: The figure shows the distribution of individual WTP estimates, expressed as a share of the baseline hourly wage $w_{i,0}$, for the 3,926 constrained workers in the WTP estimation sample. The solid red line marks the mean WTP (10.2%), with the dashed red lines showing the associated 95% confidence interval, obtained by bootstrapping the full grid search procedure over 500 replications.

$(w_{i,C}, h_i^*)$ is likely not on the worker's labor supply curve. Using the definition of Lachowska et al. (2026), I find that workers would require a 16% wage increase to obtain a utility gain equivalent to working their desired hours, a figure slightly higher than their estimate of 12%.

7 Conclusion

This paper leverages a unique data linkage to produce novel empirical evidence on hours constraints in France. In the French labor market, where the most salient frontier in working hours runs between part-time and full-time employment, involuntary part-time work stands out as the most prominent and policy-relevant form of hours constraints, as it traps workers in precarious employment.

By combining self-reported hour preferences from the Labour Force Survey with administrative employer-employee records, I am able to characterize the labor market context of constrained workers with greater precision than prior research. For instance, I can observe hours worked by comparable workers in the same firm,

workplace, or occupation, and assess whether classic explanations, such as firm rigidities, account for underemployment. While firm sorting is non-negligible, pure technological rigidities are unlikely to be the primary driver, as full-time work remains common in firms with involuntary part-time workers. This evidence also implies that variation in hours within a firm is not a good proxy for hours constraints.

The paper's main contribution is to provide the first evidence on workers' ability to close the hours gap through employer-to-employer mobility. On average, constrained workers achieve larger gains in hours and earnings when they change employers than both unconstrained movers and constrained non-movers. Yet, a large majority remain unable to move to a better job in the short run.

Given the persistence of hours constraints, in the final section, I use a revealed preference framework to estimate the welfare costs for workers from being off their labor supply curve. I find that constrained workers would accept, on average, a 10% reduction in their hourly wage to reach their preferred hours. This result is in the same order of magnitude as estimates by Lachowska et al. (2026) in the US, and reflects the high value of additional earnings as compared to work disutility for those workers.

Overall, this paper highlights underemployment as a multi-dimensional problem in modern labor markets that, like unemployment, stems from the interaction of worker-specific characteristics and firm-level factors. While workers' hours preferences are well understood, more evidence on firms' preferences over hours worked is needed to design effective policies to reduce underemployment and improve labor market matching.

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Appendix A Additional Figures and Tables

A.1 Tables

Table A.1: EEC and Matched EEC-DADS Samples

		EEC Sample	EEC Sample (with *SIRET*)	EEC-DADS Sample	EEC-DADS Panel
Number of observations		3,201,635	2,619,074	1,695,359	9,734,018
Number of workers		791,701	654,632	435,472 (67%)	399,553 (61%)
Number of firms		262,823	262,823	196,484	612,603
Full-Time (%)		81.0	82.7	82.8	82.8
Female (%)		50.4	49.3	48.4	49.4
Age	15-24	8.3	8.1	8.5	13.4
	25-34	20.6	20.8	21.3	24.6
	35-44	26.0	26.3	26.9	25.1
	45-54	28.3	28.4	27.9	24.1
	55+	16.7	16.3	15.5	12.8
Occupation (%)	High-Skill	17.4	18.1	17.3	17.4
	Mid-Skill	26.4	27.5	27.3	26.4
	Low-Skill Non-Manual	32.2	30.2	28.8	30.4
	Low-Skill Manual	24.0	25.0	26.6	25.7
Firm Size (%)	< 10	59.1	57.6	58.2	58.7
	10-49	15.4	16.0	16.6	17.3
	50-499	17.3	18.1	18.2	17.5
	≥ 500	8.2	8.3	7.0	6.5
Usual Hours Worked (%)	< 25	10.4	9.0	8.6	11.8
	25-34	10.0	9.9	9.7	10.0
	35-39	52.5	55.1	55.9	53.0
	40-49	19.5	18.9	18.9	18.0
	≥ 50	7.6	7.1	7.0	7.2
Share of constrained from above - Full-Time (%)		16.3	16.9	19.0	19.5
Share of constrained from above - Part-Time (%)		34.7	33.8	26.0	23.8
Share of involuntary part-time workers (%)		24.2	24.3	19.0	17.1
Share of constrained from below (%)		2.4	2.5	2.5	2.5

Note: This table compares the two newly built EEC-DADS and EEC-DADS Panel samples with the original EEC sample between 2003 and 2023. The EEC sample (with *SIRET*) corresponds to the EEC sample after removing observations where the establishment's ID is missing. Shares of constrained and involuntary part-time workers are computed in proportion of the corresponding working time status considering the workers' last quarter of observation.

Table A.2: Summary Statistics of Constrained Workers in EEC-DADS and EEC

	Involuntary Part-Time		**Full-Time**	
Variable	EEC	EEC-DADS	EEC	EEC-DADS
Age	37.1	38.1	37.8	37.5
Female (%)	73.8	71.8	61.5	58.6
Occupation - High-Skill (%)	4.0	4.6	10.8	9.9
Occupation - Mid-Skill (%)	16.4	12.7	27.8	22.1
Occupation - Low-Skill Non-Manual (%)	58.3	60.0	27.4	31.1
Occupation - Low-Skill Manual (%)	21.4	22.7	33.9	36.9
Born Abroad (%)	13.8	12.7	10.8	10.5
Public Sector (%)	23.7	19.6	17.6	13.0
Permanent Contract (%)	58.4	71.7	83.3	83.2
Usual Hours Worked	23.3	26.4	37.3	35.6

Note: This table presents summary statistics of constrained workers in the EEC and EEC-DADS samples between 2003 and 2023. "Occupation" categories correspond to the 1st-digit in the PCS classification, respectively 3, 4, 5 and 6. "Born Abroad" indicates the proportion of individuals born outside of France. "Public Sector" shows the proportion of workers in the public sector. "Permanent Contract" represents the share of workers with a permanent contract (*contrat à durée indéterminée*). Hours worked correspond to usual hours worked from the Labour Force Survey.

Table A.3: Summary Statistics by Group of Workers' Preferences

Variable	**Constrained from above**	**Involuntary part-time**	**Constrained from below**	**Unconstrained**
Age - 15-24 (%)	10.9	14.8	1.8	5.5
Age - 25-34 (%)	28.4	23.6	19.2	20.2
Age - 35-44 (%)	28.3	25.9	28.9	27.2
Age - 45-54 (%)	24.3	25.7	32.5	30.4
Age - $>$ 55 (%)	8.2	10.0	17.6	16.7
Female (%)	48.7	77.2	61.2	49.1
Occupation - High-Skill (%)	8.9	4.6	31.4	20.2
Occupation - Mid-Skill (%)	24.9	16.0	32.2	28.3
Occupation - Low-Skill Non-Manual (%)	37.1	60.9	24.6	28.8
Occupation - Low-Skill Manual (%)	29.1	18.5	11.8	22.6
Workplace Size - $<$ 10 (%)	21.6	31.8	15.0	17.4
Workplace Size - 10-49 (%)	31.0	35.3	26.4	28.5
Workplace Size - 50-499 (%)	33.2	25.5	36.7	35.4
Workplace Size - $\geq$ 500 (%)	14.3	7.3	22.0	18.7
Born Abroad (%)	11.9	14.9	8.2	10.3
Public Sector (%)	20.1	22.8	24.1	23.7
Permanent Contract (%)	80.9	65.8	94.9	91.8
Temporary Worker (%)	3.7	2.1	0.7	1.5
Secondary Job (%)	3.0	5.9	2.3	2.1
Share of Part-Time (%)	28.0	-	11.2	14.5
Paid Hours Worked (Full-Time)	36.1	-	36.2	36.2

Note: This table presents summary statistics by group of hours preferences in the EEC sample between 2003 and 2023.. Groups are considered based on their answers to the following questions in the surveys: *"do you want to work* [more/less] *hours in your job with a corresponding income variation?"*. "Constrained from above" workers report that they want to work more hours ; "Involuntary part-time" workers are the subsample of the previous group who currently work part-time but would ideally work full-time based on their desired hours ; "Constrained from below" workers report that they want to work less hours ; "Unconstrained" workers answer no to both questions. "Occupation" categories correspond to the 1st-digit in the PCS classification, respectively 3, 4, 5 and 6. "Workplace Size" groups correspond to the number of salaried workers employed in the workplace. "Born Abroad" indicates the proportion of individuals born outside of France. "Public Sector" shows the proportion of workers in the public sector. "Permanent Contract" represents the share of workers with a permanent contract (*contrat à durée indéterminée*). "Temporary Worker" represents the share of workers with a temporary contract (*contrat d'intérim*). "Secondary Job" shows the proportion of workers with a secondary job. Restricting to the EEC-DADS sample, the final row reports average paid hours worked of workers with full-time contracts.

Table A.4: Event-Study Effects on Hours, Wages and Earnings - Voluntary Moves

Group (EEC Period):	**Part-Time**			**Full-Time**		
Dependent Variable (in logs):	Hours	Wages	Earnings	Hours	Wages	Earnings
	(1)	(2)	(3)	(4)	(5)	(6)
Mover	0.059***	-0.023**	0.037***	0.015***	-0.023***	-0.008**
	(0.012)	(0.007)	(0.012)	(0.002)	(0.002)	(0.003)
Mover × Constrained	0.094***	-0.030*	0.064**	0.005	-0.003	0.001
	(0.026)	(0.013)	(0.025)	(0.006)	(0.004)	(0.006)
Fixed effects						
Worker FE	X	X	X	X	X	X
Year FE	X	X	X	X	X	X
Baseline (in levels)	25.4	13.8	18,341	34.6	16.5	29,595
Observations	57,439	57,439	57,439	466,261	466,261	466,261
Adj. R^2	0.80	0.90	0.89	0.61	0.93	0.91

*Signif. Codes: ***: 0.001, **: 0.01, *: 0.05.*
Note: This table presents estimates from event-study regressions specified in equation 3.1 using the alternative definition of employer-to-employer moves similar to Babet and Chabaud (2024). The data used is the EEC-DADS Panel, restricted to a balanced panel between 3 years before and 3 years after the EEC period. The sample is restricted to moves from a permanent contract with an unemployment period of less than 60 days between jobs. See Table 1.3 for details.

Table A.5: Event-Study Effects on Hours, Wages and Earnings - Persistence

Group (EEC Period):	**Part-Time**			**Full-Time**		
Dependent Variable (in logs):	Hours	Wages	Earnings	Hours	Wages	Earnings
	(1)	(2)	(3)	(4)	(5)	(6)
Mover	0.024**	-0.040***	-0.016	-0.002	-0.046***	-0.048***
	(0.009)	(0.004)	(0.009)	(0.002)	(0.001)	(0.002)
Mover × Constrained	0.043**	-0.005	0.039*	0.016***	0.005	0.021***
	(0.017)	(0.008)	(0.025)	(0.005)	(0.004)	(0.005)
Fixed effects						
Worker FE	X	X	X	X	X	X
Year FE	X	X	X	X	X	X
Baseline (in levels)	25.4	13.9	18,438	34.6	16.6	29,782
Observations	56,125	56,125	56,125	455,484	455,484	455,484
Adj. R^2	0.78	0.89	0.88	0.60	0.93	0.90

*Signif. Codes: ***: 0.001, **: 0.01, *: 0.05.*
Note: This table presents estimates from event-study regressions specified in equation 3.1 using an alternative definition of constrained workers with stable preferences over their EEC period. The data used is the EEC-DADS Panel, restricted to a balanced panel between 3 years before and 3 years after the EEC period. The sample of constrained workers is restricted to those whose preferences remain identical throughout their EEC period. See Table 1.3 for details.

Table A.6: Event-Study Effects on Hours, Wages and Earnings - Specific Periods

Group (EEC Period):	**Part-Time**			**Full-Time**		
Dependent Variable (in logs):	Hours (1)	Wages (2)	Earnings (3)	Hours (4)	Wages (5)	Earnings (6)
Panel A: 2009-2023						
Mover	0.025**	-0.039***	-0.014	-0.001	-0.046***	-0.047***
	(0.009)	(0.004)	(0.009)	(0.002)	(0.001)	(0.002)
Mover × Constrained	0.065***	-0.008	0.057***	0.007	0.004	0.011*
	(0.015)	(0.007)	(0.015)	(0.004)	(0.003)	(0.005)
Panel B: 2003-2008, 2014-2023						
Mover	0.035***	-0.046***	-0.011	0.003	-0.048***	-0.045***
	(0.010)	(0.005)	(0.010)	(0.002)	(0.002)	(0.002)
Mover × Constrained	0.056**	-0.002	0.054**	0.003	0.003	0.006
	(0.017)	(0.008)	(0.017)	(0.005)	(0.004)	(0.005)
Panel C: 2003-2013, 2019-2023						
Mover	0.040***	-0.045***	-0.005	0.003	-0.048***	-0.045***
	(0.012)	(0.006)	(0.012)	(0.002)	(0.002)	(0.003)
Mover × Constrained	0.064**	-0.002	0.062**	0.009	0.003	0.012*
	(0.021)	(0.008)	(0.020)	(0.006)	(0.004)	(0.006)
Panel D: 2003-2018						
Mover	0.002	-0.030***	-0.028*	-0.015***	-0.041***	-0.056***
	(0.012)	(0.006)	(0.012)	(0.002)	(0.002)	(0.003)
Mover × Constrained	0.066**	-0.020*	0.046*	0.011	0.005	0.016**
	(0.021)	(0.009)	(0.021)	(0.006)	(0.004)	(0.006)
Fixed effects						
Worker FE	X	X	X	X	X	X
Year FE	X	X	X	X	X	X
Observations - Part-Time: A = 59,102 ; B = 46,769; C = 37,665; D = 37,706.						
Observations - Full-Time: A = 469,357 ; B = 356,885 ; C = 310,121; D = 313,447.						

*Signif. Codes: ***: 0.001, **: 0.01, *: 0.05.*
Note: This table presents estimates from event-study regressions specified in equation 3.1 using using four subsamples, each excluding a different five-year period. The data used is the EEC-DADS Panel, restricted to a balanced panel between 3 years before and 3 years after the EEC period. See Table 1.3 for details.

Table A.7: Event-Study Effects on Hours, Wages and Earnings - Distance to Work

Group (EEC Period):	**Part-Time**			**Full-Time**		
Dependent Variable (in logs):	Hours	Wages	Earnings	Hours	Wages	Earnings
	(1)	(2)	(3)	(4)	(5)	(6)
Mover	0.045***	-0.039***	0.006	-0.001	-0.041***	-0.042***
	(0.010)	(0.005)	(0.010)	(0.002)	(0.002)	(0.003)
Mover × Constrained	0.047**	-0.009	0.038*	0.005	0.002	0.007
	(0.018)	(0.009)	(0.018)	(0.005)	(0.004)	(0.005)
Fixed effects						
Worker FE	X	X	X	X	X	X
Year FE	X	X	X	X	X	X
Baseline (in levels)	25.5	13.8	18,424	34.6	16.5	29,555
Observations	56,684	56,684	56,684	457,988	457,988	457,988
Adj. R^2	0.78	0.89	0.88	0.60	0.93	0.90

*Signif. Codes: ***: 0.001, **: 0.01, *: 0.05.*
Note: This table presents estimates from event-study regressions specified in equation 3.1 after restricting the sample to moves that increase the distance to commute by less than 10 kilometers (or reduce it). The data used is the EEC-DADS Panel, restricted to a balanced panel between 3 years before and 3 years after the EEC period. Distances between municipalities are calculated using the Haversine formula, which computes the great-circle distance between two points on a sphere given their latitude and longitude coordinates. See Table 1.3 for details.

Table A.8: Event-Study Effects By Occupational Mobility

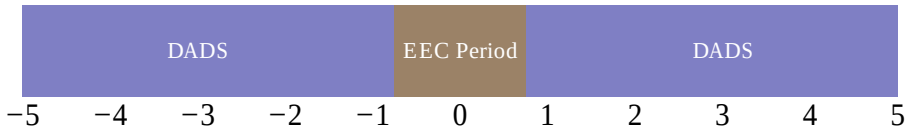
Group (EEC Period):	**Part-Time**			**Full-Time**		
Dependent Variable (in logs):	Hours (1)	Wages (2)	Earnings (3)	Hours (4)	Wages (5)	Earnings (6)
Panel A: Within-Occupation						
Mover	0.011	-0.025***	-0.013	0.004	-0.029***	-0.026***
	(0.010)	(0.005)	(0.010)	(0.002)	(0.002)	(0.002)
Mover × Constrained	0.054**	-0.013	0.041*	-0.000	0.002	0.002
	(0.017)	(0.008)	(0.017)	(0.005)	(0.004)	(0.005)
Fixed effects						
Worker FE	X	X	X	X	X	X
Year FE	X	X	X	X	X	X
Observations	55,075	55,075	55,075	444,611	444,611	444,611
Adj. R^2	0.80	0.90	0.89	0.61	0.93	0.91
Panel B: Between-Occupation						
Mover	0.045**	-0.063***	-0.018	-0.010**	-0.071***	-0.081***
	(0.016)	(0.008)	(0.016)	(0.003)	(0.002)	(0.004)
Mover × Constrained	0.076***	0.002	0.078**	0.019**	0.011*	0.030***
	(0.026)	(0.012)	(0.026)	(0.007)	(0.005)	(0.008)
Fixed effects						
Worker FE	X	X	X	X	X	X
Year FE	X	X	X	X	X	X
Observations	52,580	52,580	52,580	427,943	427,943	427,943
Adj. R^2	0.67	0.77	0.74	0.53	0.85	0.80

*Signif. Codes: ***: 0.001, **: 0.01, *: 0.05.*

Note: This table presents estimates from event-study regressions specified in equation 3.1 considering within-occupation and between-occupation moves separately. The data used is the EEC-DADS Panel, restricted to a balanced panel between 3 years before and 3 years after the EEC period. Panel A restricts the sample to non-movers and within-occupation movers (workers who change employers while remaining in the same occupation). Panel B restricts the sample to non-movers and between-occupation movers (workers who change both employer and occupation). Occupations correspond to the 2-digit level in the PCS classification (28 values). See Table 1.3 for details.

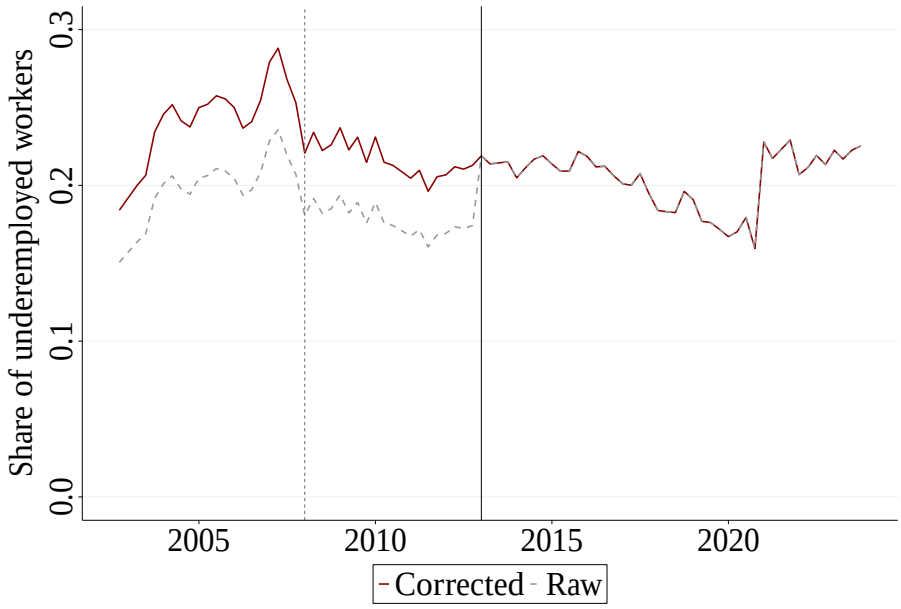
A.2 Figures

Figure A.1: EEC-DADS Panel Data



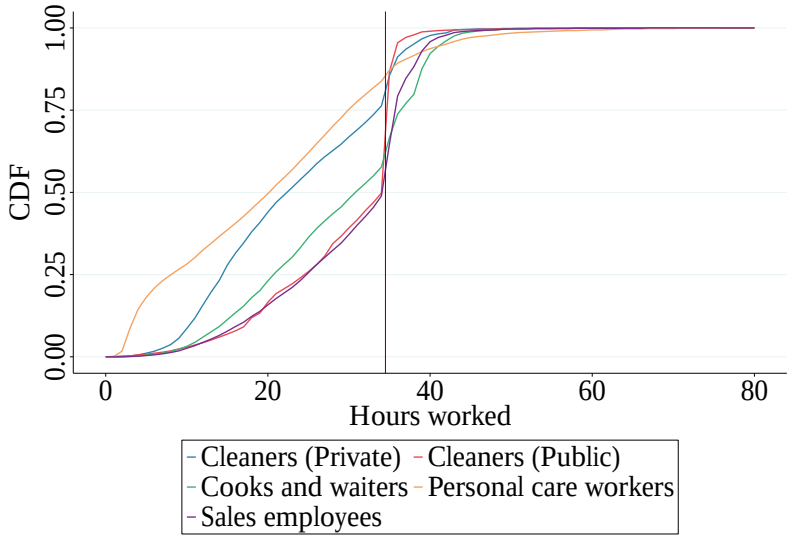
Note: The figure illustrates the structure of the newly built EEC-DADS panel data. This dataset is constructed based on the EEC-DADS dataset and the DADS panel from Godechot et al. (2025). It combines for each individual EEC-based information over 6 quarters of observation (the EEC period) and DADS-based information over the period of appearance in the panel. See Section 3.2.3 for more details.

Figure A.2: Share of Workers Constrained from Above, 2003-2023



Note: The figure plots the quarterly share of employed workers reporting that they want to work more hours. The dashed grey series shows the raw data and the solid red series applies a multiplicative correction to account for a methodological break in the French Labour Force Survey (EEC) occurring in January 2013. The correction anchors on the post-2013 methodology and rescales the 2003-2012 segment so that December 2012 and January 2013 are level-consistent. The vertical dashed line corresponds to the break date.

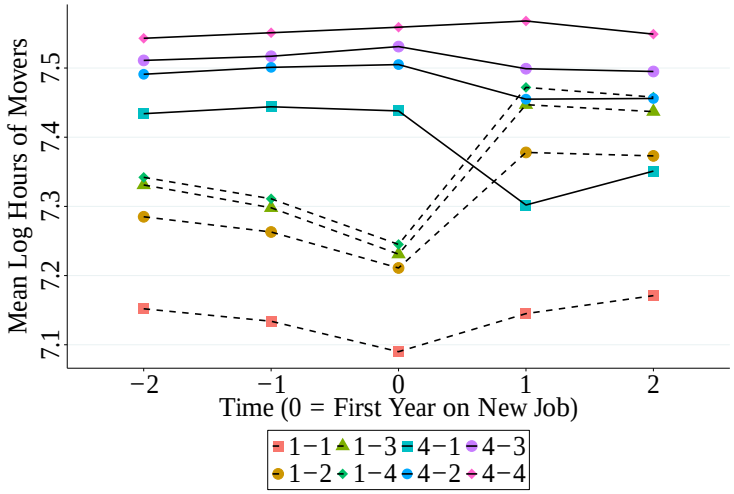
Figure A.3: Distribution of Hours Worked in IPT Occupations, 2009-2019



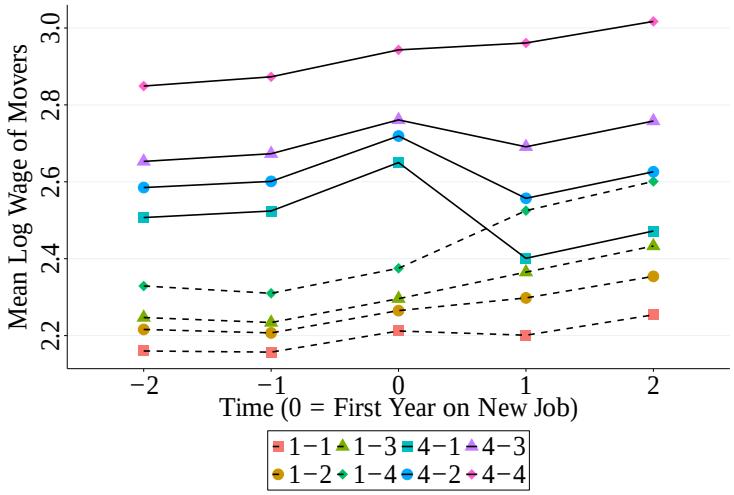
Note: The figure shows the distribution of hours worked in five occupations which concentrate nearly half of involuntary part-time workers. The vertical red line represents the 35-hour frontier between part-time and full-time work. Hours are annual paid hours from the DADS, recomputed as full-year equivalent, then as weekly-equivalent by dividing by 52. Occupations correspond to the 3-digit level (110 values) in the PCS classification. The data is restricted to years between 2009 and 2019 because the PCS classification changes in 2008 and 2020, which makes occupations not perfectly consistent in the entire window.

Figure A.4: Mean Hours of Job Movers By Quartile

(a) Hours

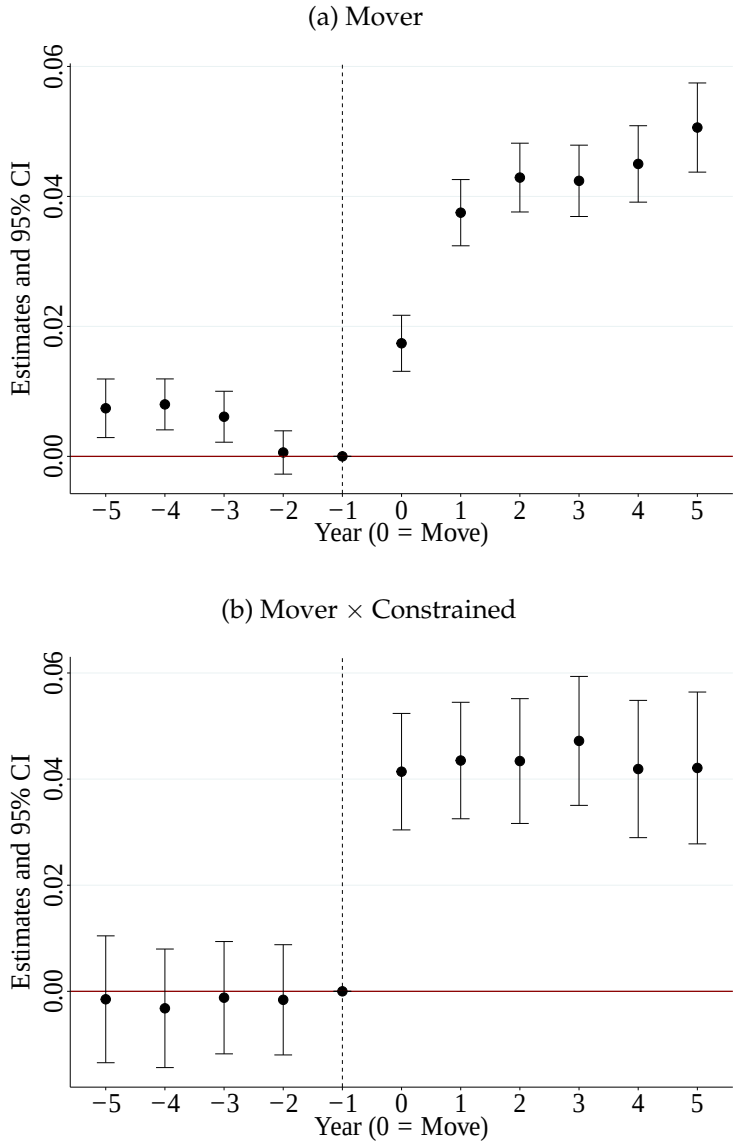


(b) Wages



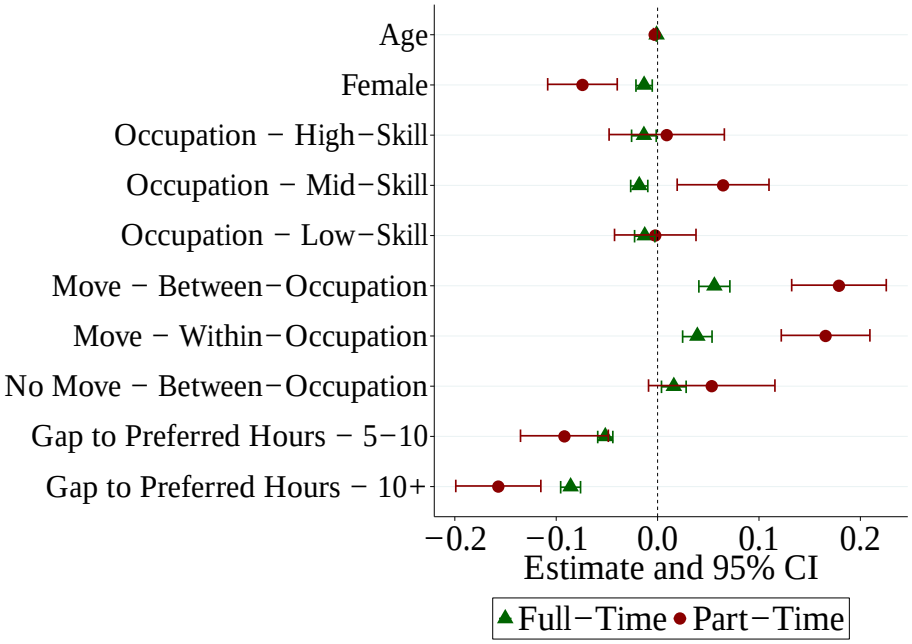
Note: Figures show mean hours (a) and hourly wages (b) of workers observed in 2005-2019 who change jobs and held the preceding job for 2 or more years, and the new job for 2 or more years, as in Card et al. (2013). The data used is the quasi-exhaustive DADS Panel derived from the procedure described in Godechot et al. (2025). Here, the job refers to the establishment with most earnings during a given year. Each job is classified into quartiles based on mean hours or wages of co-workers (quartiles are based on all full time workers in the same year).

Figure A.5: Event-Study of Employer-to-Employer Moves on Hours Worked



Note: Panel (a) shows event-study coefficients for the effect of employer-to-employer moves on weekly hours worked, using never-treated individuals (non-movers) as control group. Panel (b) displays the interaction coefficients testing for differential move effects between constrained and unconstrained workers. The data used is the EEC-DADS Panel, restricted to a balanced panel between 3 years before and 3 years after the EEC period. Year 0 corresponds to the year of the employer-to-employer move, that must occur between 1 and 3 years after the EEC period. Point estimates are shown with 95% confidence intervals. Standard errors are clustered at the individual level.

Figure A.6: Probability to Reach Desired Hours



Note: The figure shows coefficient estimates from separate regressions for part-time and full-time constrained workers. The dependent variable is an indicator equal to one if the worker has reached their self-reported desired hours within three years after the EEC period. All covariates are included together. Numbers on the right indicate the sample size for each group. Reference categories for categorical variables are low-skill manual workers, workers who do not move and remain in the same occupation and gaps to desired hours of less than 5 hours. Occupations correspond to the 2-digit level in the PCS classification (28 values). Error bars correspond to 95% confidence intervals.

Appendix B Measurement Issues and Data Linkage

B.1 Survey Measurement of Hours Constraints

This section provides additional background validation checks to the Labour Force Survey variables used to measure hours constraints. The paper relies on a certain interpretation of workers' answers to the corresponding questions. I argue that positive answers to the STPLC question reveal a concrete and thoughtful preference for working additional hours.

Methods to Increase Hours. Workers who report constraints from above and are available to work more hours are asked in a follow-up question (CSTPLC) about their preferred method to increase their hours with a list of possible items. 75% of these workers wish to work longer in their current job, while only 5% would rather take an additional job, 6% would opt to change jobs entirely, and 14% would do so by any means. The fact that a large majority of workers consider increasing their hours in their current working context supports the interpretation of the measure as embedded in real life context. Workers who are constrained from above thus do not appear to answer the question from a utopian perspective.

Motivations. Additional information from the EEC allows to evaluate the consistency of workers' reports with their motivations. Figure B.1a shows the answers to the question *"What is the main reason you work part-time?"* (RAISTP), asked to part-time workers. Almost every involuntary part-time worker, who represent 75% of constrained (from above) part-time workers, reports being primarily limited by the absence of full-time jobs. On the other hand, part-time workers who do not wish to work longer hours typically cite personal factors like family reasons or free time as their main motivation for part-time work. The gap in that dimension between both types of workers is consistent with the measurement of constraints. Surprisingly, a non-negligible share of unconstrained workers, 20%, also report the unavailability of full-time contracts as their motivation for part-time work. This suggests a possible underestimation of the share of involuntary part-time workers. I adopt a similar approach with a question regarding motivations for another job (CREACCP).

Focusing on the period between 2013 and 2023 (because of a break in series in 2013), I analyze answers to the question *"Why do you want another job?"* asked to workers who report that they want another job (either in replacement or in addition to the current one), with multiple possible answers in a list of items. Figure B.1b shows that reports of a higher ideal number of hours are associated with prospects of increased earnings and hours. Beyond the consistency of both variables, this illustrates that the desire to work long hours is likely strongly motivated by the perspective of higher earnings. Positive answers to the STPLC question thus convey ambition for a higher income at the cost of additional hours. This interpretation makes the measurement of hours constraints through the STPLC question coherent with traditional labor supply models and sets the stage for a welfare analysis of hours constraints.

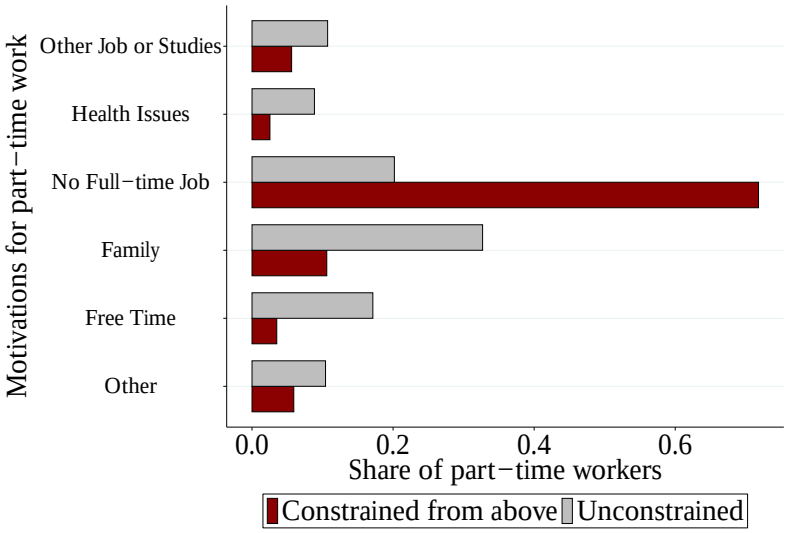
Persistence of Hours Preferences. An important question lies in understanding the stability of hours preferences over time. Individuals surveyed in the EEC are asked to report their preferences during 6 consecutive quarters at most which allows me to measure the persistence of STPLC over this period. I find that 63% of individuals who report constraints from above during their last interrogation, a definition that I use throughout Section 5, also report the same type of constraints in their first interrogation. This proportion marginally increases to 70% when only considering part-time workers but remains quite low. Additional checks suggest that the instability of preferences is not driven by changes in the employment context (employer, occupation, contract, hours worked) of the individual. This aspect of the variable is a potential threat to the results in Sections 5 and 6 which extrapolate preferences on hours over the years following the EEC period. To address this issue, I change my definition of constrained individuals to workers who report constraints both at their first and last interrogation in the EEC period. The main conclusions of the paper remain valid.

Worker Mobility. Figure B.2 exploits the quarterly longitudinal structure of the EEC to examine the connection between reported preferences for hours and employer-to-employer mobility. Workers who report an ideal number of hours superior to their current one on their first interrogation switch employers significantly more than both unconstrained workers and workers who would ideally reduce their hours[38]. Half of individuals who move report being unconstrained in their last interrogation. This finding suggests that positive answers to the STPLC

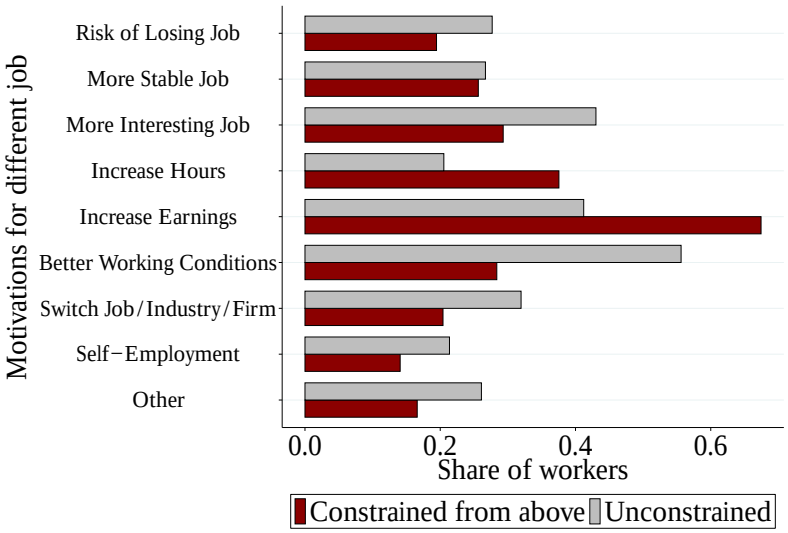
[38]The result is robust to the introduction of controls on age, gender and occupation.

Figure B.1: Motivations of Constrained and Unconstrained Workers

(a) Motivations for Part-Time Work



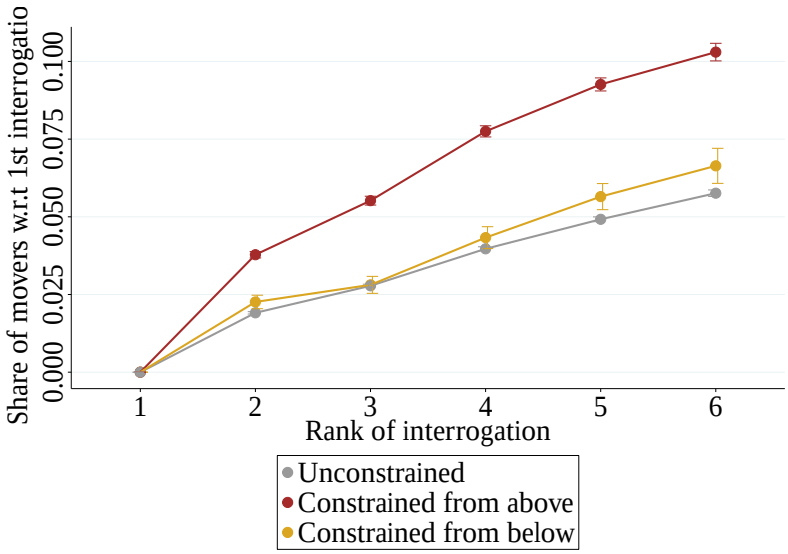
(b) Motivations for Different Job



Note: The figures represent the motivations of workers to work as part-time or to look for a different job based on their constraint status in the labor market. Workers are classified as *constrained from above* or *unconstrained* based on their answer to the STPLC question in the Labour Force Survey. See Section 3.2.1 for more details.
(a) The figure reports answers to the question *"What is the main reason you work part-time?"* asked to part-time workers in the Labour Force Survey. The sample covers 144,904 workers between 2003 and 2023.
(b) The figure shows answers to the question *"Why do you want another job?"* asked to workers who report that they want another job (either in replacement or in addition to the current one) in the Labour Force Survey. Multiple answers are possible. The sample covers 94,573 workers between 2013 and 2023. The period is restricted to 2013-2023 for this question only in order to ensure the consistency of the variable across the years.

question are associated with workplace disutility, hence with mobility towards alternative employers. As a result, it reinforces the interpretation of questions regarding ideal working hours as indicative of hours constraints faced by workers.

Figure B.2: Worker Mobility in the EEC



Note: The figure represents worker mobility patterns across quarterly rounds of interrogation in the Labour Force Survey. Workers are classified as unconstrained, top-constrained, or bottom-constrained based on their answer to the STPLC question during their first interrogation. See 3.2.1 for more details. The x-axis shows the rank of interrogation while the y-axis displays the share of workers who are not in the same workplace *(SIRET)* as in their first interrogation. The sample covers 717,544 workers between 2003 and 2023.

Transitions Between Constrained and Unconstrained Status. Table B.1 also exploits the quarterly longitudinal structure of the EEC to examine the relationship between changes in stated hours preferences and actual labor market outcomes. Panels A and B respectively focus on workers constrained from above or unconstrained in their first interrogation. The first column of the table corresponds to the status reported in the last interrogation. Panel A shows that workers who switch from constrained to unconstrained over the EEC period experience a substantial increase in both hours and earnings compared to those who remain constrained throughout. Notably, workers who shift from being constrained from above to wanting fewer hours display even larger increases in usual hours. Panel B presents the mirror pattern: workers initially unconstrained who become constrained from above experience significant reductions in hours and earnings, while those maintaining their unconstrained status do not. Taken together, the patterns provide additional evidence for the validity of the hours preferences measure, as reported constraints correlate closely with subsequent changes in workers' labor market trajectories.

Table B.1: Changes in Hours Preferences

Panel A: Constrained from above in 1st interrogation										
	Usual hours			**Reference hours**			**Earnings**			**N**
Period	*First*	*Last*	Δ	*First*	*Last*	Δ	*First*	*Last*	Δ	
Constrained from above	30.1	30.3	(+0.7%)	28.0	28.0	(+0.0%)	1,288	1,305	(+1.3%)	61,322
Constrained from below	34.5	37.3	(+8.1%)	31.5	31.7	(+0.6%)	1,565	1,702	(+8.8%)	918
Unconstrained	33.3	34.8	(+4.5%)	30.6	31.7	(+3.6%)	1,496	1,572	(+5.1%)	66,479
Panel B: Unconstrained in 1st interrogation										
	Usual hours			**Reference hours**			**Earnings**			**N**
Period	*First*	*Last*	Δ	*First*	*Last*	Δ	*First*	*Last*	Δ	
Constrained from above	34.6	33.0	(-4.6%)	32.1	30.4	(-5.3%)	1,523	1,491	(-2.1%)	38,050
Constrained from below	41.1	41.5	(+1.0%)	37.5	36.4	(-2.9%)	2,237	2,277	(+1.8%)	8,010
Unconstrained	38.4	38.4	(+0.0%)	35.4	34.8	(-1.6%)	1,932	1,934	(+0.1%)	434,168

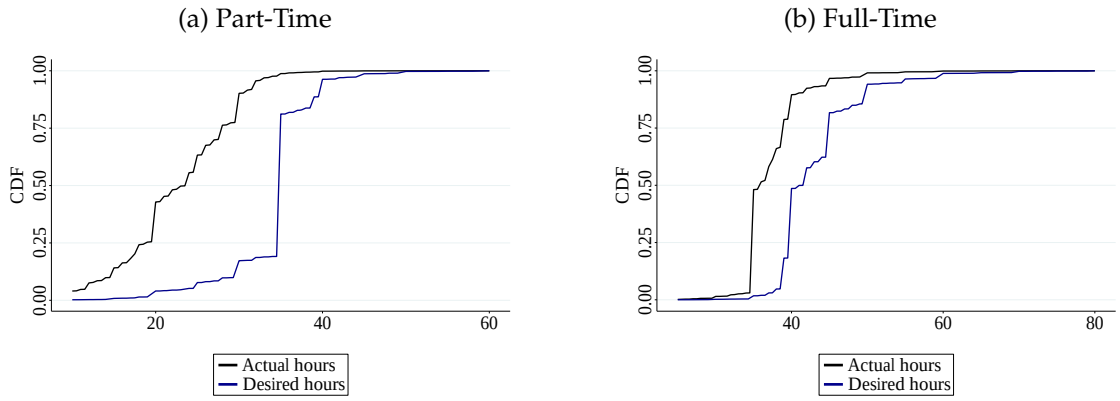
Note: This table presents changes in hours and earnings across changes in hours preferences based on Labour Force Surveys pooled between 2003 and 2023. Labels in the first column correspond to the worker's status in their last interrogation. Panel A restricts the sample to workers who report wanting to work more in their first interrogation. Panel B restricts the sample to workers who report not wanting to work more nor less in their first interrogation. Reference hours correspond to hours worked during the reference week of the Labour Force Survey. Earnings correspond to net monthly labor earnings.

Distribution of Desired Hours. Figures B.3a and B.3b show the distributions of desired hours, as compared to actual hours, respectively for part-time and full-time constrained workers. Figure B.3a shows a clear jump in desired hours around 35 hours for part-time workers, indicating that many constrained part-time workers want to move to full-time status. This suggests significant involuntary part-time employment among workers who cannot achieve their desired hours. Reassuringly, both panels show substantial variation in desired hours rather than excessive clustering at round numbers, e.g. like 40. This suggests that workers are genuinely reporting their true preferences rather than simply picking salient thresholds and lends credibility to the desired hours measure as capturing meaningful heterogeneity in workers' preferences.

B.2 Measurement of Hours Worked in French Administrative Data

This section aims to assess the reliability of working hours reported in the French matched employer-employee data (DADS). Those administrative datasets cover almost the entire salaried workforce and have been widely used in labor market studies. Reporting hours in the DADS is mandatory and the information is used to manage and administer unemployment insurance and social benefits. To check the validity of hours, I rely on the methodology of Lachowska et al. (2022), applied to the administrative data of the State of Washington, and extend it by incorporating

Figure B.3: Distribution of Actual and Desired Hours, EEC 2003-2023



Note: The figures show the distributions of actual and desired hours worked for constrained workers based on Labour Force Surveys pooled between 2003 and 2023. The sample has been restricted to constrained employees with hours worked above 10 and an hourly wage between 0.8 and 1000 times the hourly minimum wage.

elements specific to the French context. This methodology has become a standard procedure to evaluate the quality of hours data (see e.g. Labanca and Pozzoli (2022)).

As in the original paper, I first compare the distributions of hours worked in the administrative data and the Labour Force Survey, including on a common sample of workers. Although the definitions of hours worked differ according to the sources, this comparison highlights the degree of reliability of the variable according to the type of situation. Second, I measure the correlation between the evolution of annual earnings and hours worked for individuals who remain in the same job over two successive years of data, denoted as the "signal-to-noise" ratio in Lachowska et al. (2022). Assuming that their hourly wage should remain constant over time, the estimated coefficient should be relatively close to 1 (0.8 in the original paper). Third, I examine to what extent the lower end of the hourly wage distribution follows the evolution of the hourly minimum wage (the *Smic* in France) over time.

B.2.1 Hours Distributions in Admin and Survey Data

The first part compares the working hours distributions reported in the DADS and the Labour Force Survey, which is the main source of survey data for working time studies. I consider data for the years 2005, 2010, 2015, and 2019, covering the entire study period (2003-2023) while maintaining a manageable dataset size. Some restrictions are applied to the DADS data to limit measurement errors: workers aged between 18 and 64, in ordinary jobs of more than 120 hours and 60 days. I also keep one observation per person-year, the one with highest annual earnings to maintain

consistency with the EEC definition of working hours *in the primary job*. Despite these adjustments, the comparison exercise has notable limitations.

First, the definition of hours worked is not the same across sources. The DADS data records the total number of paid hours for a given employer over the year. This definition is closer to contractual working time including standard hours, overtime, and paid absences. The EEC data, on the other hand, asks individuals about their *usual* hours worked (including overtime) per week. In short, the EEC aims to estimate the actual working time of the individual, including times that do not necessarily result in remuneration, while the DADS reflects the employer's perspective on the official hours of their employees. Annual hours from the DADS are recomputed as weekly hours using the starting and ending dates of employment. Second, the scope of the two sources differs. The DADS provides information on all salaried workers, while the EEC draws its sample from all individuals living in ordinary housing, including inactive or non-salaried individuals. I retain only salaried workers in this sample, although they are not representative of the entire population. To address potential sampling issues, I also provide distributions of both types of hours from the common EEC-DADS sample introduced in Section 3.2.3.

Figures B.4a and B.4b show the distributions of hours respectively from the DADS and the EEC. It is clear that the 35-hour peak, the standard duration in France, is more pronounced in administrative data, compensated by an over-representation of declarations between 37 and 45 hours in the EEC. Figure B.5 compares both distributions in the common EEC-DADS sample. The profiles are very close to the original figures which suggests that the gap in hours is not driven by representativeness issues. Figure B.6 represents average DADS paid hours at each level of EEC usual hours. Values are very close to the $x = y$ line in the part-time space (below 35) while in the full-time case both measures show very limited correlation.

Two particularities of the French working time regulation system can help to explain the difference. First, *forfait jours* contracts are a French flexible work arrangement which entails that working time is measured in terms of annual working days rather than in weekly hours. For workers subject to this arrangement, about 15% of the workforce in 2019, the employer is not required to monitor hours worked, nor to report them in their DADS record. The absence of hours worked is circumvented by Insee through recoding to an arbitrary number of hours. Since 2017, a variable of the DADS dataset (UNITMESUREREF) allows to identify workers with a forfait jours contract. They turn out to be mainly attributed either 1820 or 2200 annual hours

depending on the year of data. Forfait jours contracts are excluded from the sample in the majority of the paper and their removal is made explicit. Second, the gap in hours distributions between DADS and EEC could also be due to the *Réduction du Temps de Travail* (RTT) scheme. This arrangement grants rest days or half-days to an employee if the working time exceeds 35 hours per week (up to 39 hours weekly). Then, an employee who has a contract with 39 hours per week would probably report 39 usual hours in the EEC but their total number of hours over the year would correspond to a 35-hour equivalent. Apart from those two mechanisms, the gap in hours may reflect that workers on the right-side of the graph tend to over-report their hours.

B.2.2 Signal-to-Noise Regressions

The hourly wage of a worker paid through an hours contract can be considered to fluctuate stochastically around a fixed hourly rate. This observation from Lachowska et al. (2022) suggests that a simple regression of the evolution of annual labor earnings in logs between two periods $[\Delta \ln(earn_{it})]$ on the equivalent change in terms of hours worked $[\Delta \ln(hrs_{it})]$ provides a test of the reliability of the measurement of hours:

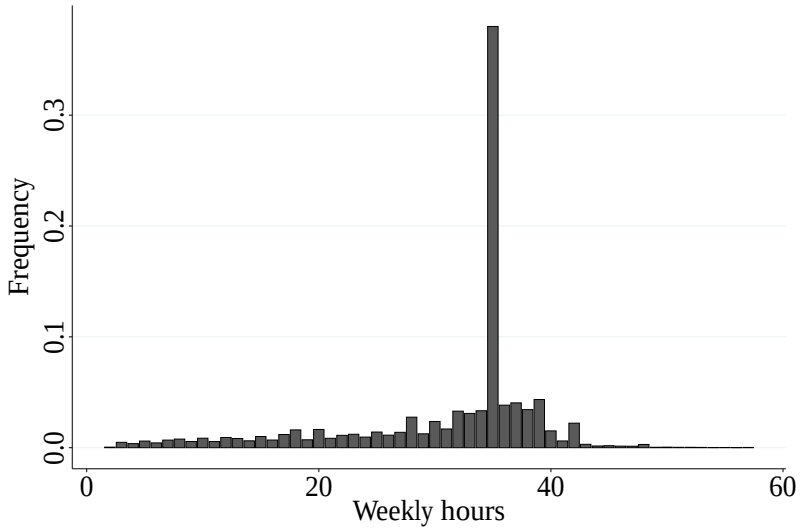
$$\Delta \ln(earn_{it}) = \alpha + \beta \Delta \ln(hrs_{it}) + \varepsilon_{it}$$

The test is not as relevant in the DADS yearly data as it is in the original Washington state quarterly data because hourly wages are more likely to increase e.g. due to promotion. Still, if hours are measured accurately, the estimates of the coefficient on the evolution of hours (β) should be arbitrarily close to 1 for hourly paid workers. On the other hand, if hours are measured with significant error, the coefficient from this simple regression is expected to be *attenuated*. Using the DADS yearly files between 2018 and 2019, I retain workers who stay in the same company and the same occupation across years and estimate the coefficient β in different specifications.

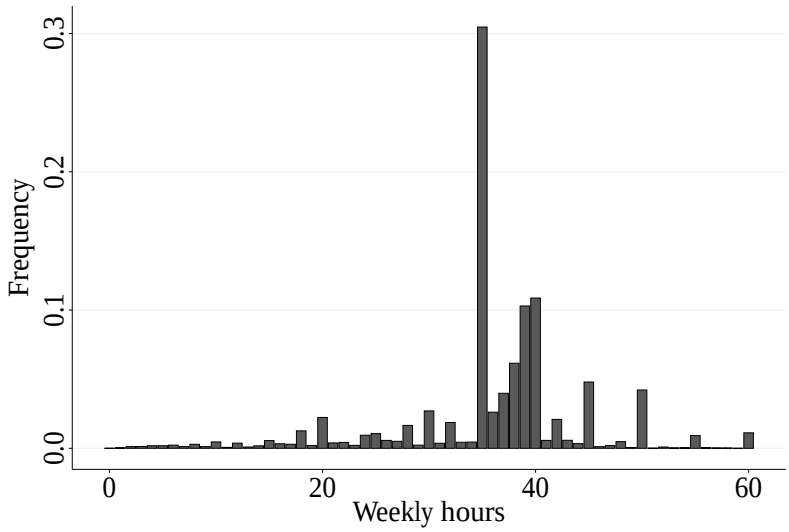
The results show a coefficient slightly below 0.7 stable across specifications. Complementary results by industry show strong homogeneity in signal-to-noise coefficients. Lachowska et al. (2026) consider that a coefficient equal to 0.8, in an area with 63% hourly-paid workers indicates low measurement error in hours. The lower proportion of hourly-paid workers in France coupled with the yearly nature of the data partly explain the lower coefficient and suggest that the DADS data could have a measurement quality similar to Washington state data.

Figure B.4: Distributions of Weekly Hours, EEC vs DADS, 2005, 2010, 2015 and 2019

(a) DADS - Paid hours



(b) EEC - Usual hours

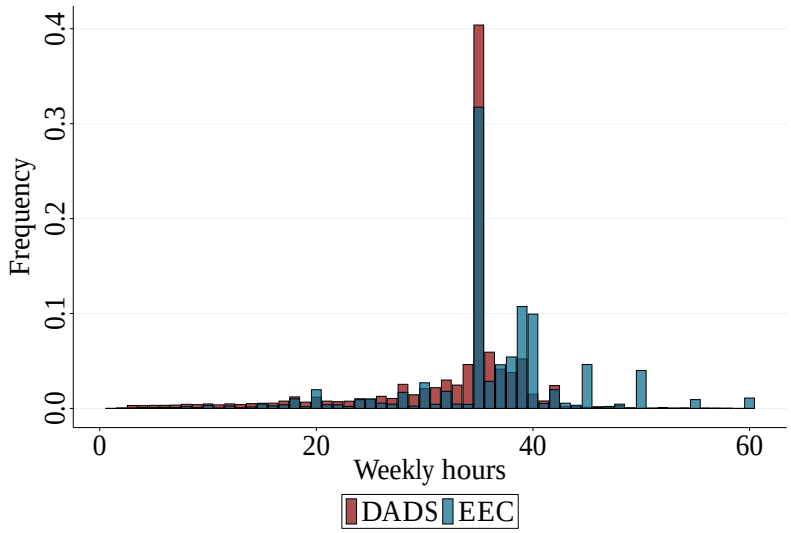


Note: The figures show the distributions of weekly working hours in the DADS and the French Labour Force Survey (EEC) in years 2005, 2010, 2015 and 2019. The sample includes salaried workers aged 15-64 in ordinary jobs of more than 120 hours and 60 days. Annual paid hours from the DADS are recomputed as full-year equivalent using the employment duration and then divided by 52 and rounded to obtain weekly hours. Values above 60 are not displayed.

B.2.3 Minimum Wage Changes and Nominal Wage Distributions

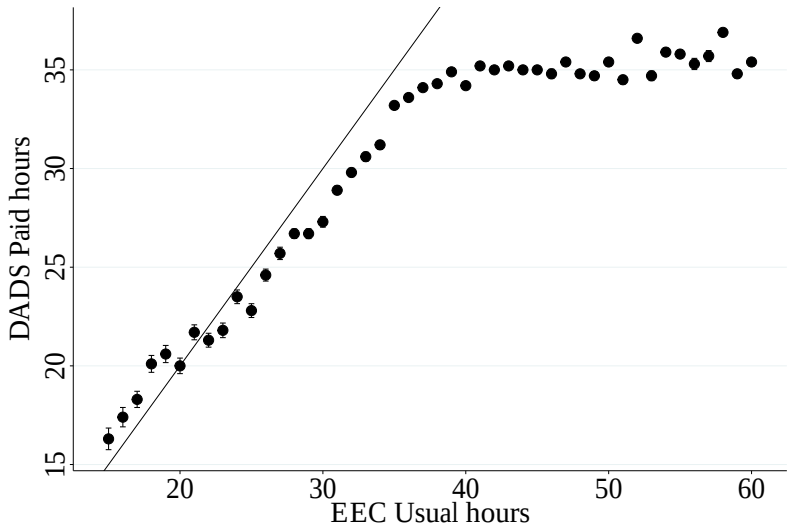
A simple test of the reliability of working hours, at least for low-wage employees, is to observe whether the distribution of nominal hourly wages reflects the variations in the net hourly minimum wage (the *Smic horaire*) over time. The hourly minimum wage is indexed to the inflation rate measured for workers below the first quintile of

Figure B.5: Distributions of Weekly Hours, EEC-DADS



Note: The figure shows the distributions of weekly working hours in the EEC-DADS dataset between 2003 and 2023. The sample includes salaried workers aged 15-64 in ordinary jobs of more than 120 hours and 60 days. Annual paid hours from the DADS are recomputed as full-year equivalent using the employment duration and then divided by 52 and rounded to obtain weekly hours. Values above 60 are not displayed.

Figure B.6: Comparison of Hours Worked, EEC-DADS



Note: The figure shows the relation between DADS paid hours and EEC usual hours in the EEC-DADS dataset between 2003 and 2023. Values correspond to the average of DADS paid hours at each (rounded) level of EEC usual hours. The diagonal line has slope 1. The sample includes salaried workers aged 15-64 in ordinary jobs of more than 120 hours and 60 days. Annual paid hours from the DADS are recomputed as full-year equivalent using the employment duration and then divided by 52 and rounded to obtain weekly hours. EEC weekly hours below 15 and above 60 are not displayed. Error bars correspond to the coefficient of variation.

the earnings distribution. Figure B.7 presents the results for 2005, 2010, 2015, and

Table B.2: Signal-to-Noise Coefficients between Earnings and Hours, 2018-2019

Dependent variable:	$\Delta \ln(earn_{it})$			
	(1)	(2)	(3)	(4)
$\Delta \ln(hrs_{it})$	0.684	0.684	0.692	0.692
	(0.000)	(0.001)	(0.002)	(0.001)
Employer FE	No	No	Yes	Yes
Std. Errors	Standard	Clustered at worker level	Standard	Clustered at worker level
Observations	12,608,316	12,608,316	12,608,316	12,608,316
Adj. R^2	0.49	0.49	0.62	0.62

Note: This table shows the results of the signal-to-noise regression using different specifications. The sample is composed of workers from the DADS 2018 annual dataset who stay with the same primary employer and the same occupation in 2019. Standard errors are in parentheses.

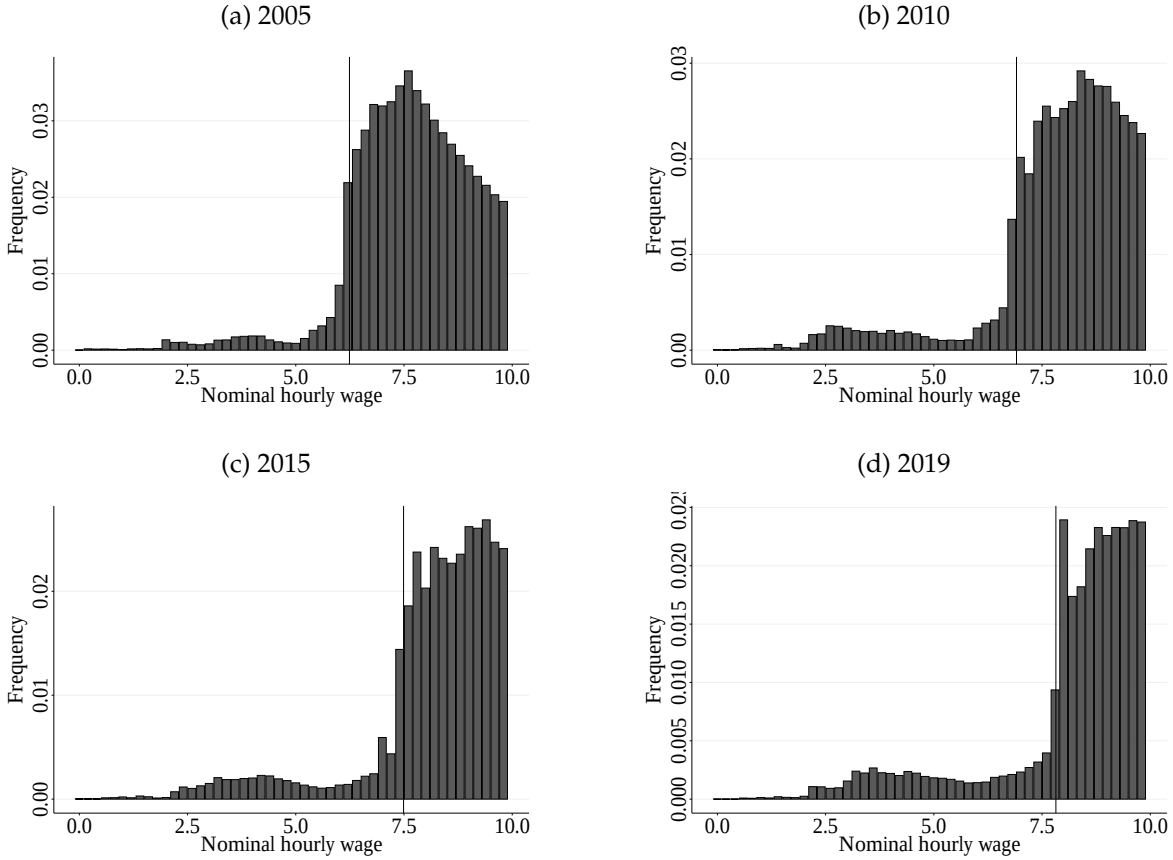
2019. The distribution of hourly wages exhibits a shift in the concentration of wages over time that corresponds to variations in the net hourly minimum wage. This pattern would not be observable in a database with significant measurement error. In particular, this exercise rules out systematic, time-invariant reporting.

B.3 Matching EEC and DADS

This section describes the procedure for linking the French Labour Force Survey (EEC) with the French matched employer-employee dataset (DADS) at the individual level. The general approach consists of finding the individuals surveyed by the EEC in the DADS exhaustive records. The sample only includes perfectly identified individuals i.e. who appear in a 1-to-1 match. This sample is then connected to the DADS panel obtained by following the procedure of Godechot et al. (2025). This ultimately leads to an innovative EEC-DADS Panel combining 6 quarters of observation in the EEC with the worker's employment history.

The challenge of matching the French Labour Force Survey with the DADS lies in the absence of a common individual identifier. However, both datasets share a number of variables that are supposed to be consistent: age, sex, occupation, part-time/full-time work, birth department, birth month (only between 2009 and 2012), residence municipality, and establishment's ID (*SIRET*). Table B.3 reports the names of the variables. The *SIRET* is the key variable that makes this match feasible, as it considerably reduces the number of individuals with the same characteristics and therefore limits the risk of "1-to-many" matches. Age (at the end of the year) and sex are never missing and have no reason to differ across sources for a given individual. The combination of these three variables is the base of the matching procedure and already provides a strong identifier, as "1-to-many" matches would only occur if there

Figure B.7: Distribution of Hourly Wages and Minimum Wage



Note: The figures represent the distributions of nominal hourly wages around the net hourly minimum wage (the *Smic horaire*) in 2005, 2010, 2015 and 2019. Nominal hourly wages are obtained by dividing net annual earnings by the annual number of hours worked in the DADS. Black vertical lines correspond to the net hourly minimum wage for the respective year. The values for the hourly minimum wage (in current euros) are 6.24 (a), 6.91 (b), 7.49 (c) and 7.82 (d). Distributions are divided into intervals of 0.20 euros and values above 10 euros are not displayed.

are at least two individuals of the same age and gender who work in the same workplace during the same year. Other variables are more subject to misreporting and are thus at some point recoded or removed from the list of matching variables. The idea is to use all common variables to build a correspondence table between individual identifiers of both sources for each year. Importantly, the EEC information concerns the primary job of the employee, which means that the linkage is realized through this employment spell. But, once an individual has been matched and appears in the correspondence table, all their employment spells during the year can be recovered from the DADS.

The procedure starts with some minor cleaning of the EEC to make some variables consistent with their DADS equivalent. All quarterly files between 2003 and 2023 are pooled, restricting the sample to employees whose *SIRET* information is not missing

Table B.3: Variables for EEC-DADS Matching

Variable	EEC	DADS	Description
Establishment's ID	SIRET	SIRET	The SIRET is a unique identifier for establishments in France. In the EEC, the variable is coded by Insee based on the establishment's adress reported by the individual. In the DADS, it is directly reported by HR services.
Age	AG	AGE	Age of the individual at the end of the year.
Sex	SEXE	SEXE	Gender of the individual (male/female classification).
Occupation	CSTOT, P	CS, PCS	The French occupational classification system changed in 2008. 2-digit variables are used prior to 2009 (CSTOT in the EEC and CS in the DADS), while the 4-digit current system variables (P in the EEC and PCS in the DADS) are used afterwards.
Working Time Status	TPPRED	CPFD	Employment status (full-time or part-time).
Birth County	DNAI	DEP_NAISS	French *département* (101 values) where the individual was born.
Birth Month (2009-2012)	NAIM	MOIS_NAISSANCE	Month of birth, available only for the specified period in the DADS.
Municipality of Residence	DEPCOM	COMR	French municipality, identified by the *Code commune*, where the individual resides.

Note: This table contains the names and description of variables used to link the EEC and DADS datasets. Variable names correspond to the 2019 version of each dataset (except for occupation and birth month). Multiple revisions between 2003 and 2023 have induced changes in the names and content of several variables. These changes are taken into account in the cleaning process in order to build a version consistent over the years.

– about 81% of the sample (see Table A.1). Likewise, the regional DADS files are pooled to build yearly DADS datasets with the minimum required number of variables (the individual ID *IDENT_S* and the matching variables). The match is then

performed in multiple steps with different subsets of the set of matching variables in order to optimize "1-to-1" matches. Here are the 11 sets of variables used through the procedure (using the DADS labels reported in Table B.3):

- **Set 1:** SIRET, AGE, SEXE, PCS, CPFD, DEP_NAISS, COMR
- **Set 2:** SIRET, AGE, SEXE, PCS, CPFD, COMR
- **Set 3:** SIRET, AGE, SEXE, PCS, CPFD, DEP_NAISS
- **Set 4:** SIRET, AGE, SEXE, CPFD, DEP_NAISS, COMR
- **Set 5:** SIRET, AGE, SEXE, CS, CPFD, DEP_NAISS, COMR
- **Set 6:** SIRET, AGE, SEXE, CS, CPFD, COMR
- **Set 7:** SIRET, AGE, SEXE, CS, CPFD, DEP_NAISS
- **Set 8:** SIRET, AGE, SEXE, CS 1st digit, DEP_NAISS, COMR
- **Set 9:** SIRET, AGE, SEXE, CPFD, DEP_NAISS
- **Set 10:** SIRET, AGE, SEXE, DEP_NAISS
- **Set 11 (2009-2012):** SIRET, AGE, SEXE, MOIS_NAISSANCE

The match is run with a R script called `2_eecdads_id.R` at the yearly level using clean and appended EEC and DADS files. At each step, I remove from both datasets individuals who have already been matched in order to avoid double matching. The complete process yields a correspondence table for each year between unique identifiers from the EEC ($IDENT \times NOI$) and the DADS ($IDENT\_S$). Using the correspondence table, one can retrieve all observations of identified individuals in the EEC and the DADS yearly files to build the EEC-DADS sample.

Appendix C Theory

C.1 Lewis-Rosen Model Proofs

Static Bargaining over Hours and Wages (Equations 1.2 and 1.3). As in Appendix B of Lachowska et al. (2026), I provide the derivations for the expression of bargained hours and wages. Under imperfect competition, bargained hours and wages solve the following maximization problem:

$$\left(w_{ij}^b, h_{ij}^b\right) = \underset{w,h}{\text{argmax}}\, u_i(e,h) \text{ s.t. } \Pi_j(h,\theta_i,w) = k_j$$

The Lagrangian associated with this problem is:

$$\mathcal{L}(w,h) = u_i(wh,h) + \lambda\left[R_j(h,\theta_i) - wh - k_j\right]$$

The first-order conditions of this problem are:

$$\frac{\partial \mathcal{L}}{\partial w} = 0 \quad \Rightarrow \quad \frac{\partial u_i}{\partial e}.h - \lambda h = 0 \qquad (1)$$

$$\frac{\partial \mathcal{L}}{\partial h} = 0 \quad \Rightarrow \quad \frac{\partial u_i}{\partial e}.w + \frac{\partial u_i}{\partial h} + \lambda\left[\frac{\partial R_j}{\partial h} - w\right] = 0 \qquad (2)$$

(1) yields the equality $\frac{\partial u_i}{\partial e} = \lambda$, which can be plugged into (2):

$$\frac{\partial u_i}{\partial e}\left[w + \frac{\partial R_j}{\partial h} - w\right] + \frac{\partial u_i}{\partial h} = 0 \quad \Rightarrow \quad -\frac{\frac{\partial u_i}{\partial h}}{\frac{\partial u_i}{\partial e}} = \frac{\partial R_j}{\partial h}$$

which corresponds to Equation 1.2.
Equation 1.3 then directly derives from the profit constraint, using h_{ij}^b, the solution for bargained hours:

$$R_j(h_{ij}^b,\theta_i) - wh_{ij}^b - k_j = 0 \quad \Rightarrow \quad w_{ij}^b = \frac{R_j(h_{ij}^b,\theta_i)}{h_{ij}^b}\left[1 - \frac{k_j}{R_j(h_{ij}^b,\theta_i)}\right].$$

Optimal Search Intensity (Equation 1.8). The worker employed at firm j chooses search intensity $s_i \geq 0$ to maximize the lifetime utility $V_{ij}(u)$, which satisfies the Bellman equation:

$$\left(\beta + \delta + \lambda(s_i,\theta_i)\,\bar{\Gamma}(T_j)\right) V_{ij}(u) = u - c(s_i) + \delta V_i^u + \lambda(s_i,\theta_i)\int_{T_j}^{\bar{T}} V_{ix}\left(u_{ix}^{\text{poaching}}\right) d\Gamma(x)$$

Solving for $V_{ij}(u)$ yields:

$$V_{ij}(u) = \frac{u - c(s_i) + \delta V_i^u + \lambda(s_i, \theta_i) \int_{T_j}^{\bar{T}} V_{ix}\left(u_{ix}^{\text{poaching}}\right) d\Gamma(x)}{\beta + \delta + \lambda(s_i, \theta_i)\, \bar{\Gamma}(T_j)}$$

Since $\lambda(s_i, \theta_i) = \lambda \cdot \phi(\theta_i) \cdot s_i$, we have $\partial\lambda/\partial s_i = \lambda \cdot \phi(\theta_i)$. Differentiating $V_{ij}(u)$ with respect to s_i and setting the result to zero, the first-order condition $\partial V_{ij}/\partial s_i = 0$ is equivalent to:

$$\left[-c'(s_i) + \lambda\phi(\theta_i) \int_{T_j}^{\bar{T}} V_{ix}\left(u_{ix}^{\text{poaching}}\right) d\Gamma(x)\right] \left[\beta + \delta + \lambda(s_i, \theta_i)\, \bar{\Gamma}(T_j)\right]$$
$$= \left[u - c(s_i) + \delta V_i^u + \lambda(s_i, \theta_i) \int_{T_j}^{\bar{T}} V_{ix}\left(u_{ix}^{\text{poaching}}\right) d\Gamma(x)\right] \lambda\phi(\theta_i)\, \bar{\Gamma}(T_j)$$

Dividing both sides by $\beta + \delta + \lambda(s_i, \theta_i)\, \bar{\Gamma}(T_j)$ and recognising that the right-hand side equals $V_{ij}(u) \cdot \lambda\phi(\theta_i)\, \bar{\Gamma}(T_j)$:

$$-c'(s_i) + \lambda\phi(\theta_i) \int_{T_j}^{\bar{T}} V_{ix}\left(u_{ix}^{\text{poaching}}\right) d\Gamma(x) = V_{ij}(u) \cdot \lambda\phi(\theta_i)\, \bar{\Gamma}(T_j)$$

Using $\bar{\Gamma}(T_j) = \int_{T_j}^{\bar{T}} d\Gamma(x)$, the right-hand side becomes $\lambda\phi(\theta_i) \int_{T_j}^{\bar{T}} V_{ij}(u)\, d\Gamma(x)$, so that:

$$c'(s_i) = \lambda\phi(\theta_i) \int_{T_j}^{\bar{T}} V_{ix}\left(u_{ix}^{\text{poaching}}\right) d\Gamma(x) - \lambda\phi(\theta_i) \int_{T_j}^{\bar{T}} V_{ij}(u)\, d\Gamma(x)$$

Factoring $\lambda \cdot \phi(\theta_i)$ and combining the two integrals over the common domain $[T_j, \bar{T}]$ yields the optimal search intensity condition in Equation 1.8:

$$c'(s_i) = \lambda \cdot \phi(\theta_i) \int_{T_j}^{\bar{T}} \left[V_{ix}\left(u_{ix}^{\text{poaching}}\right) - V_{ij}(u)\right] d\Gamma(x) \tag{1.13}$$

C.2 Willingness-To-Pay

Labor Supply Elasticity. The individual chooses h to maximize $u_i(w, h)$. The first-order condition with respect to h is:

$$\frac{\partial u_i}{\partial h} = w - \varepsilon_i \mu\, h^{\mu - 1} = 0 \tag{1.14}$$

Solving for h yields the Marshallian labor supply function:

$$h^*(w) = \left(\frac{w}{\varepsilon_i \mu}\right)^{\frac{1}{\mu-1}} \tag{1.15}$$

Taking the natural logarithm of (1.15):

$$\ln h^* = \frac{1}{\mu - 1} \ln w - \frac{1}{\mu - 1} \ln(\varepsilon_i \mu) \tag{1.16}$$

Differentiating with respect to $\ln w$ yields the Marshallian (uncompensated) wage elasticity of labor supply:

$$\eta \equiv \frac{\partial \ln h^*}{\partial \ln w} = \frac{1}{\mu - 1} \tag{1.17}$$

The elasticity η is constant across workers. A higher value of μ implies a more rapidly increasing marginal disutility of work, and thus a less elastic labor supply response to wages.

Alternative Definitions. Here, I compare the main definition of willingness-to-pay (WTP) introduced in Section 6 with the definition from Lachowska et al. (2026). In particular, I show that the latter is always superior to the former in the case where an individual who is constrained from above.

For simplicity, denote $u_0 = u(h_0, w_0)$ and $u^* = u(h^*, w_0)$, the two levels of utility that drive the estimation. Starting from the functional form of worker utility, for a given utility level u and hours h, the hourly wage is:

$$w(u, h) = \frac{u + \varepsilon h^\mu}{h}$$

Using this expression, both definitions of the WTP can be rewritten as:

$$\theta = w_0 - w(u_0, h^*) = \frac{u^* + \varepsilon h^{*\mu}}{h^*} - \frac{u_0 + \varepsilon h^{*\mu}}{h^*} = \frac{u^* - u_0}{h^*}$$

$$\theta_{alt} = w(u^*, h_0) - w_0 = \frac{u^* + \varepsilon {h_0}^\mu}{h_0} - \frac{u_0 + \varepsilon {h_0}^\mu}{h_0} = \frac{u^* - u_0}{h_0}$$

In the case where the individual is constrained from above, h_0 is lower than h^*, by definition. Hence, $\theta_{alt} > \theta$ is always true for a given constrained worker.

Chapter 2

The Role of Hours Constraints in the Child Penalty: Evidence from Germany

Abstract

A large literature has settled the existence of a child penalty on women's labor market outcomes. Previous studies estimate that one third of the gap in earnings lies in an hours component, in particular through women's shifts to part-time work at childbirth. Surprisingly, this hours gap persists in the long run, even once their children are grown up. This paper investigates the role played by hours constraints, i.e. employer-driven frictions that prevent individuals from working their preferred hours, in shaping the hours child penalty. Drawing on data from the German Socio-Economic Panel (GSOEP), which captures both actual and desired hours, I decompose the child penalty into two components reflecting, respectively, labor supply preferences and hours constraints. On average, hours constraints appear to play no significant role, but this masks important heterogeneity: childbirth doubles the share of underemployed mothers, and in this group, hours constraints account for 40% of the hours penalty.

1 Introduction

The child penalty, i.e. the long-run divergence in earnings between men and women triggered by the arrival of the first child, has emerged as one of the central explanations for the gender pay gap in Western countries. A large empirical literature, pioneered by Kleven et al. (2019b) and extended across many countries and institutional settings (Cortés and Pan, 2023; Kleven et al., 2024a), has documented that childbirth generates a sharp and persistent reduction in women's labor market outcomes relative to men's. An important driver of this divergence lies in the differential evolution of hours worked, the intensive margin of labor supply. Following the birth of their first child, women disproportionately switch to part-time employment, a shift that accounts for about a third of the total gap in earnings (Kleven et al., 2019b).

The sharp drop in hours worked following childbirth can be easily rationalized by childcare responsibilities. In the short-run, the arrival of a first child creates an important care burden that falls disproportionately on mothers, whether because of individual preferences for maternal care, or prevailing gender norms (Kleven et al., 2019a; Andresen and Nix, 2022). The more challenging part concerns the persistence of the gap in hours in the long-run. As children grow older and childcare requirements diminish, typically at school entrance, one might expect mothers' hours to recover towards their pre-birth level. In practice, however, this comeback does not materialize: the hours gap between mothers and fathers remains large and fairly stable up to at least 10 years after the first birth, with no sign of convergence. The birth of additional children might explain a late recovery, but it can hardly account for the persistence of the effect over such a long horizon. While recent evidence (Goldin et al., 2022) suggests that mothers end up closing the gap to non-mothers[1], the magnitude and stability of child penalty in hours worked remains mostly unexplained.

This paper examines a novel potential explanation for long-run child penalties: hours constraints, i.e. employer-driven frictions that prevent workers from working their preferred number of hours. The underlying hypothesis is that mothers who have switched to part-time work in the years following childbirth may face labor market constraints in their attempt to switch back to a full-time job in the long-run. The distinction thus splits the hours penalty between genuine labor supply preferences

[1] Goldin et al. (2022) measure the gap in hours worked between mothers and non-mothers at different age bins in the US and find that the gap starts shrinking at age 45.

and labor market frictions, and carries important policy implications.

For this study, I exploit the German Socio-Economic Panel (GSOEP) between 1984 and 2020, which uniquely combines (i) longitudinal data on both self-reported actual and desired working hours and (ii) detailed birth histories. The first point is a distinctive feature of the GSOEP as compared to other labor force surveys, which typically survey individuals over a few quarters, and makes it a particularly relevant dataset for the purpose of this study. The sample is restricted to a balanced panel of individuals who become parents during their period of observation, and who are observed between 3 years before and 9 years after the first childbirth. Desired hours are derived from the GSOEP's question asking workers how many hours they would want to work, *"taking into account that* [their] *income would change according to the number of hours"*. For individuals who have a child during their window of observation, I observe both actual hours and desired hours at each event time before and after childbirth, which, when combined, identify *underemployed* and *overemployed* individuals. Mobilizing this information into the child penalty framework allows me to estimate a counterfactual child penalty in hours if all workers were able to work their desired hours.

Using the GSOEP yet implies to study this topic in the context of Germany, a particular setting when it comes to both child penalty and hours constraints. First, Germany has been known to have one of the largest child penalties in the world, e.g. Kleven et al. (2019a) estimate the long-run penalty (the average penalty between 5 and 10 years after the childbirth) in earnings to 61%, and it mostly runs through labor force participation. The main advanced reason for this extreme magnitude is cultural: gender norms affecting female labor force participation appear to be particularly strong in the German population. Jessen (2022) provides some evidence of this channel by estimating lower penalties in East Germany, characterized by a more gender-egalitarian culture, than West Germany. Second, as recently documented by Jarosch et al. (2025), Germany stands out by its high proportion of workers who would like to reduce their hours (with a corresponding decrease in earnings), which suggests that underemployment may not be a relevant angle to explain large child penalties in this context. However, although overemployment dominates in the total workforce, the share of underemployed workers is high in groups that are affected by the child penalty. For instance, 36% of female workers with monthly earnings below 1,000€ report being underemployed. This implies that hours constraints exist in certain labor markets in Germany, though it may not be as broad a phenomenon as it is in other countries.

The standard approach for estimating child penalties, pioneered by Kleven et al. (2019b), regresses outcomes on a set of event time dummies along with calendar year and age fixed effects. However, recent work (Melentyeva and Riedel, 2025; Kaeppel, 2025; Leventer, 2026) has identified biases in this approach, in particular contamination bias in the presence of treatment effect heterogeneity, and clarified the assumptions required for credible estimation of child penalties. Building on this methodological discussion, I follow the imputation-based approach developed by Kaeppel (2025), which applies the event-study framework of Borusyak et al. (2024) to the child penalty context. The main methodological contribution is to extend the estimation procedure by constructing an adjusted estimator that quantifies the child penalty if all workers work their desired hours. Comparing the adjusted child penalty estimate based on desired hours to the baseline penalty isolates the share of the hours penalty that would persist in the absence of hours constraints.

At childbirth, women's employment rate drops sharply by about 60 percentage points, driving hours and earnings down with it. As women return to work, they do so overwhelmingly through part-time employment, and hours show limited recovery over the post-childbirth window, which accounts for the persistence of the hours penalty. Turning to hours preferences, overemployment is the dominant form of mismatch, both before and after childbirth for both men and women. Yet, among those returning to work, the share of underemployed women rises to around 25% by the end of the window, roughly twice the pre-birth level. This descriptive evidence suggests that childbirth generates underemployment, and that hours constraints may play a non-trivial role in the persistent penalty in hours worked for a certain group of mothers.

Using the imputation-based event-study estimator, I find long-run penalties of 60% in hours worked and 89% in net earnings, primarily driven by the sharp employment exit at childbirth. The central finding is that the child penalty on desired hours is virtually identical to the penalty on actual hours across the entire post-birth window, implying that hours constraints play no significant role in the persistence of the child penalty in hours at the aggregate level. This conclusion, however, masks important heterogeneity. For mothers who are underemployed at the end of the observation window, hours constraints account for approximately 40% of the hours penalty. Interestingly, this group does not differ markedly from other mothers in terms of individual characteristics (e.g. age or education). Yet, as compared to both overemployed mothers and pre-birth underemployed women, they tend to be over-represented in small firms and part-time-intensive sectors, which points to

employer-side rigidities as the key driver of underemployment. Other dimensions, typical in child penalty studies, such as partner earnings, birth cohort, sector of employment, region, and number of children do not capture the distinction between underemployed and non-underemployed mothers.

For the majority of mothers, who do not report wanting to increase their hours, the hours penalty reflects labor supply preferences, possibly shaped by gender norms or intra-household bargaining. This suggests that policies addressing cultural factors and the unequal division of domestic labor are the most relevant levers. Yet, a constrained minority of mothers would like to work more hours at their current wage but cannot find such jobs. This result points to demand-side failures in the part-time labor market, which fall under the scope of labor market policies.

Related Literature. This paper contributes to three strands of literature. First, it contributes to the extensive literature on the child penalty in earnings and hours worked. Kleven et al. (2019b) establish the event-study framework and decompose the penalty into margins of labor force participation, hours, and wages, showing hours to be a key contributor to the long-run earnings penalty. Subsequent work has extended this framework across countries (Kleven et al., 2019a; Andresen and Nix, 2022), decomposed the penalty across the earnings distribution (Pora and Wilner, 2025), and examined the role of firm-level adjustments (Casarico and Lattanzio, 2023; Jack et al., 2025). More broadly, Bertrand et al. (2010) and Goldin (2014) have shown that hours worked account for an important share of the residual gender earnings gap even outside the child penalty framework. I contribute to this literature by quantifying the role of a specific and previously underexplored mechanism, hours constraints in the persistence of the hours penalty after childbirth. Goldin et al. (2022) also tackles the persistence of the penalty over time and find that mothers eventually catch up to non-mothers after 45 years old. Second, this paper relates to the literature on women's labor supply preferences and their measurement. Women have often been documented to have a stronger taste for shorter hours and workplace flexibility, a pattern frequently attributed to childcare requirements (Goldin, 2014; Mas and Pallais, 2017; Wiswall and Zafar, 2017). Their persistent reduction in hours worked after childbirth is therefore commonly interpreted as reflecting labor supply preferences. This interpretation relies on actual hours as a proxy for true labor supply, however, which conflates preferences with constraints and gender norms (Kleven et al., 2019a; Cortés and Pan, 2023). By using desired hours, I recover a closer approximation to true labor supply and show that a sizable share of mothers work

less than they would want to not because of their preferences, but because of the structure of the jobs available to them. Brouard and Dubreuil (2025) use a similar approach in France to disentangle the role of constraints and preferences but focus on the short-term period after childbirth and do not exploit a national large-scale survey. Third, I contribute to the literature on hours constraints and underemployment (Bell and Blanchflower, 2021; Beckmannshagen and Schröder, 2022; Lachowska et al., 2023; Roux, 2025), which has documented the prevalence and consequences of employer-driven hours rigidities, particularly among low-wage workers. I extend this literature by connecting it to the child penalty context, showing that underemployment can be generated endogenously by life-cycle events such as childbirth.

The paper is organized as follows. Section 2 describes the data, sample selection, and empirical strategy. Section 3 presents descriptive evidence on underemployment and labor market outcomes around childbirth. Section 4 reports the main estimates of child penalties and identifies the role played by hours constraints in the gender gap in hours.

2 Data and Methodology

2.1 Data

I mobilize for the period between 1984 and 2020 the German Socio-Economic Panel (GSOEP), which presents the advantage of combining a survey measure of desired and actual hours worked in a longitudinal data structure.

The GSOEP is a longitudinal household survey that started in 1984 and comprises, as of 2019, around 30,000 respondents annually (Goebel et al., 2019). It was initially targeting West German households, and was extended in 1990, following the German reunification[2]. The survey is particularly well-suited for studying the nexus between hours constraints and child penalties, as it provides a representative sample of the German population with high-quality information on the central variables of our analysis: actual and desired working hours, and the timing of childbirth. Because of the presence of birth histories, the GSOEP is a commonly used source for the estimation of child penalties (see Melentyeva and Riedel (2025)). The database also covers a comprehensive list of socio-economic indicators including employment

[2]Previous papers using this data (Melentyeva and Riedel, 2025) have restricted the sample to West German individuals. I apply this restriction as a robustness check for the validity of the results in Section 4.2.

status, earnings, occupation, education, and detailed household composition.

Sample Selection. Following Kaeppel (2025), I only consider observations of individuals aged between 18 and 55. The original sample consists of 53,229 parents observed over 893,093 person-year observations. The sample is then restricted to individuals whose first child is born during their observation window (15.7%) and who appear in enough years to create a balanced panel between 3 years before and 9 years after the childbirth[3]. This double criterion yields a final sample of 2,071 individuals (3.2% of the original sample) and 26,923 person-year observations. I consider this large window of observation to be consistent with the goal of studying long-run evolution of mothers, at the cost of a sample of limited size.

As most survey panel data, the GSOEP data is subject to attrition, i.e. some individuals present in one wave do not participate in subsequent waves. The GSOEP documentation (Siegers et al., 2022) distinguishes between two types of exits. The first is survey-unrelated attrition, deaths and permanent emigration, which represents a genuine departure from the target population and is therefore not considered a source of bias. The second, and more problematic, type is survey-related attrition, which arises either from unsuccessful follow-up, when the fieldwork organization is unable to locate a household that has moved, or from outright refusal to participate. This form of attrition is not random, as respondents would tend to be, for instance, less educated. Since our estimation strategy requires individuals to be observed over a long period around the birth of their first child, our final sample is subject to additional restrictions, which may reinforce concerns about selective participation. One potential threat is the relation between attrition and childbirth timing. If individuals are more likely to exit the sample after having a child, e.g. because of a move, then treated individuals used for the estimation are selected as "survivors". Survivors are likely to be individuals with a stronger labor market attachment, which would then lead us to underestimate the child penalty. To address this point, I regress a dummy for exiting the sample on event-time, age and year dummies and plot the estimates on event time dummies (for $\ell \in [-20; 20]$) on Figure D.1. Conditional on age and year, there is no significant differential attrition by event-time, though estimates are imprecise and depict an increasing pattern after childbirth.

Table D.1 in the Appendix compares the characteristics of the original and final samples. Samples are broadly similar in most characteristics and major differences, in variables such as age or employment share, are driven by the restrictions required for

[3]The 9-year boundary is chosen to produce a balanced sample of more than 2,000 individuals.

child penalty estimation. Part-time and underemployed workers are under-represented in the final sample as the restriction on having a child during the period of observation implies that individuals in the final sample are also observed before having their first child, where they are more prone to work full-time. Workers in the final sample are also more educated, which is consistent with our restrictions over long-run presence in the survey. Figures D.2 and D.3 show that the final sample reproduces quite well the representation of underemployed workers by industry and occupation. Note that underemployment is heavily concentrated in feminized sectors and occupations with a high prevalence of part-time work. I then describe the primary variables of interest used as outcomes in the paper:

- **Earnings.** I use information on net monthly labor earnings from the previous month in the main job. If interviewees do not answer, their earnings are imputed using a combination of individual longitudinal data and cross-sectional trend data (Goebel et al., 2019).

- **Working Hours.** The GSOEP provides information on both actual and contractual working hours. In this paper, I focus on actual weekly working hours, which better capture the realized working hours including overtime and short-time work arrangements. Actual working hours are surveyed with the question: *"How many hours do you actually work per week, including any overtime?"*.

- **Desired Hours.** A distinctive feature of the GSOEP that makes it uniquely suited for our research question is the availability of information on desired working hours. This variable is obtained through the following question:

  "If you could choose your own working hours, taking into account that your income would change according to the number of hours: How many hours would you want to work?"

  Importantly, the spirit of the question is to ask respondents to condition their answer on their current hourly wage. By holding the wage rate fixed, the question elicits labor supply preferences along the intensive margin, capturing how many hours individuals would choose to work given their current compensation. This allows us to run counterfactual exercises on earnings in further sections. The question was not included in the survey for the year 1996. This has little implication for the main estimates as year fixed effects are included in the specification.

- **Underemployment.** I build an indicator variable for being underemployed, equal to 1 if the individual reports desired hours above their current actual hours. This corresponds to cases where the individual wants to increase their hours at their hourly wage.

Following previous work on child penalty (Kleven et al., 2024b; Kaeppel, 2025), earnings and both actual and desired hours worked are set to zero for non-employed observations.

Measurement of Desired Hours. The validity of survey measures of desired working hours has been examined in the literature. In particular, understanding how workers perceive questions regarding their ideal hours, and whether their answers are truly indicative of hours constraints, is a priori challenging. In previous work (Roux, 2025), I assessed the quality of the measurement of hours preferences in the French Labour Force Survey, which relies on questions similar to the GSOEP ones. Using complementary information from the survey, I provide supportive evidence for the interpretation of these questions as conveying a realistic, thoughtful preference for working additional hours. In the same vein, Faberman et al. (2020) study the validity of analogous measures of desired working hours by comparing survey responses to actual labor market transitions for a sample of US employees. They find that stated preferences for hours changes are predictive of subsequent job changes and hours adjustments, suggesting that these measures capture genuine constraints rather than mere hypothetical preferences. Beckmannshagen and Schröder (2022) obtain similar results in the German context using the GSOEP data, which supports the economic meaningfulness and the explanatory power of the desired hours variable used in the present paper. Finally, this variable data has recently been exploited by Jarosch et al. (2025) in their counterfactual welfare analysis of a shorter workweek.

In the context of the child penalty, interpreting desired hours requires some additional caution. An individual reporting a desire to work more hours may face two distinct types of constraints. The first is a labor market constraint: the worker cannot find a job offering their preferred number of hours, a friction extensively documented in the literature (Bell and Blanchflower, 2021; Beckmannshagen and Schröder, 2022; Lachowska et al., 2023; Roux, 2025). The second is a family constraint: the individual would ideally work more but is prevented from doing so by childcare responsibilities, either because affordable childcare is unavailable or because the intra-household division of labor attributes a greater share of domestic work to one

partner, typically the mother. Distinguishing between both types of constraints in this context is challenging.

To shed light on the interpretation of desired hours, I draw on complementary information from the GSOEP on domestic work duties. Figure D.4 plots the sum of employment, commute, childcare and housework hours of mothers by event time, separately for underemployed and not underemployed observations. Underemployed mothers devote more time to both domestic work ($\Delta = 0.25$h/week) and childcare hours ($\Delta = 0.76$h/week), yet their total number of hours worked, including out-of-work hours, remains largely inferior to other mothers'. The gap means that underemployed mothers have scope to increase their working hours, and that childcare or housework responsibilities alone do not account for their situation. One may also consider the reverse channel: because these mothers cannot find jobs with longer hours, they may decide to allocate more time to household duties instead. Note also that the difference is not explained by commuting time, which is similar across groups. The other information that can be mobilized to address the reliability of desired hours in a childbirth context is mothers' self-reported satisfaction with available childcare, measured on a scale of 0 to 10. Figure D.5 presents the distribution of answers, and reveals that underemployed mothers report a marginally, but significant, lower satisfaction.

Both figures provide evidence that underemployed mothers face stronger childcare constraints, which may be a source of their underemployment report that is unrelated to hours constraints imposed by employers. Yet, the limited magnitude of the gap observed makes it unlikely that underemployment is entirely, or even primarily, driven by childcare or domestic constraints. In the rest of the paper, I then interpret underemployment through the lens of labor market frictions, while remaining open to alternative interpretations of the estimates.

2.2 Empirical Strategy

I estimate child penalties following recent methodological advances in the causal inference literature on parenthood effects. The standard approach for estimating child penalties, pioneered by Kleven et al. (2019b), regresses earnings on a set of event time dummies along with calendar year and age fixed effects. This event-study methodology has been widely adopted to quantify the divergence in earnings trajectories between mothers and fathers following childbirth (Andresen and Nix, 2022; Kleven et al., 2024b; Pora and Wilner, 2025).

However, recent work (Melentyeva and Riedel, 2025; Kaeppel, 2025; Leventer, 2026) has identified potential biases in this standard approach and clarified the identifying assumptions required for credible estimation of child penalties. A key concern is contamination bias: if there is variability in age-year specific treatment effects, the event time coefficients are biased and can no longer be interpreted as a weighted average of treatment effects. Building on this methodological discussion, I follow the imputation-based approach developed by Kaeppel (2025), which extends the event-study framework of Borusyak et al. (2024) to the child penalty context. The imputation estimator relies on two identifying assumptions: no anticipation (NA) and conditional independence (CIA). The NA assumption requires that individuals do not adjust their labor market outcomes in anticipation of future childbirth. The CIA states that, conditional on age and calendar year, the timing of first birth is independent of what labor market outcomes would have been in the absence of childbirth. I test the plausibility of the CIA assumption in the next section, using an OLS-based testing procedure developed by Kaeppel (2025). Under the two assumptions, untreated potential outcomes can be identified from control individuals and used to construct counterfactuals for treated individuals, here parents. In this case, the control group is composed of "not-yet-treated" observations, i.e. observations of individuals who will become parents in future periods. This choice limits the requirements of the CIA assumption to exogeneity in the timing of the childbirth, rather than in the decision to ever have a child.

The estimation proceeds in three steps. First, age and year fixed effects are estimated fitting the following regression in the group of not-yet-treated observations:

$$Y_{it} = \kappa + \beta_a D_{it}^{\text{age}} + \gamma_y D_{it}^{\text{year}} + \epsilon_{it} \tag{2.1}$$

where Y_{it} denotes a labor market outcome, e.g. earnings or hours, for individual i in year t, and D_{it}^{age} and D_{it}^{year} are sets of age and calendar year dummy variables, respectively. Age and year fixed effects are included to account respectively for life-cycle patterns and macroeconomic trends.

Second, I use the estimated coefficients $\hat{\kappa}$, $\hat{\beta}_a$, and $\hat{\gamma}_y$ to predict the counterfactual labor market outcome of parents had they remained childless:

$$\hat{Y}_{it}(0) = \hat{\kappa} + \hat{\beta}_a D_{it}^{\text{age}} + \hat{\gamma}_y D_{it}^{\text{year}} \tag{2.2}$$

The individual treatment effect is the difference between the observed outcome and

this counterfactual: $\hat{\tau}_{it} = Y_{it} - \hat{Y}_{it}(0)$. This directly measures the impact of parenthood on a given outcome for each individual in each year.

Third, I aggregate individual treatment effects to estimate the average treatment effect on the treated at each event time ℓ: $ATT(\ell) = \sum_{it \in \Omega} \omega_{it} \hat{\tau}_{it}$, where the weights ω_{it} sum to one. By construction, this estimator ensures that counterfactual outcomes are derived solely from not-yet-treated observations, consistent with the identifying assumptions, and avoids the contamination bias that arises in standard event studies when treatment effects are heterogeneous across event times.

I construct an event time variable that measures the number of years relative to the birth of the first child, with $\ell = 0$ denoting the year of birth. The window of analysis spans from $\ell = -3$ to $\ell = 9$, which allows me to examine outcome trajectories up to 10 years after childbirth. This window is chosen to balance the trade-off between capturing long-run effects, which are of particular interest here, and maintaining a sufficient sample size. The balanced sample includes 26,923 person-year observations of 2,071 individuals, which I consider as sufficient to produce a robust estimation. At the end of the section, I re-estimate child penalties using an alternative balanced panel between $\ell = -3$ and $\ell = 5$, covering about 3,000 individuals.

I apply this framework to a standard set of labor market outcomes: employment and part-time employment dummy variables, net monthly earnings, and actual weekly hours, hence establishing benchmark child penalty estimates. Then, the main contribution of the paper is to extend the child penalty estimation using desired working hours as an outcome variable. Desired hours capture individuals' optimal labor supply at their current hourly wage and can thus be used to provide a counterfactual measure of the child penalty in hours worked absent constraints.

Estimating Counterfactual Hours. Using desired hours as a measure of counterfactual ideal hours in the event-study design, however, raises a methodological subtlety. In the GSOEP, individuals report the number of hours they would like to work at their current wage, which may diverge from actual hours due to pre-existing labor market frictions. Before childbirth, the gap between desired and actual hours is on average negative, i.e. workers report wanting to work less hours than they actually do, with marked heterogeneity across individuals and genders. Applying the event-study framework directly to desired hours, what is hereafter called the *naive* estimation, captures changes in preferences around childbirth, but it does not integrate the change relative to pre-birth actual hours. The goal of the

approach is not to estimate this shift in hours preferences related to childbirth, but rather to provide a counterfactual measure of the change in actual hours if workers were able to choose their hours without constraints after childbirth.

To address this issue, I consider an *adjusted* estimation that modifies the treatment effect formula by replacing the observed outcome Y_{it} with desired hours h_{it}^{desired}, while retaining actual hours as the basis for the counterfactual $\hat{Y}_{it}(0)$. Concretely, the age and year fixed effects are estimated on not-yet-treated observations using actual hours as the outcome, yielding the individual counterfactual $\hat{Y}_{it}(0) = \hat{\kappa} + \hat{\beta}_a D_{it}^{\text{age}} + \hat{\gamma}_y D_{it}^{\text{year}}$ as in Equation 2.2. The adjusted individual-level estimate is then $h_{it}^{\text{desired}} - \hat{Y}_{it}(0)$, i.e. the gap between what the individual reports wanting to work and the hours they would have worked absent childbirth given their age-year position in the life cycle. Aggregating this quantity over treated observations at each event time gives the adjusted $ATT(\ell)$. Comparing this estimate to the child penalty estimate on actual hours captures the extent to which the evolution of mothers' hours worked would differ without hours constraints. The naive and adjusted estimates are therefore two different objects: the former reflects the shift in labor supply preferences around childbirth, while the latter identifies the share of the change in actual hours worked that is not driven by hours constraints.

Why Not Difference-in-Differences? Kaeppel (2025) proposes an alternative estimator that relaxes the conditional independence assumption in favor of the weaker parallel trends assumption, controlling for individual time-invariant unobserved heterogeneity via a difference-in-differences (DiD) framework. This approach, also promoted by Melentyeva and Riedel (2025), is appealing as it does not require fertility timing to be as-good-as-random conditional on age and year, and yields more credible estimates particularly for male outcomes for whom conditional independence is rejected in the data. However, its implementation requires computing cohort-time-specific treatment effects $ATT(g,t)$ within age groups before aggregating them across cohorts and event times, which is highly demanding in terms of sample size. With approximately 2,000 individuals, partitioning the sample simultaneously across treatment cohorts, age bins, and event times would result in cell sizes too small to yield reliable estimates of the DiD estimator. Even in Kaeppel (2025)'s application to approximately 130,000 French parents, precision remains limited when estimating age-bin-specific effects. I therefore rely on the imputation estimator under the CIA, which pools untreated observations more efficiently, at the cost of a stronger assumption.

3 Descriptive Statistics

This section provides descriptive statistics on the two core aspects of the paper: underemployment and child penalties. Section 3.1 presents the main characteristics of workers who report wanting to work more hours in the GSOEP sample. Section 3.2 shows evidence on the evolution of labor market outcomes, including underemployment, around childbirth.

3.1 Hours Preferences in the German Workforce

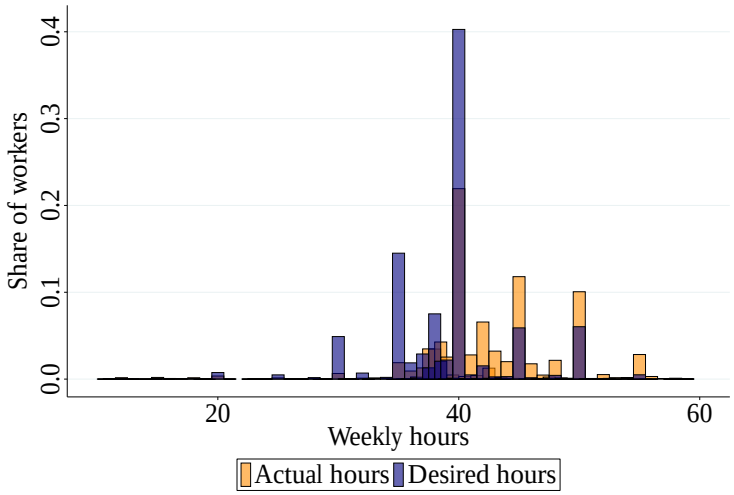
I begin by examining the distribution of desired weekly hours using the balanced sample introduced in Section 2.1, restricted to observations where the individual is working. Figure 2.1 displays the distributions of actual and desired hours for employed men (a) and women (b). First, desired hours are relatively dispersed but overall shifted to lower values, confirming that overemployment dominates. Desired hours exhibit a strong degree of bunching at round numbers, such as 20, 30, or 35, suggesting that workers' reported preferences cluster around salient points in the distribution. Second, hours distributions have a clear gender dimension. Men predominantly work full-time and mostly want to work more than 35 hours per week. On the other hand, a significant share of women works part-time but their desired hours are also more frequently in the part-time zone of the distribution. This picture indicates that overemployment is pervasive among both men and women, and that the counterfactual hours distribution preserves the gender composition of part-time and full-time work.

Figure 2.2 offers a more nuanced picture by plotting the composition of hours preferences across the earnings distribution. Workers are classified as underemployed, overemployed, or satisfied depending on the direction of the gap between their actual and desired hours, and their shares are plotted by within-gender earnings decile. Behind average overemployment, the figure reveals important heterogeneity: underemployment is heavily concentrated at the bottom of the earnings distribution for both men and women[4], while overemployment is progressive over the distribution. The earnings gradient is particularly pronounced for women: in the lowest decile of the female distribution, underemployed workers are majoritarian, reflecting the high incidence of involuntary part-time employment among low-wage women. Moving up the earnings distribution, the share of underemployed women declines sharply and overemployed workers become

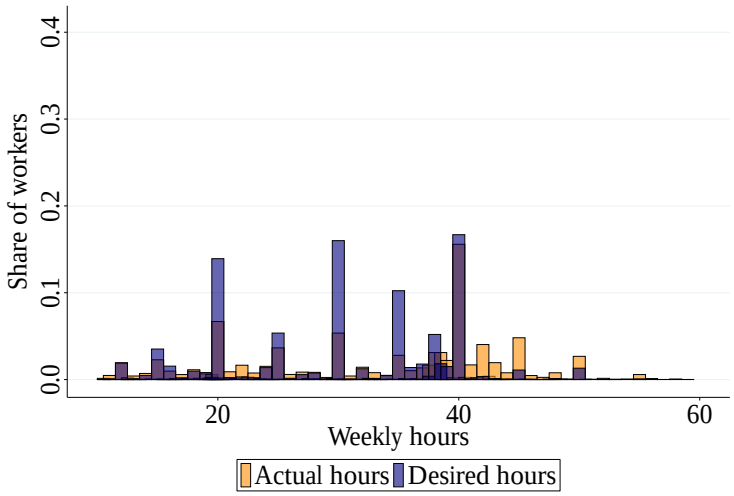
[4]This picture is very similar to the French case of underemployment described in Roux (2025).

Figure 2.1: Distribution of Actual and Desired Weekly Hours, by Gender

(a) Men



(b) Women

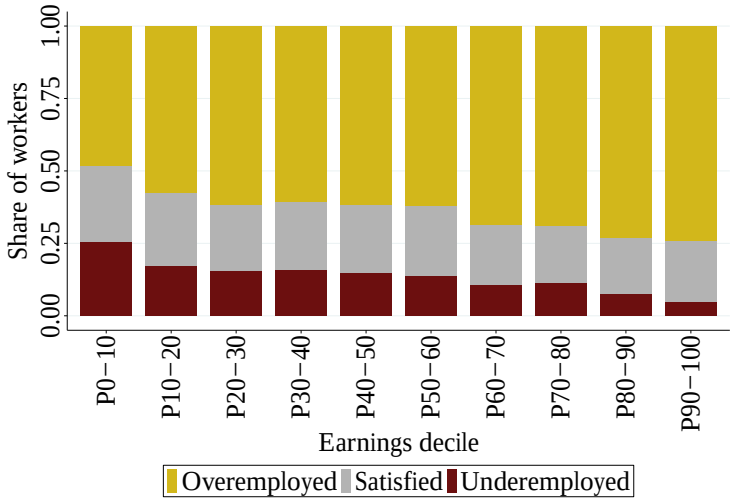


Note: The figures show the distributions of actual and desired hours worked separately for men (a) and women (b). Each bar shows the share of worker-year observations at a given hours value. The sample is a balanced panel of individuals whose first child is born during the observation window, restricted to employed individuals. Values below 10 and above 60 are not displayed. GSOEP, 1984–2020.

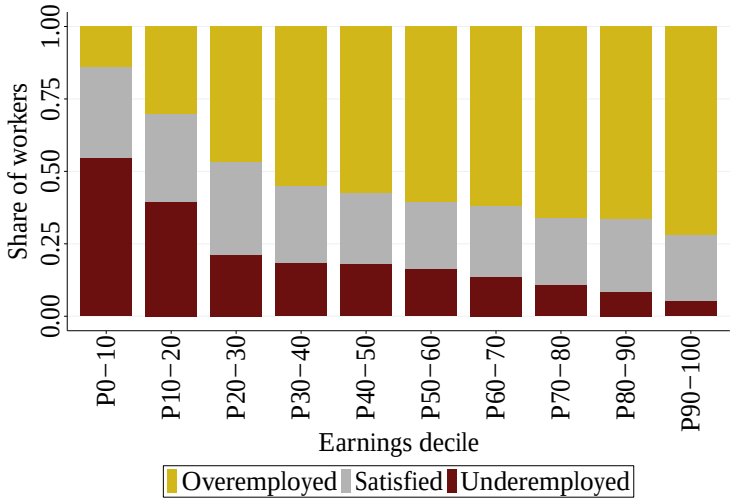
increasingly prevalent. Overall, underemployed workers respectively represent 20% and 13% of female and male workers. Complementary evidence shows that the over-representation of underemployed workers in lower deciles is not driven by preferences for longer hours, but rather by shorter actual hours. Descriptive statistics broadly support the existence of a labor market segmentation: while most workers would prefer to reduce their hours and earnings, specific groups of precarious workers are seeking to increase them.

Figure 2.2: Hours Mismatch Status by Earnings Decile and Gender

(a) Men



(b) Women



Note: The figures show the distributions of workers' preferences in the earnings distribution separately for men and women. Three groups are considered based on their actual and desired hours: overemployed, satisfied and underemployed. Earnings deciles are defined within year and gender. GSOEP, 1984–2020.

Table D.2 formalizes this segmentation by presenting summary statistics separately

for underemployed, satisfied, and overemployed workers. With 59% of worker-year observations, overemployment is indeed the most prevalent form of hours mismatch in the sample. Groups of hours preferences greatly differ in terms of gender and earnings, in line with Figure 2.2. Underemployed workers are the most feminized group, with women representing 52.1% of the underemployed compared to 37.4% of the overemployed. All three groups are similar in age and age at first childbirth. In terms of education, overemployed workers are more likely to hold higher education degrees (27.4%) than underemployed workers (17.7%), mirroring the earnings gradient. The hours picture is of particular importance: underemployed workers work on average 28 actual hours per week against 36.1 desired hours (a mismatch of $+8.1$ hours), while overemployed workers average 42.8 actual hours against 34.8 desired hours (a mismatch of -8.0 hours). Satisfied workers, by construction, have identical actual and desired hours at 35.3 hours per week. Then, underemployed workers mostly differ from other workers in terms of actual hours, not in hours preferences. As expected from actual hours, part-time employment is most prevalent among underemployed workers (47.7%), and much less common among overemployed workers (13.0%).

Figure D.6 plots the evolution of hours preferences over the period of observation, 1984–2020. Actual hours have greatly declined over this period, as previously documented in Beckmannshagen and Schröder (2022), and desired hours have followed a similar, though attenuated, downward trajectory. As a result, underemployment has remained relatively stable throughout the entire period. If anything, overemployment has slightly increased at the expense of the satisfied group in the more recent period.

3.2 Labor Market Outcomes

This section provides evidence on the evolution of raw labor market outcomes around childbirth and prepares the formal estimation of child penalties.

Figure 2.3 presents the raw mean labor market outcomes of men and women in the sample, plotted against event time relative to the birth of the first child. The four panels reveal a large and persistent divergence between men and women at the time of the first birth for employment (a), net earnings (b), actual hours (c) and part-time employment (d). Prior to childbirth, both groups follow parallel trajectories across all four outcomes. At $\ell = 0$, the year of first birth, women's employment rate drops while men's remains stable. The drop is even stronger at $\ell = 1$, which reflects the

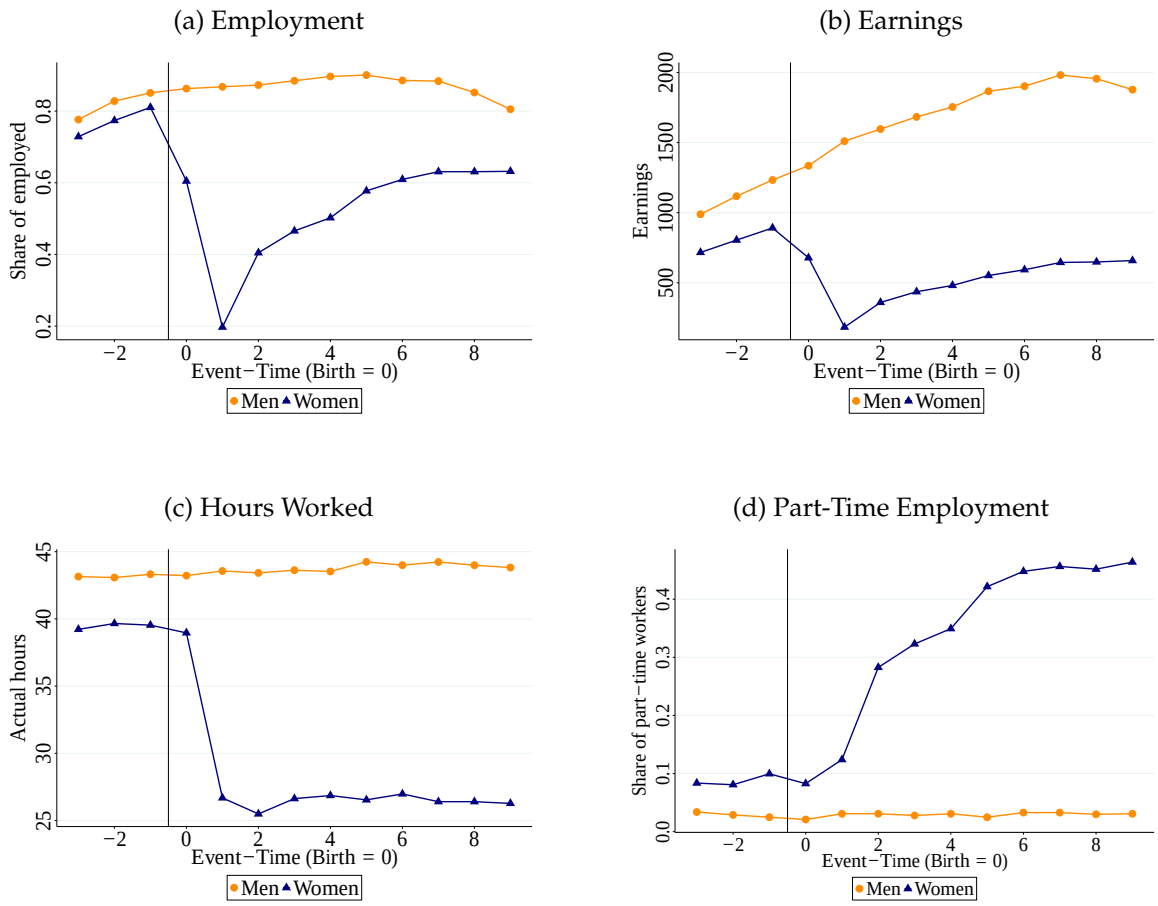
survey timing at $\ell = 0$ that may occur before or after childbirth (as shown by Figure D.7). Combining $\ell = 0$ and $\ell = 1$ implies to a decrease of the employment rate by about 60 percentage points.

Earnings and hours are measured over the full sample, with non-employed individuals being assigned a value of zero, so figures capture both the extensive margin (change in employment) and the intensive margin (change in hours and earnings conditional on being employed). The combined effect produces a large drop in average earnings and hours for women at childbirth, almost entirely driven by the fall of employment. The share of part-time employment, computed in the entire sample including non-workers, rises progressively as women who stopped working at childbirth return to work in part-time jobs. The comparison of Figures 2.3a and 2.3d shows that part-time work is majoritarian among female workers after childbirth. Men's outcomes are, by contrast, essentially unaffected by childbirth. Hence, gender gaps persist over the entire post-birth horizon, suggesting that the role of the child penalty in the gender wage gap is durable.

Figure 2.4 plots trajectories in actual and desired hours, providing a first look at the evolution of hours mismatch across event times. Before childbirth, desired hours are on average below actual hours for both genders, reflecting widespread overemployment. At $\ell = 0$ and $\ell = 1$, actual hours drop more sharply than desired hours and both curves almost overlap afterwards. The post-childbirth similarity is in part driven by the high proportion of non-employed workers for whom actual and desired hours are set at zero, but the gap remains close to zero even when restricting to employed workers. Remarkably, the absence of gap between desired and actual hours persists to the end of the event window, which is at odds with the emergence of underemployment as children grow up.

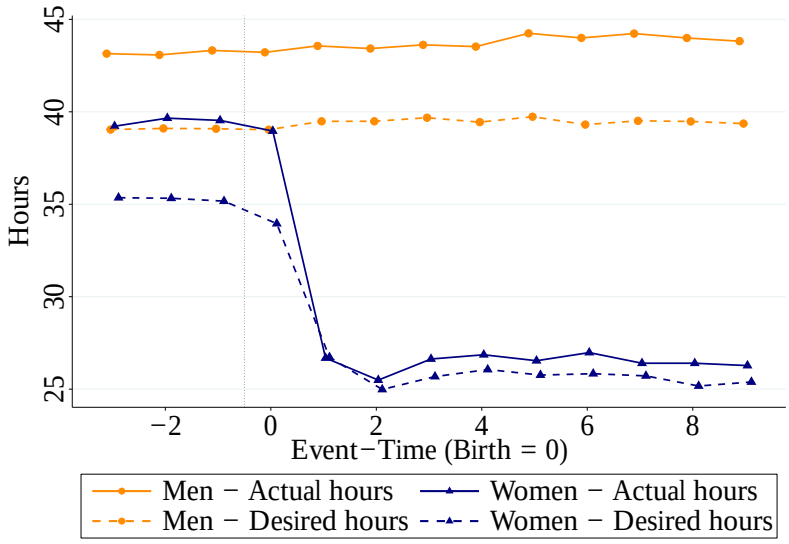
Figure 2.5 shows that this convergence is misleading. Decomposing the share of employed women by group of hours preferences reveals that most women are not satisfied with their hours at the end of the observation window. Before childbirth, overemployment dominates and underemployment is modest. At $\ell = 1$, employment drops sharply and the fall is disproportionately driven by the pool of overemployed and, less so, underemployed women. The natural explanation for why prior underemployed workers would want to stop working is that their desired hours changed with childbirth. As mothers return to work, underemployment rises steadily and, by the end of the window, underemployed workers represent a larger share of the sample than at any pre-birth period. The near-zero gap in Figure 2.4 therefore

Figure 2.3: Labor Market Outcomes by Event Time and Gender



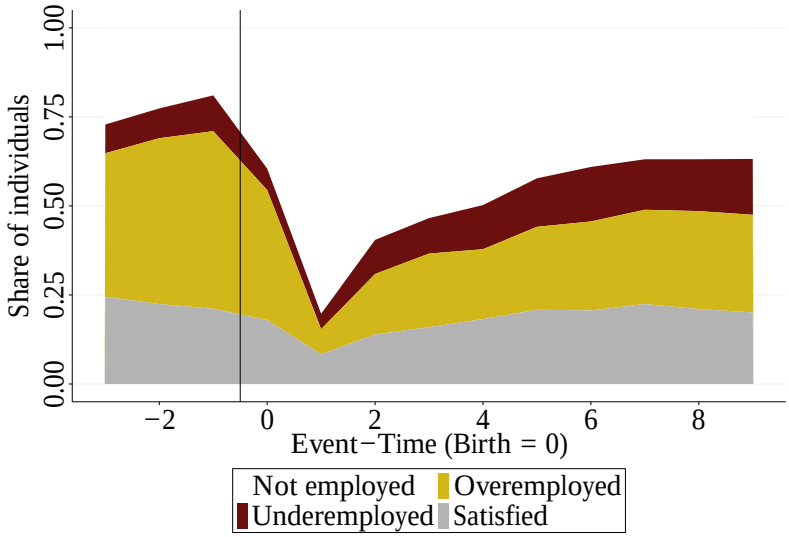
Note: The figures show raw means of labor market outcomes by event time relative to the birth of the first child, separately for men and women. The sample is balanced between $\ell = -3$ and $\ell = 9$. Employment is a binary indicator equal to 1 if the individual works full-time, part-time, or in marginal employment. Earnings and hours are set to zero for non-employed individuals. The part-time rate is computed over all individuals in the sample. GSOEP, 1984–2020.

Figure 2.4: Actual and Desired Hours by Event Time and Gender



Note: The figures show raw means of actual (solid) and desired (dashed) weekly hours by event time relative to the birth of the first child, separately for men (orange) and women (navy). Both outcomes are unconditional: non-employed individuals contribute zero to actual and desired hours. The sample is a balanced panel between $\ell = -3$ and $\ell = 9$. GSOEP, 1984–2020.

Figure 2.5: Underemployment Around Childbirth for Women



Note: The figure shows the share of all women in the sample in each employment status category by event time relative to the birth of the first child. Three groups are considered based on their actual and desired hours: overemployed, satisfied and underemployed. "Not employed", in white, is computed as the residual. GSOEP, 1984–2020.

masks large and offsetting flows into overemployment and underemployment.

Then, I focus in Figure D.8 on differences in trajectories between women who are underemployed or overemployed at the end of the window. As before, non-employed observations contribute zeros to both measures. Three facts stand out. First, groups are similar before childbirth, both in terms of actual and desired hours, hence in the direction of the hours mismatch. Second, both groups experience a comparable sharp drop in hours at $\ell \in (0, 1)$, reflecting the large and common employment exit at childbirth[5]. Third, and most importantly, groups diverge in their post-birth evolution in actual but not desired hours. The overemployed group returns to long-hour jobs by $\ell = 9$, approximately at their pre-birth level, while the underemployed group recovers to much lower hours. On the other hand, both groups report nearly identical desired hours. The discrepancy between trajectories of actual and desired hours results from hours constraints that affect certain types of workers.

This tells a clear story: mothers who end up underemployed are not different from other mothers before childbirth. As their children grow up, their desired hours recover, but their actual hours do not keep pace, indicating difficulties to access jobs with long hours. The next section provides baseline child penalty estimates and then further analyzes the characteristics of mothers who end up underemployed.

4 Estimation of Child Penalties

This section presents child penalty estimates and assesses the contribution of hours constraints to the penalty. Section 4.1 validates the identification assumptions of the imputation estimator by testing for pre-birth trends in the main outcomes. Building on this foundation, Section 4.2 documents the aggregate child penalty in earnings and hours and compares actual hours penalties to those estimated on desired hours, isolating the role of hours constraints. Section 4.3 investigates the characteristics of mothers for whom childbirth generates underemployment. Section 4.4 explores the heterogeneity of penalties across mothers along several dimensions.

[5] Respectively 22% and 26% of ultimately underemployed and overemployed workers are employed at $\ell = 1$.

4.1 Identification Tests

The validity of the imputation estimator introduced in Section 2.2 relies on two key assumptions: no anticipation (NA) and conditional independence (CIA). The NA assumption requires that individuals do not adjust their outcomes in anticipation of future childbirth. The CIA states that, conditional on age and calendar year, the timing of first birth is independent of untreated potential outcomes. In other words, individuals who have children at different ages would have had similar outcome trajectories in the absence of childbirth, after controlling for age and year effects. Age and year effects account for differences in labor market experience and macroeconomic conditions. This assumption may be violated if, for example, individuals who have children earlier differ in unobservable ways that independently affect their outcome trajectories.

To assess the plausibility of both assumptions, I follow Kaeppel (2025)'s first testing procedure, derived from Borusyak et al. (2024), and examine pre-birth trends in outcome using the variation in childbirth timing within a given age-year bin. Formally speaking, it consists in regressing, for not-yet-treated observations, the outcome on non-parametric controls for age and year and leading event time dummies:

$$Y_{it} = \alpha_\ell \cdot \mathbf{D}^{\text{Event}}_{\mathbf{it},\ell<\mathbf{0}} + \beta_{\mathbf{a}} \cdot \mathbf{D}^{\text{Age}}_{\mathbf{it}} + \gamma_{\mathbf{y}} \cdot \mathbf{D}^{\text{Year}}_{\mathbf{it}} + \nu_{it}$$

Under CIA, the coefficients on leading event-time indicators, α_ℓ, should be zero.

Figure D.9 plots the event-time estimates $\hat{\alpha}_\ell$ for $\ell \in \{-3, -2, -1\}$ for the main labor market outcomes, estimated separately by gender[6]. Reassuringly, for women, all pre-birth coefficients are small and not significantly different from zero, displaying no systematic pattern. This supports the view that, conditional on age and year, the timing of first birth is as good as random for women in our sample. For men, the picture is more nuanced. The pre-birth coefficients on earnings are positive and almost significant, suggesting that men tend to have their first child in periods of high earnings growth, consistent with climbing the job ladder before starting a family. This pattern is also documented in Kaeppel (2025), who interprets it as a reflection of life-cycle timing rather than a fundamental violation of the identification strategy. The concern is mostly limited to the earnings dimension and, to a lesser degree, to actual hours worked. Given that our primary focus is on the child penalty of women, for whom the CIA is well supported, I consider the identification tests as valid for the core of the study, while remaining cautious in the interpretation of men's estimates.

[6]The event-time $\ell = -1$ is the reference time, so its coefficient is set to 0.

4.2 Main Estimates

This section reports the main estimates of the child penalty in hours and assesses the contribution of hours constraints to this penalty. After showing baseline estimates of the child penalty in earnings and hours, the empirical strategy produces two series of estimates on desired hours. The *naive* estimator applies the imputation framework directly to desired hours as an outcome, using the not-yet-treated sample to build the counterfactual for desired hours. It therefore captures the extent to which childbirth shifts mothers' hours preferences. The *adjusted* estimator modifies the baseline imputation by replacing the observed actual hours with desired hours, while retaining actual hours as the basis for the counterfactual. It therefore measures the counterfactual change in actual hours worked due to childbirth absent hours constraints. The comparison of adjusted estimates to the benchmark penalty on actual hours isolates the role of hours constraints in the child penalty.

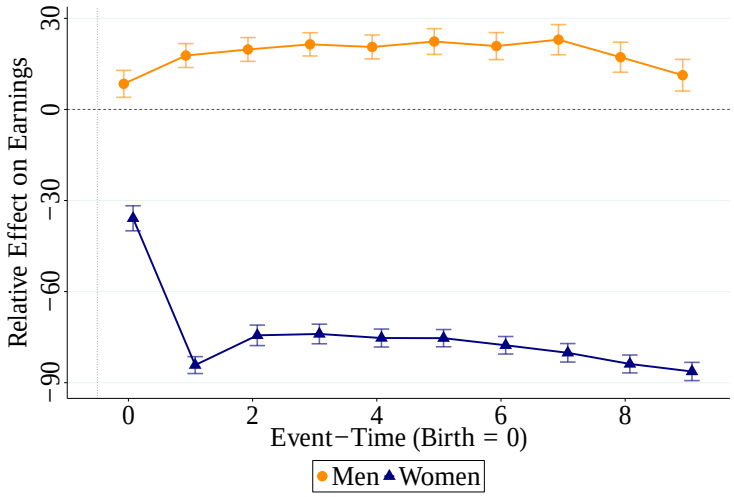
Figure 2.6 presents baseline child penalty estimates in net monthly earnings (a) and actual weekly hours (b), separately for men and women. Both outcomes are unconditional: non-employed individuals contribute zero, so the estimates capture the combined effect of the extensive margin (employment) and the intensive margin (hours and wages conditional on working). Following Kleven et al. (2019b), estimates are expressed as a percentage of the pre-birth mean among employed individuals at $\ell = -1$.

For mothers, penalties are large and persistent. At $\ell = 1$, the hours penalty reaches around 80%, reflecting mass employment exit at childbirth. The earnings penalty is even larger, around 90%, due to a composition effect: mothers who exit employment had above-average pre-birth earnings, so their exit disproportionately reduces the average. Hours then partially recover as non-employed mothers return to work, predominantly in part-time jobs, stabilizing at a 60% penalty with no sign of further recovery. The earnings penalty, by contrast, continues to widen, driven by a growing penalty in hourly wages. For fathers, penalties are small and statistically indistinguishable from zero throughout the window, in line with the well-documented asymmetry in the effects of childbirth between mothers and fathers (Kleven et al., 2019a). As noted in Section 4.1, the CIA is not fully valid for men on the earnings and hours dimensions, so the exact magnitude of male estimates is not reliable.

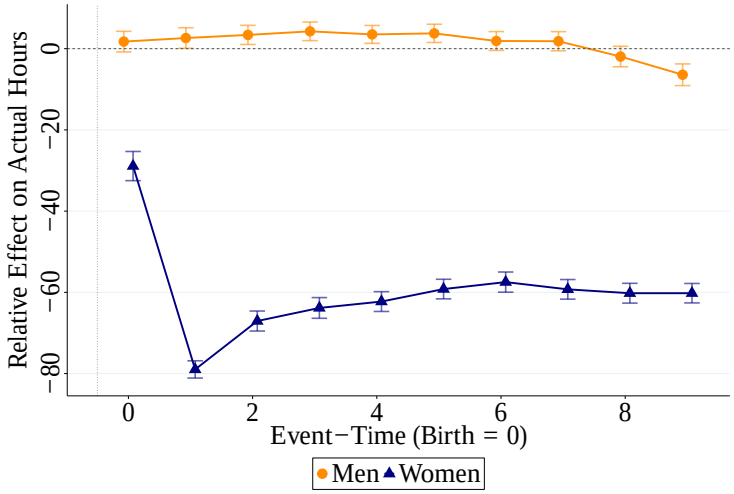
Figure 2.7 compares the child penalty on actual hours to the naive and adjusted estimates on desired hours. In the naive estimation (a), the penalty on desired hours

Figure 2.6: Child Penalties in Earnings and Hours

(a) Earnings



(b) Hours Worked



Note: The figures show estimated child penalties in net monthly earnings (a) and actual weekly hours (b) by event time relative to the birth of the first child, separately for men and women. Each point is the ATT at a given event time from the imputation estimator of Kaeppel (2025), expressed as a percentage of the pre-birth mean among employed individuals at $\ell = -1$. Both outcomes are unconditional: non-employed individuals contribute zero to earnings and actual hours. Error bars represent 95% confidence intervals based on standard errors clustered at the individual level. The sample is a balanced panel between $\ell = -3$ and $\ell = 9$. GSOEP, 1984–2020.

is smaller than on actual hours throughout the post-birth window. This gap arises because the counterfactual for desired hours is anchored to pre-birth desired hours, which are below actual hours due to pre-birth overemployment. The adjusted estimation (b) corrects for this by using actual hours as the counterfactual baseline. Under this specification, the penalties on actual and desired hours for women are nearly identical across the entire post-birth window. Hence, at the aggregate level, hours constraints do not amplify the child penalty.

Robustness Checks. I subject the main estimates to two robustness checks.

First, the main estimates use a balanced panel spanning $\ell \in [-3, 9]$, which yields a sample of 2,071 individuals. The long event window favors the detection of long-run effects but reduces the size of the sample and imposes a selection on survivors with particular stability. I assess the risk associated with this selection by re-estimating child penalties on a shorter balanced panel spanning $\ell \in [-3, 5]$, which covers approximately 3,000 individuals. Figure D.12 presents the penalties in actual and desired hours for mothers in both panels. For both variables, estimates from the shorter panel are close and not statistically different from the main estimates. Hence, the sample selection imposed by the long event window does not significantly affect the child penalty estimates.

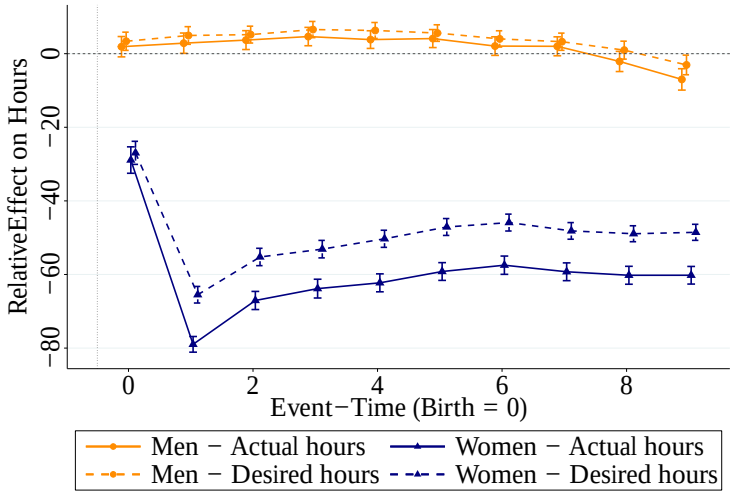
Second, the main estimation does not account for differences in educational attainment between treated and not-yet-treated units. Following Kaeppel (2025), I re-estimate child penalties adding education level (according to the International Standard Classification of Education, ISCED) as a covariate in the imputation step, thus building the counterfactual within educational cells. Table D.3 shows that estimates from this specification are nearly identical to the baseline, which indicates that compositional differences in education do not drive the main findings.

4.3 Underemployed Mothers

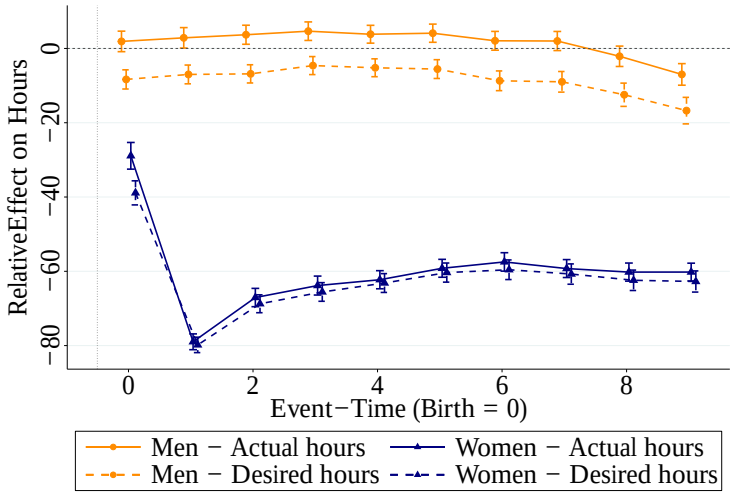
The previous section shows that, at the aggregate level, hours constraints do not play a significant role in the persistence of the hours penalty. Yet this result masks important heterogeneity. As shown in Figure 2.5, the share of underemployed mothers at the end of the observation window is roughly twice the pre-birth share, suggesting that childbirth endogenously generates underemployment. Figure 2.8 reassesses this heterogeneity by splitting women into two groups based on the direction of the hours mismatch at $\ell = 9$. By construction, underemployed mothers

Figure 2.7: Child Penalty in Actual and Desired Hours

(a) Naive Estimation



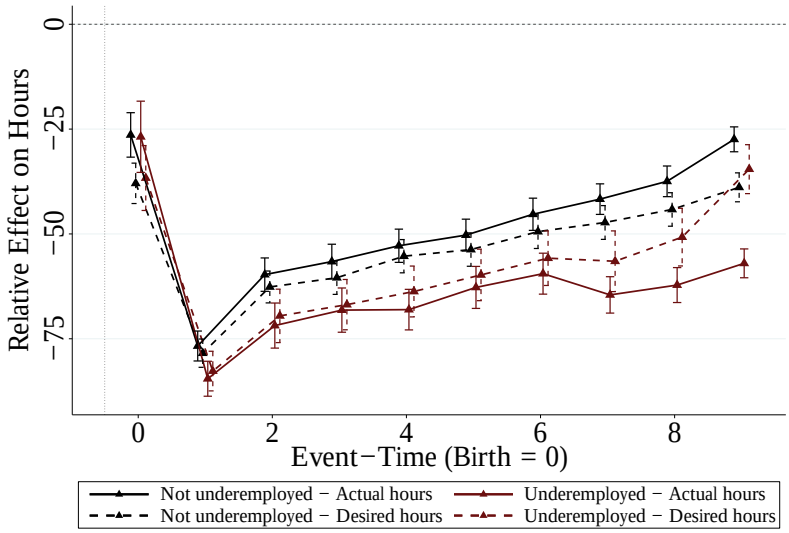
(b) Adjusted Estimation



Note: The figures show estimated child penalties in actual and desired weekly hours by event time relative to the birth of the first child, separately for men and women. Each point is the ATT at a given event time from the imputation estimator of Kaeppel (2025), expressed as a percentage of the pre-birth mean among employed individuals at $\ell = -1$. Both outcomes are unconditional: non-employed individuals contribute zero to actual and desired hours. In the naive estimation (a), the standard imputation estimator is applied directly to desired hours as the outcome. The adjusted estimation (b) uses actual hours as the counterfactual in the imputation procedure, so that the estimated ATT measures the child penalty in hours if individuals are at their desired hours after childbirth. Error bars represent 95% confidence intervals. The sample is a balanced panel between $\ell = -3$ and $\ell = 9$. GSOEP, 1984–2020.

are a group for whom the penalty in desired hours falls short of the penalty in actual hours. What matters is the magnitude of this gap: for underemployed mothers, the penalty in desired hours is equal to 60% of the total hours penalty, meaning hours constraints explain 40% of their penalty. Using desired hours instead of actual hours translates into a larger 52% reduction in the earnings penalty, because underemployed mothers earn a higher hourly wage than what their counterfactual path implies. Each constrained hour is therefore worth more in earnings terms, amplifying the proportional effect of the correction.

Figure 2.8: Child Penalty of Mothers by Hours Preferences



Note: This figure shows estimated child penalties in actual and desired hours for women, by hours preferences at $\ell = 9$, the end of the observation window. "Underemployed" denotes employed women with desired hours above their actual hours at $\ell = 9$. "Not underemployed" covers the remaining employed women (satisfied and overemployed). Estimates are expressed as a percentage of the pre-birth mean among employed women at $\ell = -1$. The event-study is estimated over the full balanced panel $\ell \in [-3, 9]$. Each point is the ATT from the imputation estimator of Kaeppel (2025). The desired hours curves use the adjusted imputation method. Error bars represent 95% confidence intervals. GSOEP, 1984–2020.

Table 2.1 documents the pre-birth characteristics of mothers, splitting by underemployment status at $\ell = 9$. Both groups are nearly identical in individual characteristics before childbirth: age, education, partnered status, migrant background, and hours worked are all statistically indistinguishable. If anything, mothers who are ultimately underemployed tend to earn slightly less before childbirth but the difference remains non-significant. This evidence, consistent with Figure 2.5, acknowledges that the divergence in outcomes documented in Figure 2.8 is not driven by pre-existing differences in human capital or job quality, but arises in

response to childbirth itself.

To understand where this divergence originates, Figure D.10 decomposes the raw gap in actual hours between the two groups at each event time into an extensive margin component, capturing differences in employment rates, and an intensive margin component, representing the gap in hours conditional on being employed. The extensive margin plays a limited role throughout the observation window. What drives the gap, and increasingly so over time, is the intensive margin: when mothers from both groups return to employment after childbirth, they do so at different hours. Underemployed mothers, despite being employed, work fewer hours than their not-underemployed counterparts, although their desired hours are similar. This pattern points to hours constraints that operate within employment rather than at the employment margin.

A natural hypothesis is that this intensive margin gap reflects sorting into different types of jobs. Underemployed mothers may disproportionately work in occupations or sectors that structurally offer fewer hours. I assess this by regressing actual hours at $\ell = 9$ on the underemployment indicator and progressively adding fixed effects for occupation, industry, firm size, and public-sector employment. The coefficient on underemployment barely changes across specifications: occupation fixed effects alone account for 4% of the raw gap, and the full set of job-level fixed effects together explains no more than 6% of it. The hours gap is therefore not a composition story. Underemployed mothers work fewer hours than others within the same occupation and sector. Figure D.11 confirms the absence of systematic differences in occupational sorting between the two groups at $\ell = 9$. The distribution of workers across occupations is broadly similar, with no consistent pattern of underemployed mothers concentrating in lower hours-intensity jobs.

Hence, mothers from both groups are present in the same types of jobs, yet unable to access the same hours. One interpretation is that hours constraints lie at the employer or establishment level rather than the occupation or industry level: the same occupation may offer very different scheduling options across firms, and underemployed mothers appear to be systematically matched to the more constrained end of that distribution. Whether this reflects a lack of bargaining power, limited geographic mobility, or employer-specific rigidities in hours setting remains an open question that cannot be answered with this data. The next section aims to identify whether underemployment is driven by classic sources of heterogeneity from the child penalty literature.

Table 2.1: Characteristics and Outcomes of Underemployed Mothers

	Not underemployed ($N = 374$)	Underemployed ($N = 142$)	Difference
Panel A: Pre-birth characteristics			
Age	28.30	28.35	0.05
Age at childbirth	29.30	29.35	0.05
Partnered	0.49	0.46	-0.03
Migrant background	0.13	0.12	-0.01
Mid/lower education	0.67	0.75	0.08.
Actual hours (pre-birth)	39.89	40.49	0.60
Earnings (pre-birth, EUR/mo)	1575.19	1471.40	-103.79.
Desired hours (pre-birth)	35.55	35.88	0.32
Hours mismatch (pre-birth)	-4.21	-4.82	-0.61
Part-time (pre-birth)	0.10	0.11	0.00
Permanent contract	0.70	0.62	-0.08.
Firm size < 20 employees	0.75	0.78	0.03
Panel B: Labor market outcomes ($\ell = 9$)			
Actual hours ($\ell = 9$)	29.62	18.14	-11.48***
Net earnings ($\ell = 9$, 2020 EUR/mo)	1334.96	826.41	-508.55***
Part-time ($\ell = 9$)	0.65	0.93	0.27***
Permanent contract ($\ell = 9$)	0.82	0.71	-0.11**
Firm size < 20 ($\ell = 9$)	0.73	0.75	0.02
High-skill occupation ($\ell = 9$)	0.24	0.20	-0.04
Mid-skill occupation ($\ell = 9$)	0.68	0.63	-0.05
Public services ($\ell = 9$)	0.42	0.44	0.02
Finance & business ($\ell = 9$)	0.15	0.18	0.03
Industry & manufacturing ($\ell = 9$)	0.18	0.08	-0.10***
Trade & hospitality ($\ell = 9$)	0.18	0.24	0.06
Personal services ($\ell = 9$)	0.06	0.05	-0.01

Note: This table shows the pre-birth characteristics and post-birth labor market outcomes of mothers who are underemployed at $\ell = 9$, the end of the period window, as compared to those who are not. The last column reports the difference between underemployed and not underemployed mothers, with stars from two-sided t-tests: $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$. Panel A shows that the two groups are statistically indistinguishable across individual and job characteristics prior to childbirth, with the exception of marginally lower earnings and a somewhat lower share of permanent contracts among mothers who subsequently become underemployed. Panel B confirms that the two groups diverge substantially in labor market outcomes by $\ell = 9$. These patterns suggest that underemployment is not driven by pre-existing differences in human capital or job quality, but arises in response to childbirth.

4.4 Sources of Heterogeneity

I explore five dimensions to further characterize the underlying heterogeneity in child penalties: the pre-birth earnings level of the partner, the birth cohort period, the sector of employment, East and West Germany, and the number of children. For each dimension, I split the sample and re-estimate child penalties in actual and desired hours separately for each group. All estimations for desired hours use the adjusted imputation method.

Partner's Earnings. Household-level income needs shape mothers' incentives to return to full-time work after childbirth. When a partner's earnings are low, financial pressure should push mothers back towards longer hours, while if their partner has high earnings, specialization to domestic work is less costly. Figure D.13 tests this prediction by splitting mothers according to whether their partner's pre-birth earnings are above or below the median. While the drop in hours after childbirth (at $\ell = 1$) is similar in both groups, mothers in low-earnings households partially recover by the end of the period, while those in high-earnings households do not. The pattern is consistent with the mechanism presented earlier. The absence of significant gaps between actual and desired hours curves further implies that, on average, mothers can return to their preferred hours when they want to. Yet, as discussed in Section 4.2, a non-negligible proportion of workers in both groups is underemployed at the end of the period, and this share slightly is larger among mothers with high-earnings partners (33% versus 25%).

Periods. The sample spans four decades, over which female labor force participation, childcare availability, and family policies changed. Figure D.14 compares child penalties in hours for parents whose first birth occurred before 2000 with those occurring in 2000 or later. The post-2000 penalty on mothers is smaller throughout the event window, suggesting a modest improvement in mothers' labor market outcomes over time. The difference is not large, however, which indicates that the aggregate child penalty in hours remained sizable across both periods.

Public and Private Sector. The ability to adjust working hours after childbirth varies with the sector of employment. Public sector jobs are typically associated with more flexible scheduling, stronger job protection, and better family leave entitlements than private sector positions, which should make it easier for public-sector mothers to reconcile work and childcare without a large reduction in hours. Figure D.15 splits individuals by their pre-birth sector and compares child penalties in actual and

desired hours. Mothers in the public sector experience smaller child penalties than those in the private sector, in particular at the end of the observation window. Neither group shows any significant difference between actual and desired hours curves.

East and West Germany. The main sample pools observations from both East and West Germany. However, the two regions have historically featured different labor market institutions, gender norms and childcare systems. East Germany inherited an extensive public childcare infrastructure from the GDR period and maintained higher female employment rates after the reunification. Following Jessen (2022), I re-estimate child penalties in actual and desired hours after splitting the sample between East and West German individuals. Table D.4 confirms that child penalties in hours are smaller in East Germany by a factor of 1/3 at the end of the period. Interestingly, the drop at childbirth is similar across regions, but the difference lies in the persistence of the effect over time. The gap between actual hours and desired hours estimates suggest that, if anything, individuals from the East Germany sample tend to be more overemployed towards the end of the observation window, although heterogeneous effects remain at work.

Multiple Children. The number of children should also affect the trajectory of child penalties over time. Each additional child increases the demand for maternal time and pushes back the point at which a mother can plausibly return to longer hours. Figure D.16 compares the penalty profiles of mothers with exactly one child against those with two or more children, estimated over the event window relative to the first birth. While penalties for one-child mothers show some recovery towards the end of the window, those for mothers with two or more children remain flat or continue declining, reflecting the repeated interruptions to labor supply associated with subsequent births. The distinction however does not account for any difference in the role of hours constraints in the child penalty. It is also not driving the distinction between underemployed and not underemployed mothers at the end of the window, as the share of women with two or more children is equivalent in both groups.

The sources of heterogeneity used here are standard in the child penalty literature and generate large variation in the level of the penalty. Yet, none of them captures the distinction between mothers who end up underemployed and those who do not. In each split, the gap between actual and desired hours penalties remains negligible for the sample as a whole, echoing the aggregate result of Figure 2.7. This suggests that underemployment at the end of the observation window does not simply reflect previously identified mechanisms.

5 Conclusion

This paper examines the role of hours constraints, employer-driven frictions that prevent workers from supplying their preferred number of hours — in the persistence of the child penalty in hours worked. Using the German Socio-Economic Panel, which uniquely combines longitudinal data on actual and desired hours with detailed birth histories, I construct an adjusted estimator that compares the observed child penalty in hours to a counterfactual penalty that would prevail if all mothers were able to work their desired hours. The gap between the two identifies the contribution of hours constraints to the penalty.

The central finding is that, at the aggregate level, hours constraints play no significant role: the child penalty on desired hours is virtually identical to the penalty on actual hours across the entire post-birth window. The persistence of the penalty is thus driven primarily by changes in labor supply preferences following childbirth, mediated by gender norms and intra-household specialization rather than by employer-side frictions. This aggregate conclusion is robust to alternative event windows, controlling for education, and splitting the sample along standard dimensions such as partner earnings, birth cohort, sector of employment, region, and number of children.

This result, however, masks important heterogeneity. Childbirth roughly doubles the share of underemployed mothers from around 12% to 25% at the end of the observation window. For this constrained minority, hours constraints account for approximately 40% of the hours penalty and 52% of the earnings penalty. Crucially, this group is not selected on typical individual characteristics: they do not differ markedly from other mothers in age, education, or migration background, neither in their employer environment. Mechanisms that explain this segmentation might occur at a more granular level, e.g. inside workplaces (Roux, 2025).

The policy implications follow directly from this decomposition. For the majority of mothers, the hours penalty reflects labor supply preferences shaped by gender norms and the unequal division of domestic labor. Policies that address these factors, e.g. parental leave reforms or career awareness programs, are the most relevant for this group. For the constrained minority, the mechanism is different: these mothers would like to work more at their current wage but face demand-side failures in the labor market. This points to a distinct set of labor market policies that would favor women's ability to increase their hours after childbirth.

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Appendix D Additional Figures and Tables

Table D.1: Comparison of Original and Final GSOEP Samples

	Original Sample	Final Sample
Panel A: Sample Size		
Individuals	53,229	2,071
Observations	893,093	26,923
Panel B: Demographics		
Women	0.549	0.509
Age	40.2	32.7
Age at first birth	26.8	29.5
One child	32.7	31.5
Two or more children	67.3	68.5
Panel C: Education		
Unknown	0.052	0.005
In school	0.005	0.011
Primary	0.218	0.110
Middle vocational	0.429	0.480
Vocational/Abitur	0.073	0.081
Higher vocational	0.059	0.090
Higher education	0.203	0.228
Panel D: Labor Market Outcomes (Workers)		
Employment share	0.546	0.709
Net earnings	1,641	1,563
Actual hours	37.2	38.4
Desired hours	33.9	34.9
Part-time	0.307	0.229
Underemployed	0.185	0.163
Involuntary part-time	0.046	0.028

Note: The original sample includes all parents aged 18–55 observed in the German Socio-Economic Panel (GSOEP) between 1984 and 2020. The final sample is a balanced panel of individuals between 3 years before and 9 years after their first child birth. Labor market outcomes are computed conditional on employment. Education level is derived using both education variables based on the 1997 and 2011 classification system. Earnings are monthly. Hours are weekly.

Table D.2: Worker Characteristics by Hours Mismatch Group

	Underemployed	Satisfied	Overemployed
Panel A: Sample Size			
Observations	2,903	4,277	10,462
Panel B: Demographics			
Women	0.521	0.456	0.374
Age	32.8	32.8	33.4
Age at first childbirth	29.5	29.6	30.5
One child	32.3	32.3	31.5
Two or more children	67.7	67.7	68.5
Panel C: Education			
In school	0.008	0.007	0.005
Primary	0.087	0.093	0.066
Middle vocational	0.528	0.533	0.453
Vocational/Abitur	0.099	0.067	0.082
Higher vocational	0.092	0.081	0.113
Higher education	0.177	0.205	0.274
Panel D: Labor Market Outcomes			
Net earnings	1,373	1,812	2,133
Actual hours	28.0	35.3	42.8
Contract hours	29.1	33.7	37.0
Desired hours	36.1	35.3	34.8
Hours mismatch	8.1	0.0	−8.0
Part-time	0.477	0.279	0.130

Note: The sample is a balanced panel of individuals observed in the German Socio-Economic Panel (GSOEP) between 3 years before and 9 years after their first child birth, restricted to employed worker-year observations with non-missing hours mismatch. Workers are classified as underemployed (desired $>$ actual hours), satisfied (desired $=$ actual hours), or overemployed (desired $<$ actual hours). Labor market outcomes are computed conditional on employment. Education level is derived using both education variables based on the 1997 and 2011 classification system. Earnings are monthly and in 2020 euros. Hours are weekly. Hours mismatch is defined as desired minus actual hours.

Table D.3: Robustness: Education Control

	Actual Hours				*Desired Hours*			
	Men		Women		Men		Women	
ET	Main	Rob.	Main	Rob.	Main	Rob.	Main	Rob.
0	0.666	0.856	-12.472	-12.381	-3.294	-3.086	-16.212	-16.116
	(0.406)	(0.404)	(0.548)	(0.549)	(0.380)	(0.380)	(0.499)	(0.501)
1	1.294	1.585	-32.130	-31.861	-2.477	-2.186	-32.594	-32.308
	(0.392)	(0.389)	(0.311)	(0.311)	(0.365)	(0.364)	(0.296)	(0.297)
2	1.288	1.625	-27.808	-27.404	-2.962	-2.638	-28.521	-28.136
	(0.372)	(0.368)	(0.360)	(0.358)	(0.354)	(0.352)	(0.348)	(0.348)
3	1.285	1.689	-27.388	-26.876	-2.645	-2.253	-27.925	-27.420
	(0.367)	(0.363)	(0.367)	(0.367)	(0.352)	(0.352)	(0.360)	(0.361)
4	1.029	1.553	-27.232	-26.599	-2.695	-2.152	-27.499	-26.865
	(0.343)	(0.341)	(0.346)	(0.344)	(0.348)	(0.348)	(0.361)	(0.359)
5	0.808	1.321	-26.332	-25.608	-3.098	-2.570	-26.803	-26.080
	(0.357)	(0.351)	(0.345)	(0.345)	(0.363)	(0.362)	(0.368)	(0.369)
6	-0.375	0.233	-25.958	-25.208	-4.614	-3.990	-26.772	-26.001
	(0.375)	(0.371)	(0.357)	(0.356)	(0.382)	(0.382)	(0.374)	(0.376)
7	-0.532	0.068	-26.851	-26.043*	-5.191	-4.600	-27.345	-26.514
	(0.376)	(0.370)	(0.340)	(0.341)	(0.399)	(0.396)	(0.388)	(0.391)
8	-2.383	-1.733	-27.330	-26.440*	-6.531	-5.914	-28.251	-27.371
	(0.398)	(0.397)	(0.346)	(0.347)	(0.442)	(0.443)	(0.384)	(0.387)
9	-4.165	-3.456	-27.017	-26.041**	-8.200	-7.507	-27.930	-27.005
	(0.418)	(0.415)	(0.343)	(0.343)	(0.495)	(0.495)	(0.402)	(0.404)

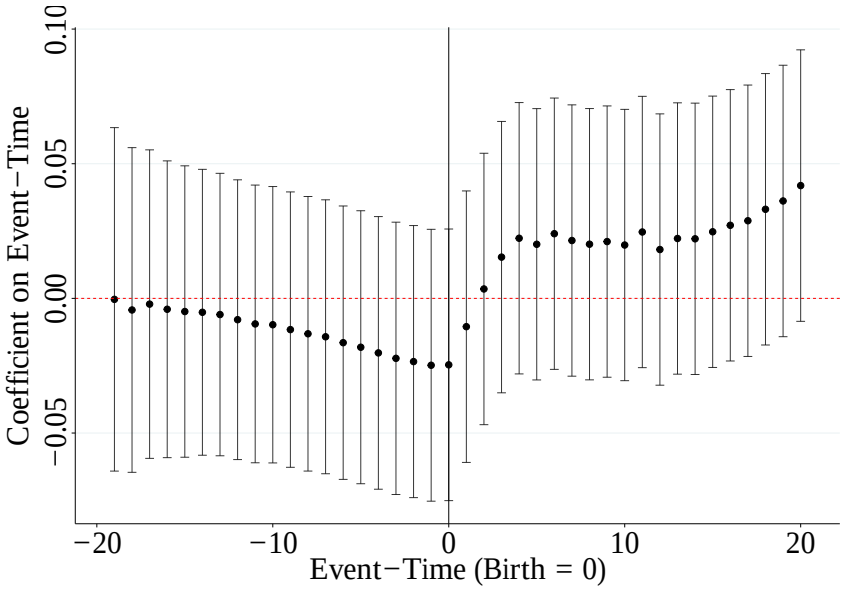
Note: This table reports ATT estimates from the imputation estimator of Kaeppel (2025), separately for men and women, for actual hours and desired hours. Both columns are restricted to individuals with non-missing ISCED-97 education. *Main* includes age and calendar-year fixed effects. *Rob.* additionally controls for education level (ISCED-97 category) fixed effects in the imputation step. Both outcomes are unconditional: non-employed individuals contribute zero to actual and desired hours. The desired hours estimates use the adjusted imputation method. Standard errors in parentheses. Stars on *Rob.* coefficients indicate a statistically significant difference from the *Main* coefficient: $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$. The sample is a balanced panel between $\ell = -3$ and $\ell = 9$. GSOEP, 1984–2020.

Table D.4: Robustness: West Germany vs. East Germany

	Actual Hours				*Desired Hours*			
	Men		Women		Men		Women	
ET	West	East	West	East	West	East	West	East
	0.829	0.967	-12.622	-14.329	-3.045	-3.234	-16.636	-16.340
0	(0.302)	(0.899)	(0.437)	(1.094)	(0.286)	(0.836)	(0.391)	(1.082)
	1.791	0.569	-31.938	-32.909	-1.979	-2.858	-32.631	-32.874
1	(0.287)	(0.920)	(0.247)	(0.598)	(0.267)	(0.893)	(0.225)	(0.591)
	0.972	2.641**	-29.748	-19.364***	-2.986	-1.804	-30.354	-21.607***
2	(0.281)	(0.760)	(0.251)	(0.862)	(0.265)	(0.768)	(0.247)	(0.784)
	1.144	1.863	-29.492	-20.653***	-2.770	-2.881	-29.691	-22.847***
3	(0.282)	(0.847)	(0.255)	(0.903)	(0.269)	(0.814)	(0.258)	(0.805)
	1.136	3.049**	-29.747	-19.289***	-2.465	-1.334	-29.780	-20.418***
4	(0.255)	(0.795)	(0.245)	(0.724)	(0.266)	(0.804)	(0.261)	(0.739)
	0.631	3.304***	-28.534	-21.585***	-3.312	-0.293***	-28.815	-22.214***
5	(0.275)	(0.746)	(0.253)	(0.695)	(0.275)	(0.838)	(0.269)	(0.815)
	0.143	0.204	-28.854	-18.248***	-4.319	-3.211	-29.290	-20.617***
6	(0.282)	(0.908)	(0.249)	(0.796)	(0.279)	(1.034)	(0.264)	(0.852)
	-0.143	0.336	-29.125	-21.285***	-4.833	-5.636	-29.296	-23.037***
7	(0.281)	(0.884)	(0.246)	(0.746)	(0.293)	(1.022)	(0.283)	(0.941)
	-2.053	3.089***	-29.973	-20.431***	-6.440	1.190***	-30.562	-22.751***
8	(0.300)	(0.829)	(0.241)	(0.715)	(0.318)	(1.248)	(0.269)	(0.893)
	-3.537	-1.435**	-28.944	-22.488***	-7.648	-4.366**	-29.916	-22.497***
9	(0.321)	(0.864)	(0.252)	(0.667)	(0.364)	(1.432)	(0.286)	(0.931)

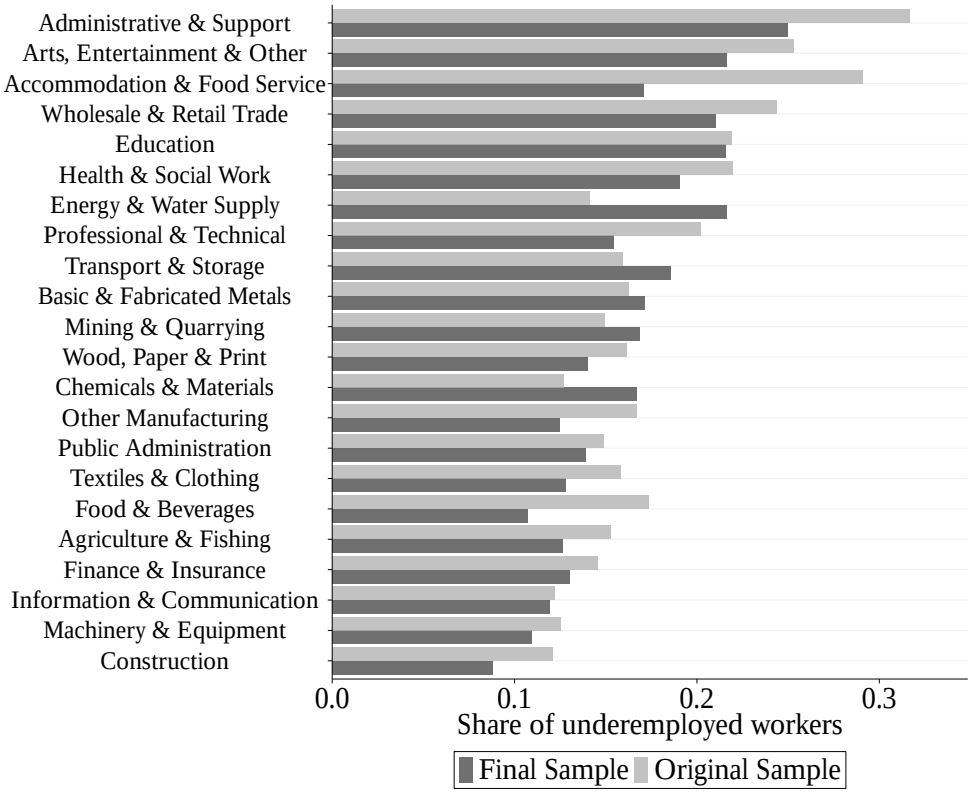
Note: This table reports ATT estimates from the within-woman event-study with age and calendar-year fixed effects, separately for West and East Germany. Standard errors in parentheses. Stars on East coefficients indicate significant difference from the West coefficient: $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$. SOEP 1984–2020.

Figure D.1: Probability of Exiting the Sample by Event-Time



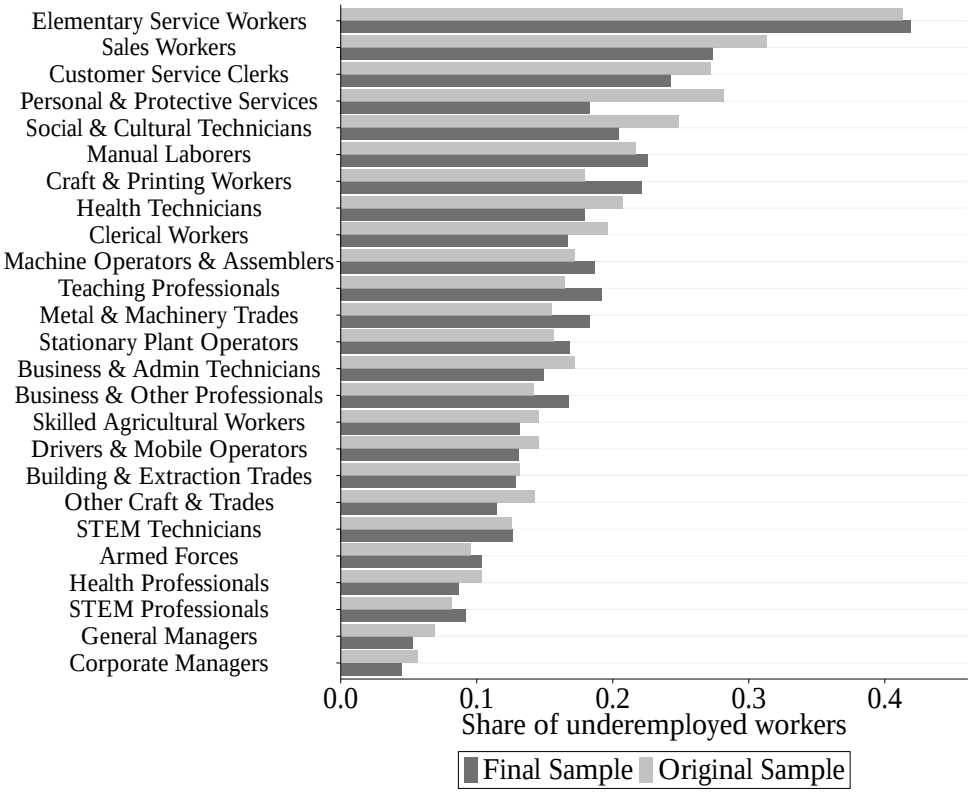
Note: This figure plots the coefficients on event-time dummies from a linear probability model where the dependent variable is an indicator for exiting the sample in the following year. The regression controls for age and year fixed effects, with event-time $\ell = -20$ omitted as the reference category. Error bars represent 95% confidence intervals. GSOEP, 1984–2020.

Figure D.2: Share of Underemployed Workers by Industry



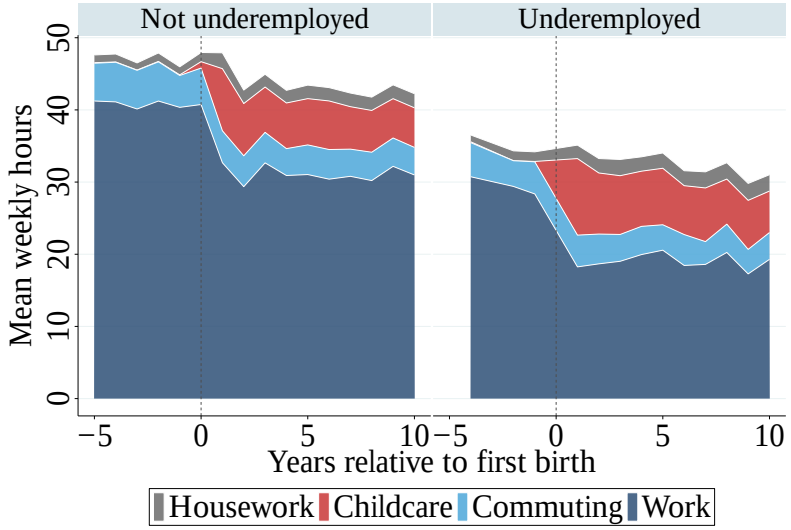
Note: This figure shows the share of underemployed workers, defined as workers reporting desired hours strictly above actual hours, by NACE industry section (18 values) in both the original and the final sample. Both samples are restricted to employed workers with at least 50 observations per industry. GSOEP, 1984–2020.

Figure D.3: Share of Underemployed Workers by Occupation



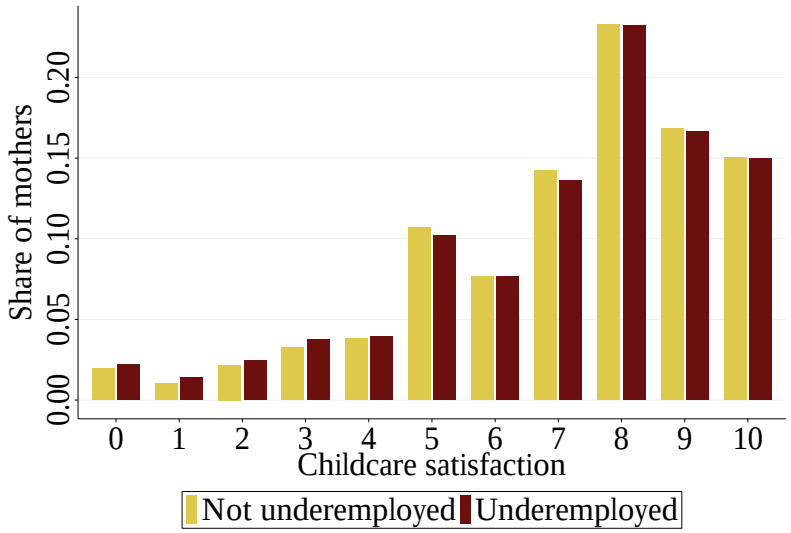
Note: This figure shows the share of underemployed workers, defined as workers reporting desired hours strictly above actual hours, by ISCO-08 2-digit occupation group (38 values) in both the original and the final sample. Both samples are restricted to employed workers with at least 50 observations per occupation. GSOEP, 1984–2020.

Figure D.4: Childcare, Housework and Work Hours of Mothers by Event Time



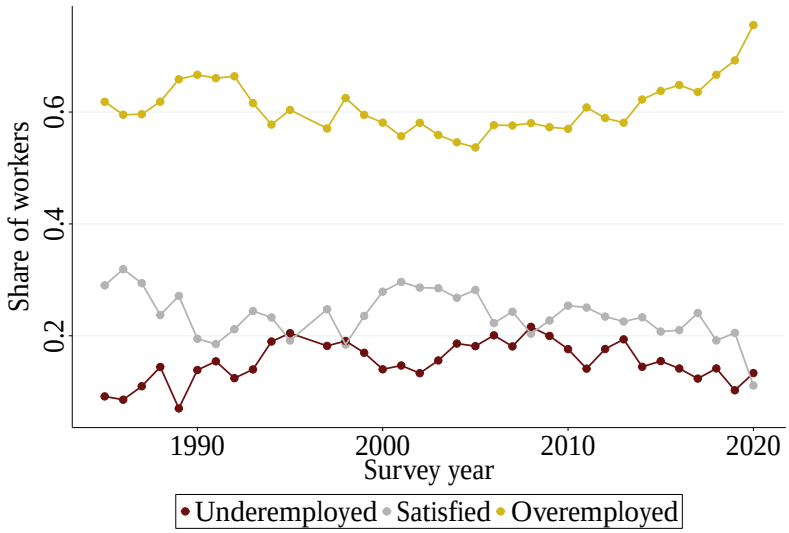
Note: This figure plots mean weekly hours spent on work, commute, childcare, and housework for mothers, by years relative to first birth, separately for non-underemployed and underemployed mothers.GSOEP, 1984–2020.

Figure D.5: Mothers' Satisfaction with Available Childcare



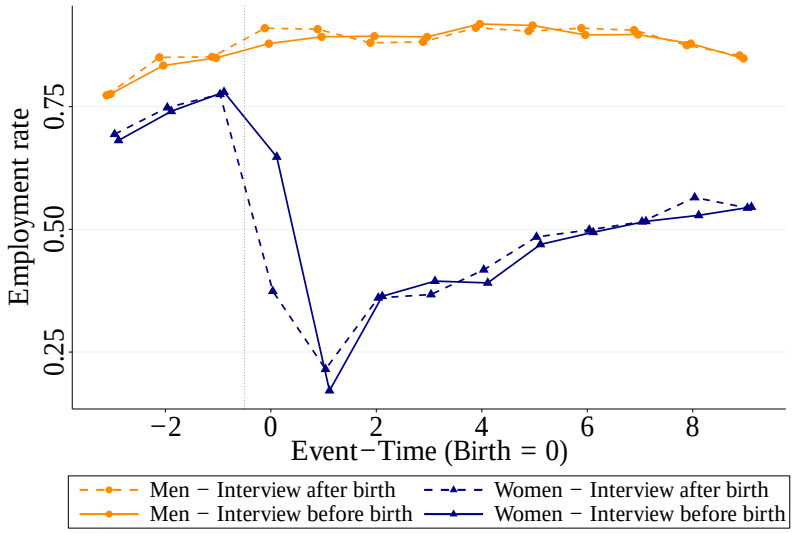
Note: This figure plots the distribution of mothers' self-reported satisfaction with the childcare available (on a scale of 0 to 10), separately for non-underemployed and underemployed mothers. GSOEP, 1984–2020.

Figure D.6: Evolution of Underemployment, 1984-2020



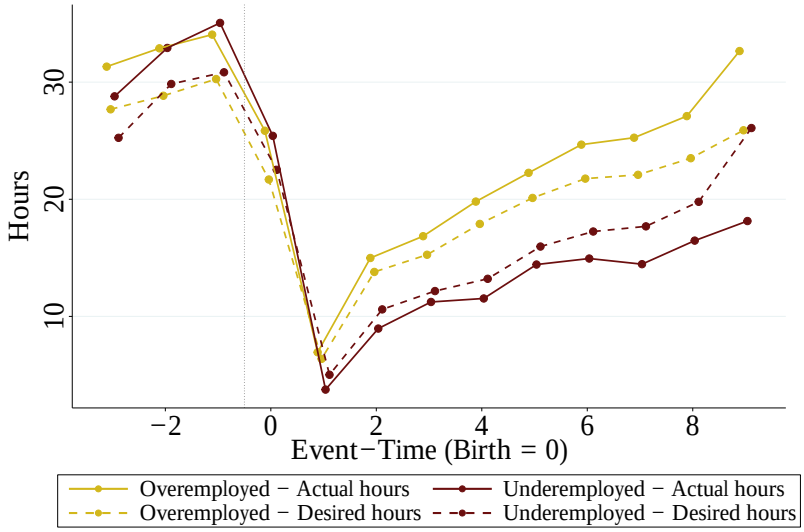
Note: This figure shows the evolution of the three groups of hours preferences (overemployed, satisfied, underemployed) among employed individuals. GSOEP, 1984–2020.

Figure D.7: Employment by Survey Timing



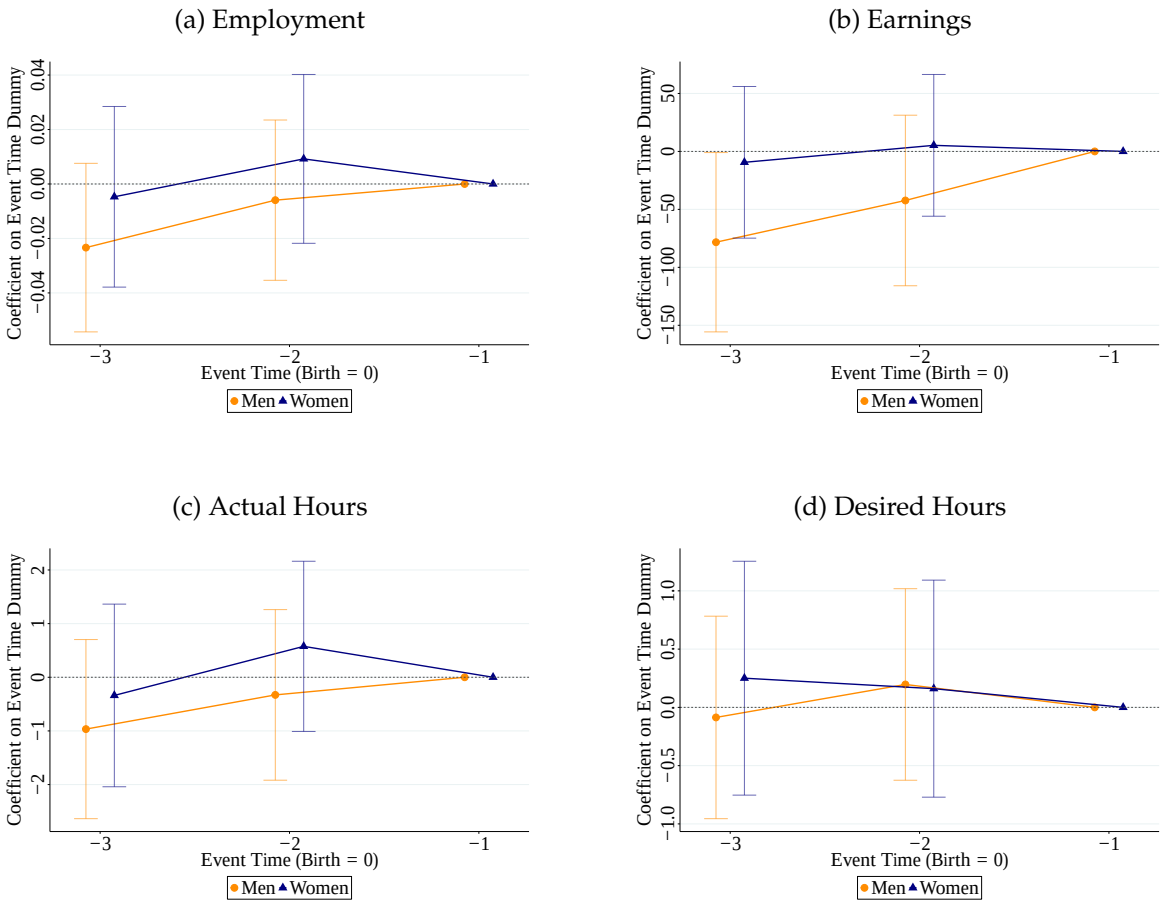
Note: This figure plots the employment rate by event time relative to the birth of the first child, separately for men and women, distinguishing between the first and second half of the calendar year in which the survey was conducted. Employment is a binary indicator equal to 1 if the individual works full-time, part-time, or in marginal employment. The sample is a balanced panel between $\ell = -3$ and $\ell = 9$. GSOEP, 1984–2020.

Figure D.8: Hours for Women Underemployed vs. Overemployed at $\ell = 9$



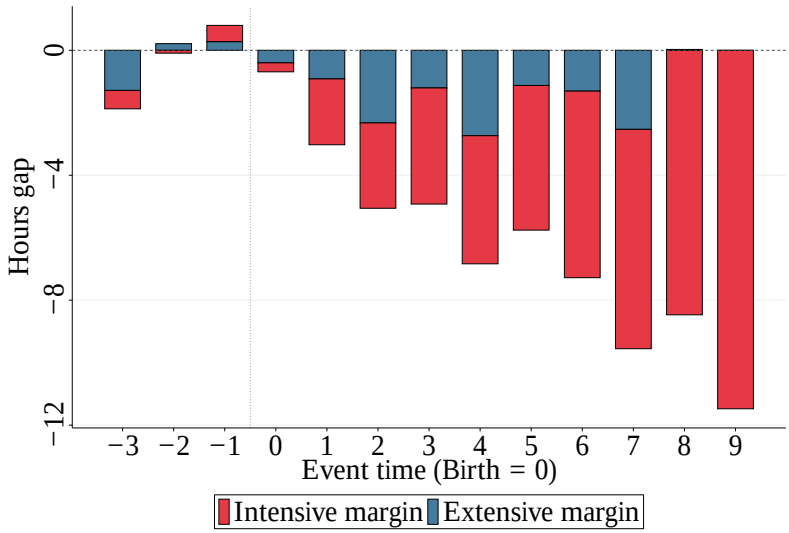
Note: This figure shows raw means of actual and desired weekly hours by event time relative to the birth of the first child, for women only. Both groups are defined by hours preferences at $\ell = 9$. Actual and desired hours are set to zero for non-employed observations. GSOEP, 1984–2020.

Figure D.9: Identification Tests



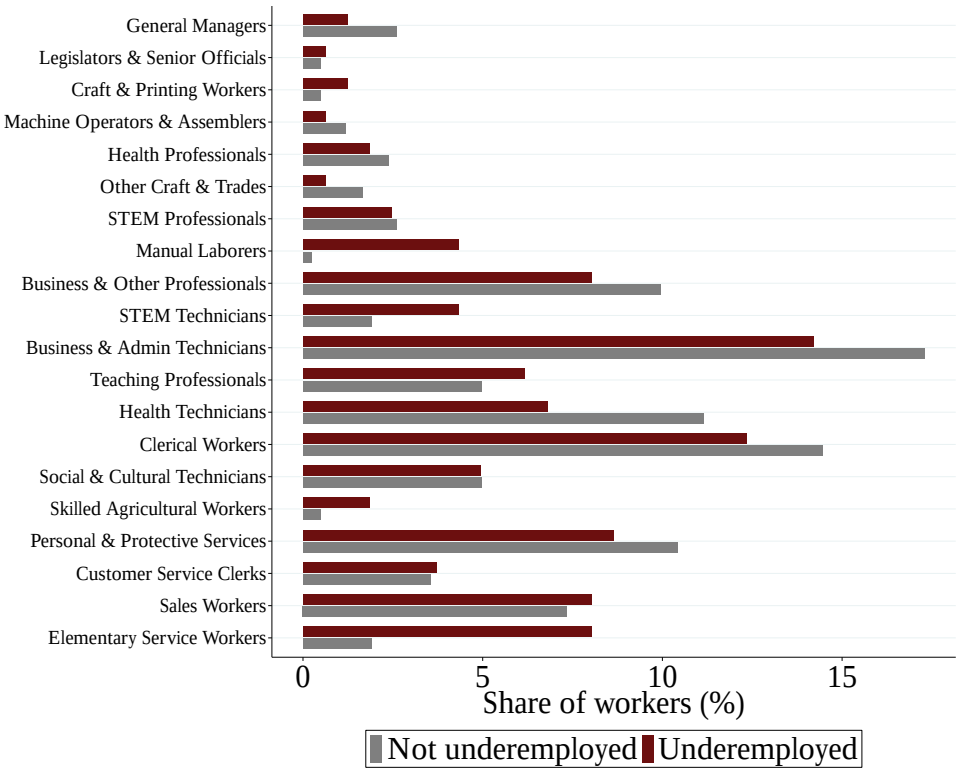
Note: This figure shows pre-birth event-time coefficients from regressions of net monthly earnings, actual weekly hours, and desired weekly hours on leading event time dummies, age, and year fixed effects, estimated on the not-yet-treated sample. Under the CIA, all coefficients should be close to zero. Error bars represent 95% confidence intervals. GSOEP, 1984–2020.

Figure D.10: Decomposition of Hours Gap



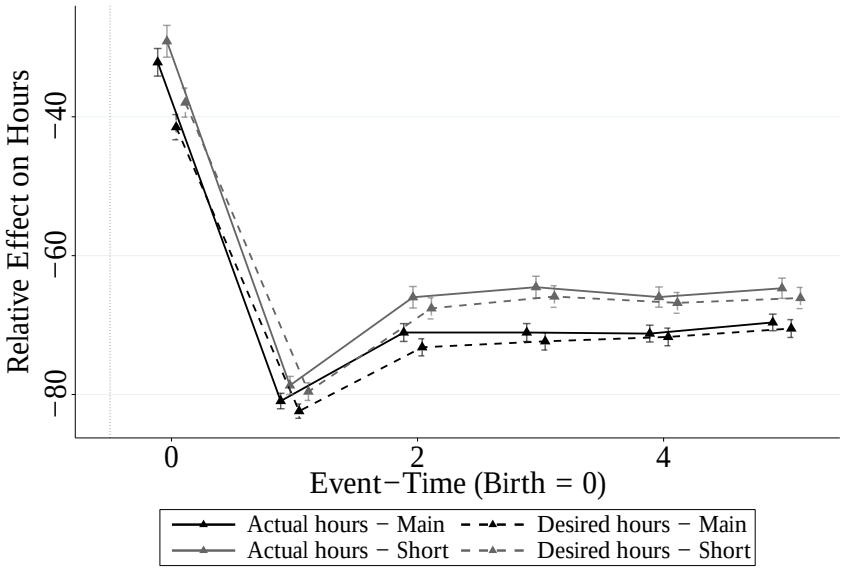
Note: This figure decomposes the raw gap in actual hours between underemployed and not-underemployed mothers at each event time $\ell \in [-3, 9]$ into an extensive and an intensive margin component. The gap is defined as the difference in mean actual hours (including zeros for non-employed women) between the underemployed group and the not-underemployed group. Using the not-underemployed group as reference, the decomposition is exact: the extensive margin equals the difference in employment rates multiplied by the conditional hours of the reference group, and the intensive margin equals the employment rate of the underemployed group multiplied by the difference in mean hours conditional on employment. The two components sum to the total gap. Group membership is defined at $\ell = 9$: "Underemployed" denotes employed women with desired hours above their actual hours; "Not underemployed" covers the remaining employed women. The sample is the balanced panel $\ell \in [-3, 9]$. GSOEP, 1984–2020.

Figure D.11: Occupation Distribution at $\ell = 9$ by Hours Preferences



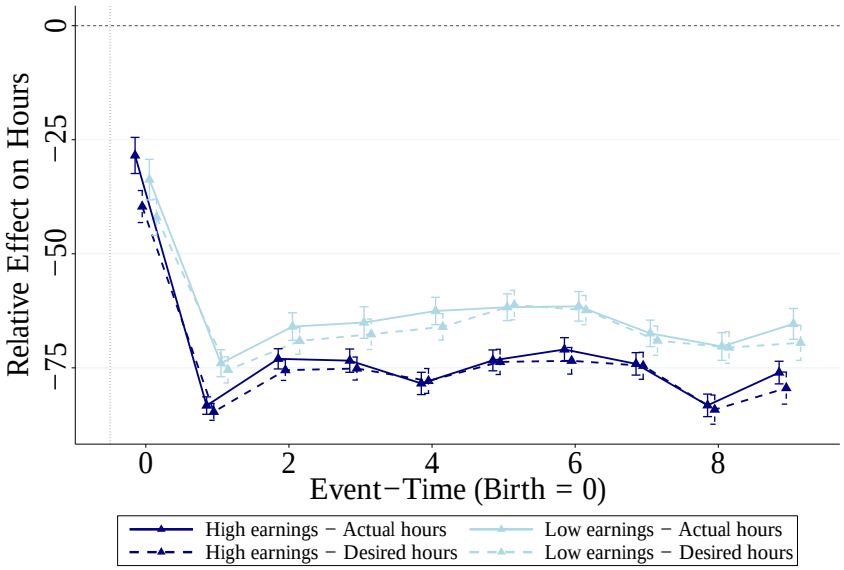
Note This figure shows the share of employed women in each occupation group at $\ell = 9$, separately for underemployed and not-underemployed mothers. Occupations are ranked along the vertical axis by their average actual hours across all employed women in the sample, from the least hours-intensive (bottom) to the most hours-intensive (top). Only occupation groups with at least one observation in each group are displayed. Group membership is defined at $\ell = 9$: "Underemployed" denotes employed women with desired hours above their actual hours; "Not underemployed" covers the remaining employed women. The sample is the balanced panel $\ell \in [-3, 9]$. Occupation groups are derived from the two-digit ISCO classification. GSOEP, 1984–2020.

Figure D.12: Child Penalty in Actual and Desired Hours - Shorter Panel



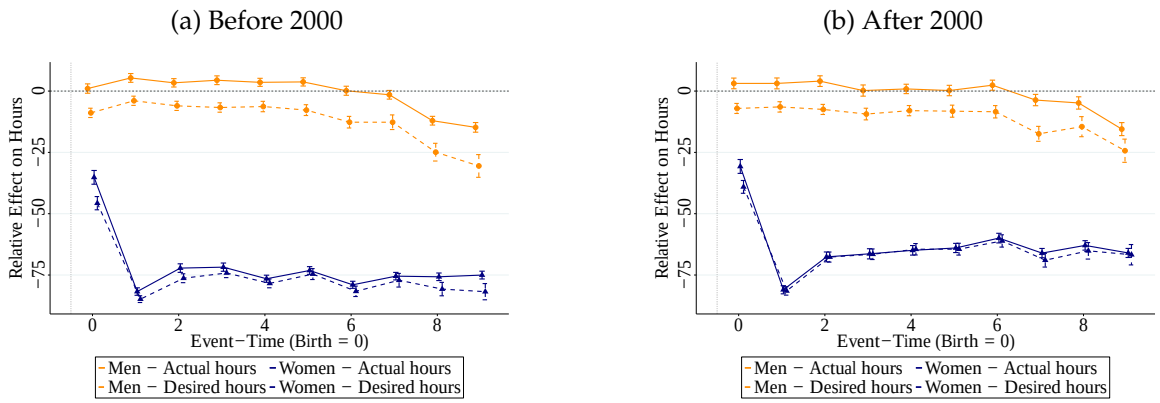
Note: This figure shows estimated child penalties in actual and desired hours for women by event time relative to the birth of the first child in two alternative samples. Estimates are expressed as a percentage of the pre-birth mean among employed women at $\ell = -1$. Each point is the ATT from the imputation estimator of Kaeppel (2025). Both outcomes are unconditional: non-employed individuals contribute zero to actual and desired hours. The desired hours curves use the adjusted imputation method. Error bars represent 95% confidence intervals. The "Main" sample is a balanced panel between $\ell = -3$ and $\ell = 9$, covering approximately 2,071 individuals. The "Short" sample is a balanced panel between $\ell = -3$ and $\ell = 5$, covering approximately 3,000 individuals. GSOEP, 1984–2020.

Figure D.13: Child Penalty of Mothers by Partner's Earnings



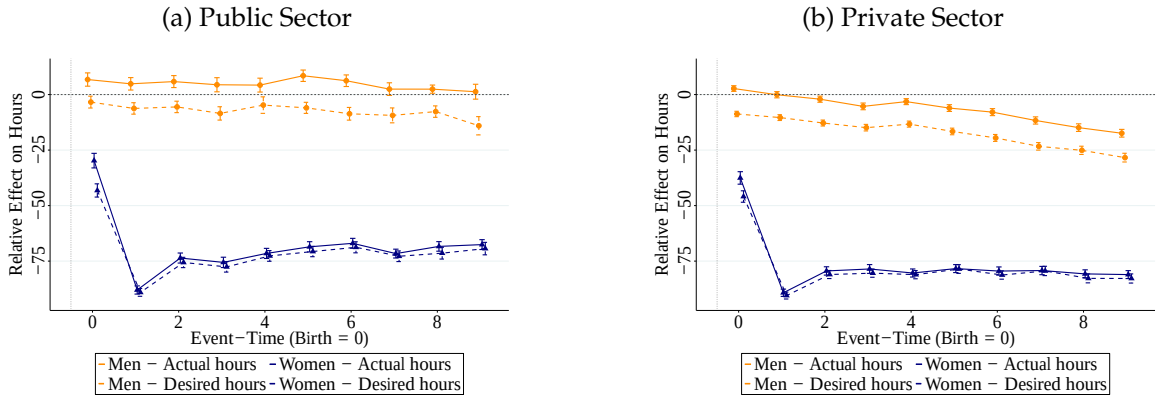
Note: This figure shows estimated child penalties in actual and desired hours for mothers by event time relative to the birth of the first child, split by group of pre-birth partner's earnings. Estimates are expressed as a percentage of the pre-birth mean among employed women at $\ell = -1$. Solid and dashed curves respectively correspond to mothers whose partner's earnings are above and below the median. Each point is the ATT from the imputation estimator of Kaeppel (2025). Both outcomes are unconditional: non-employed individuals contribute zero to actual and desired hours. The desired hours curves use the adjusted imputation method. Error bars represent 95% confidence intervals. The sample is a balanced panel between $\ell = -3$ and $\ell = 9$. GSOEP, 1984–2020.

Figure D.14: Child Penalties by Period



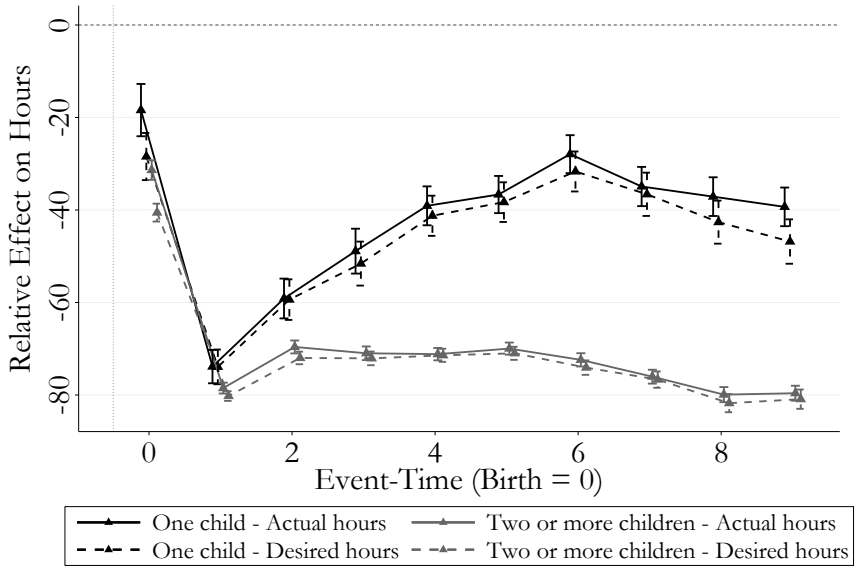
Note: This figure shows estimated child penalties in actual and desired hours by event time relative to the birth of the first child, split by birth cohort period. Estimates are expressed as a percentage of the pre-birth mean among employed individuals at $\ell = -1$. Panel (a) restricts to mothers whose first child was born before 2000. Panel (b) restricts to those whose first child was born in 2000 or later. Each point is the ATT from the imputation estimator of Kaeppel (2025). Both outcomes are unconditional: non-employed individuals contribute zero to actual and desired hours. The desired hours curves use the adjusted imputation method. Error bars represent 95% confidence intervals. The sample is a balanced panel between $\ell = -3$ and $\ell = 9$. GSOEP, 1984–2020.

Figure D.15: Child Penalties by Sector



Note: This figure shows estimated child penalties in actual and desired hours by event time relative to the birth of the first child, split by sector of employment. Estimates are expressed as a percentage of the pre-birth mean among employed individuals at $\ell = -1$. Panel (a) restricts to individuals employed in the public sector. Panel (b) restricts to those in the private sector. Sector is defined based on pre-birth employment. Each point is the ATT from the imputation estimator of Kaeppel (2025). Both outcomes are unconditional: non-employed individuals contribute zero to actual and desired hours. The desired hours curves use the adjusted imputation method. Error bars represent 95% confidence intervals. The sample is a balanced panel between $\ell = -3$ and $\ell = 9$. GSOEP, 1984–2020.

Figure D.16: Child Penalty of Mothers by Number of Children



Note: This figure shows estimated child penalties in actual and desired hours for mothers by event time relative to the birth of the first child, split by the total number of children. Estimates are expressed as a percentage of the pre-birth mean among employed women at $\ell = -1$. Each point is the ATT from the imputation estimator of Kaeppel (2025). Both outcomes are unconditional: non-employed individuals contribute zero to actual and desired hours. The desired hours curves use the adjusted imputation method. Error bars represent 95% confidence intervals. The sample is a balanced panel between $\ell = -3$ and $\ell = 9$. GSOEP, 1984–2020.

Chapter 3

Off the Clock? Working Time Misperceptions and Labor Market Outcomes

This chapter is based on an article co-authored with Thomas Breda (CNRS, PSE) and Vladimir Pecheu (Penn State University).

Abstract

This paper examines workers' awareness of their contractual working time arrangements and its relation with labor market outcomes, exploiting the forfait jours system in France. Combining administrative and survey data at the individual level, we build a new and unique dataset which shows that nearly 20% of the workforce mistakenly report that they work under day contracts, with no monitoring of hours, while they are actually paid through a standard hours contract. This reveals that many workers with various profiles may be misinformed about the legal environment governing something as fundamental as their working time. We show that these misreporting workers differ from classic workers in terms of working conditions. Misreporters perform more unpaid overtime hours but have a higher wage rate per contractual hour, so that their true compensation per hour worked is similar. This suggests that firms do not comply with formal regulations with uninformed workers but neither take advantage of their misunderstanding to extract rents. We interpret non-compliance as evidence of informal arrangements that blur the boundaries between standard hours contracts and day contracts.

1 Introduction

Regulations are a ubiquitous feature of labor markets in modern societies. Their role is to frame the relationship between workers and employers, to protect workers from potential risks of abuse, and to correct for market failures. Common rules that aim to limit those risks include minimum wages, right to strike, maximum working time duration, and workplace safety standards.

To achieve their goal, labor regulations need to be respected. While compliance with labor laws is the focus of much research in developing countries (see Bhorat and Ravi Stanwix (2019) for a survey), it is nowadays often taken for granted in developed countries (see e.g. Gourio and Roys (2014); Garicano et al. (2016) for the effect of size-dependent firm regulations). However, there remains example of widespread non-compliance (see Askenazy et al. (2022) on the same example, or Boeri et al. (2024)). Achieving compliance requires either strong enforcement bodies (see Roncioni (2019) on the role of enforcement), or workers who are well-informed about their rights and able to assert them through collective bargaining or legal action.

This paper focuses on this latter aspect and examines to what extent workers are aware of a fundamental aspect of their working contract: the legal regime covering their working time. Most existing evidence on workers' awareness of their rights comes directly from survey responses (e.g. CSA (2016); Humanis (2024); Van Rooij (2020)). Our study is among the first ones to combine self-reported information from a detailed survey conducted by the French Ministry of Labor, with administrative data on workers' actual contractual arrangements.

This unique combination of data allows us to identify misreporters unambiguously and to go further, examining the relationship between workers' ignorance of their contractual arrangement and their actual working hours, hourly wages, and earnings. By misreporters, we refer primarily to workers who declare their working time is measured in days when, according to administrative records, they are legally employed under standard contracts in which hours are tracked. An interesting feature of our data is that we can clearly separate these misinformed workers from workers who explicitly report not knowing under what type of contract they are employed. Linking workers' awareness of their contractual arrangement to their actual working conditions is the central contribution of this paper. To the best of our knowledge, no prior work has addressed this question directly.

What risks do workers face when they misunderstand their working time

arrangement? The most immediate risk is institutional: from a strictly legal standpoint, if actual hours worked exceed those stipulated in the work contract, workers are performing unpaid overtime and employers are in violation of labor law. When workers are unaware of this discrepancy, violations may persist indefinitely. More broadly, a fundamental concern arises from the informational asymmetry between employers and employees. Firms typically have dedicated HR departments with the expertise to design and manage labor contracts, while workers often lack the time or knowledge to fully understand the regulations that govern their employment. Employers may exploit this informational advantage to circumvent legal obligations and extract economic rents. This mechanism is likely to be more effective in imperfect labor markets, where workers have limited bargaining power and face barriers to switching jobs or renegotiating pay.

Under a purely *regulationist* view, strict adherence to labor regulations is essential to protect workers against the consequences of asymmetric information with employers, and legal authorities should adopt strict policies of practice control within workplaces. However, if regulation failures are compensated by market mechanisms, workers and firms may deviate from regulations when market mechanisms allow them to reach better outcomes than under regulation. According to this *market view*, deviations from the regulatory framework could be interpreted in our context as a form of mutually beneficial flexible work arrangement. Our paper speaks to both perspectives.

France provides an ideal setting for studying these mechanisms, as it represents a prominent example of a strongly regulationist system characterized by an extensive and complex Labor Code. This complexity creates conditions in which employers are likely to have a systematic informational advantage over workers, amplifying the asymmetry between the two parties.

More specifically, we focus on a particular French flexible work arrangement known as *forfait jours* (hereafter, day contract), which officially covers about 10% of all salaried workers in 2017, almost exclusively in high-wage sectors. For workers subject to these contracts, working time is measured in annual working days rather than weekly hours, which implies almost no regulation on hours worked. Crucially, employers are not required to monitor nor control the hours worked of these workers, whereas this is a central legal obligation for workers on hours contracts, who must be paid overtime if their working time exceeds their contractual load. Then, day contracts offer significant flexibility to both employers and employees but

may weaken workers' protection. We uncover a striking empirical finding: 18% of workers in our sample believe that they are working under this flexible arrangement when, in fact, they are not, according to the administrative source stemming from labor contracts. In other words, 27% of workers think they hold a day contract while only 9% actually do. A further 15% of workers report not knowing their working time status, representing a distinct form of imperfect information. We provide evidence that misreporting reflects genuine ignorance of workers' contractual arrangements rather than measurement error.

This widespread misreporting, observed across a broad range of workers' and firms' characteristics, prompts us to examine its consequences for workers. We first inquire if workers' ignorance is indeed related to non-compliance with their working contract. Combining official data on contractual paid hours with survey data on total weekly hours (including unpaid), we find that workers who misreport holding a day contract work longer hours and more unpaid overtime hours than otherwise similar workers who correctly report their contract. This is consistent with employer non-compliance with labor regulations, though we cannot entirely rule out that misreporting workers also misperceive their own working hours as compared to better informed, and perhaps more attentive, workers.

We then examine more broadly whether employers exploit workers' limited knowledge of their employment contracts. The underlying motivation is clear: if misinformed workers are treated less favorably, a priority should be to improve regulatory knowledge, either by simplifying the rules or by strengthening unions' capacity to enforce compliance. However, our results point to a different conclusion. Misreporters are compensated for their longer hours through higher earnings and report comparable levels of job satisfaction, suggesting their poor information is associated with limited welfare impacts. These results, concentrated among high-skilled workers, suggest that working conditions differ between misreporters and similar workers who correctly report their hourly work arrangements.

We further exploit the panel dimension of our data to examine longer-term outcomes. Misreporters are more likely than correctly reporting workers to subsequently transition to an official day contract. However, when they move, they do not experience the typical wage increase associated with day contracts, suggesting they had already captured part of the day contract wage premium.

Taken together, our results suggest that employers can circumvent working time regulations and manage their workers more flexibly by offering them better

compensation. But they reject the hypothesis that employers take advantage of workers' ignorance to extract rents at their expense. Workers in hours contracts who misreport their status appear to occupy an intermediate position between accurate reporters with hours contracts and workers formally on day contracts, consistent with the existence of informal arrangements that function as de facto flexible work arrangements. Our set of results might be best understood as reflecting that market mechanisms are able to compensate for regulation failures.

Related Literature. This work relates to three main strands of literature. First, this paper contributes to the recent and developing literature on flexible work arrangements. *Forfait jours* agreements represent a form of flexible arrangement in which hours are not monitored and workers have autonomy in organizing their work. Previous research has shown that flexible jobs are highly valued by workers, particularly when employees can anticipate their schedules and maintain decision-making power over their time allocation (Mas and Pallais, 2017; He et al., 2021; Adams-Prassl et al., 2023; Erhel et al., 2024). We contribute to this literature by leveraging rich administrative data combined with survey measures of job satisfaction and find a positive association between workers' welfare and these arrangements. At the end of the paper, we use individual fixed effects in a panel data structure to provide estimates of earnings changes associated with signing an agreement, thereby capturing how much employers are willing to pay for workforce flexibility. Our results demonstrate that employers highly value workers' flexibility. In this regard, the specific institutional context of *forfait jours* agreements provides numerous insights that extend beyond the topic of non-compliance and speak to the literature of flexible work arrangements in modern labor markets. The paper also speaks to a relatively underdeveloped strand of the literature examining the distinction between formal and informal flexible work arrangements. Prior research has shown that some formal flexible arrangements may generate stigma and contribute to a "flexiglass ceiling" (Weeden, 2005), particularly for women (Xiang et al., 2022), when compared with informal arrangements. De Menezes and Kelliher (2017) further argue that informal arrangements are associated with better performance outcomes because they rely on more collaborative relationships between workers and employers. Although a large share of flexible work arrangements are informal in practice (Gregory and Milner, 2009), systematic empirical evidence on their functioning and consequences remains limited. Our paper contributes to filling this gap.

Second, a substantial literature has studied the impacts of non-compliance to regulations on economic outcomes. Economic research on compliance with labor laws has predominantly focused on developing countries, where institutional weaknesses often lead to widespread non-compliance (see Bhorat and Ravi Stanwix (2019) for a comprehensive survey). However, examples of non-compliance also exist in developed economies, as documented by Boeri et al. (2024) on non-compete clauses and Askenazy et al. (2022) on firms' size-dependent regulations. Within this literature, there has especially been a long tradition of examining compliance with minimum wage regulations (see e.g. Rani et al. (2013) and Garnero (2018)), dating back to the seminal work of Ashenfelter and Smith (1979). Focusing on other aspects of contractual labor regulations such as working time arrangements is less common, with the notable exception of Cohen et al. (2023) which studies firms' avoidance of overtime regulations through the use of "managerial" contracts. Their work can be viewed as strongly related to ours as the *forfait jours* regulation is designed for similar types of workers and implies an exemption from overtime regulations. A key distinction of our approach from the existing economics literature is that we focus directly on workers' awareness of their contractual arrangements rather than examining compliance per se. This shift in perspective allows us to investigate the underlying mechanisms that may drive non-compliance and to assess whether informational asymmetries between employers and workers contribute to regulatory violations and their associated economic consequences.

In doing so, we relate to a large literature in legal studies examining workers' awareness of the law and its consequences, particularly for compliance. In his review of this literature, Van Rooij (2020) assesses individuals' knowledge of legal rules governing their activities across various domains, including employment law, criminal law, and health regulations. Common findings across studies reveal major information gaps between professionals and laypersons, which the author attempts to explain (e.g., highlighting the role of social norms) and preliminarily discuss associated compliance risks. The main reference for our paper is Kim (1999), who examines workers' knowledge of their legal protection in the context of American at-will employment contracts. Her results demonstrate that a substantial share of workers have limited knowledge about their employment rights, with potential negative impacts on workers' welfare as the grounds for dismissal are misunderstood. However, these studies are based on survey evidence with small samples and are mostly interested in compliance and respect of the law, as they are not able to link non-awareness to actual economic outcomes on the labor market. In

contrast, we study directly an economic mechanism related to workers' ignorance, namely that employers might take advantage of their information advantage about the rules governing labor contracts to extract rents. Our research also contributes to this literature by leveraging a unique setting that combines a large sample size with limited reporting issues, as data are collected by the Ministry of Labor's statistical service.

The rest of the paper proceeds as follows. Section 2 introduces the relevant elements of French working time regulation, particularly those related to *forfait jours* agreements. Section 3 presents the mobilized data. Section 4 characterizes the profile of misreporters and their distribution across workplaces. Section 5 studies the implications for their working conditions.

2 Working Time Regulation in France

In France, the legal duration of working time is set at 35 hours per week for full-time employees in all companies regardless of their size. This is a reference duration, a threshold from which, except for exceptions, overtime hours are calculated. It is therefore neither a minimum duration (employees can be employed part-time) nor a maximum: overtime hours can be worked within the maximum durations beyond which no work can be requested. Associated with the establishment of the 35-hour reforms in 2000 and 2002 (see Askenazy (2013) for more details), an extensive legislative framework has defined the conditions for the organization of working time in the workplace. In particular, compliance with mandatory rest periods, the employee must not exceed a maximum number of weekly working hours, and payment of overtime hours are obligations incumbent upon the employer. Consequently, the employer must adopt methods to monitor the working time of their employees in order to respect them.

A first solution for this is to establish fixed collective working hours. The starting and ending times of each work period are predetermined with no individual flexibility. The concerned employees are informed through mandatory display on the workplace and must adhere to them. Working time is thus perfectly controlled, and any work hour beyond the fixed working periods is paid as an overtime hour at an extra rate of 25% for the first eight hours and 50% thereafter. When the implementation of collective schedules is not possible, the employer can set individual fixed schedules for each employee. Working time is then monitored in the same way.

Second, when tracking fixed schedules is impossible due to flexibility reasons, the employer must record working time. This is done for each employee according to the following methods[1]: either daily or weekly, by recording, by any means, the start and end times of each work period or by recording the number of hours worked. Proper monitoring of working hours can be subject to inspection by labor authorities at any time, which may result in criminal proceedings.

Finally, employees can work under a *forfait* system, i.e. they have established with their employer an agreement which allows the employer to spread out the periods for measuring working time. The Labor Code provides two types of *forfait* contracts. First, there are *forfait heures* agreements, which allow employers to facilitate the management of overtime by systematizing it. These hourly agreements do not exempt employers from their obligations to measure employees' working time according to the usual rules (daily recording or tallying and weekly summary of hours worked). Then, there are the famous *forfait jours*, central to this article. These day-based agreements allow employers not to count working time hour by hour but rather half-day by half-day[2]. They are the only legal working time regime for which the hours worked do not have to be measured and controlled by the employer[3]. *Forfait jours* agreements are distinguished by the flexibility granted to the worker in organizing their work but are considered capable of generating abuses such as excessive weekly workload. They are therefore heavily regulated by the Labor Code, only addressed to employees with strong autonomy in organizing their schedules, and requiring the employee's written agreement. Figure E.1 represents the share of workers with a *forfait jours* agreement by occupation. Occupations with the highest share of *forfait jours* agreements include corporate executives, engineers, or journalists. On the other hand, there are almost no workers with such contracts in most low-skilled occupations.

In summary, employees have three main options when it comes to their working time arrangement: a) they have known fixed schedules, b) they have variable schedules, and their employer measures and controls their working hours, or c) they are subject to a *forfait jours* agreement. In the rest of the paper, contracts that are associated with a *forfait jours* agreement are often referred to as day contracts, as opposed to hours contracts for all other contracts that involve a monitoring of hours by employers.

[1] See article D.3171-8 of the Labor Code.

[2] In the French regulation, a day corresponds to 7 hours and a half-day corresponds to 3h30.

[3] The employer must still be able to provide evidence of respect of mandatory rest periods to the legal authorities, which may involve some monitoring for this particular purpose.

As explained above, in cases where their job is eligible, the individual *forfait jours* agreement is subject to the employer's and employee's agreements. A crucial question in the context of our study concerns the incentives to work under a day contract from both perspectives. *Forfait jours* agreements provide clear benefits for employers. Workplace management is made easier by removing the need to track working hours or handle employee schedules as it cuts down on administrative work. They also help control labor costs by avoiding overtime payments, especially in periods of high activity[4]. Beyond these practical gains, employers see these contracts as able to improve workplace relationships by giving employees more autonomy and creating a more relaxed management style. Taken together, the main advantage of *forfait jours* agreements is to allow employers to work around some of the more complex parts of French employment law. This flexibility comes with risks, as many court cases have shown employees winning claims for overtime pay when the associated rules were not properly respected, but overall *forfait jours* agreements appears as highly valued by employers.

From the employee's perspective, to what extent does an employee have an interest in concluding a *forfait jours* agreement rather than working under a system governed by weekly hours? As noted in previous work from the French labor law literature (Ray, 2016), there is no clear answer to this question. Workers with day contracts can theoretically work up to 13 hours per day and have frequently been described as subject to extreme workweeks (Bouffartigue and Bouteiller, 2000), but their number of hours is possibly very heterogeneous. Even when their hours are not monitored, employees are asked to report their usual and current week hours in the French Labour Force Survey[5]. The reports show a higher concentration of employees with *forfait jours* agreements between 40 and 50 weekly hours, reflecting the fact that they tend to work more on a weekly basis. In terms of remuneration, by signing the agreement, an employee foregoes a significant salary increase associated with overtime hours. On the other hand, they are compensated through higher wages and benefit from additional rest days, also convertible into earnings. When we restrict to objective working conditions, i.e hours and earnings, the incentive to sign or not sign the agreement is unclear. This contrasts with other survey evidence, including our data, which consistently documents higher reported job satisfaction, particularly related to working-time arrangements, for workers with day contracts. It appears

[4]As an example, during the 2024 Paris Olympics, the organizing committee massively used these contracts to avoid overtime regulations, thus resulting in substantial uncompensated workload for fixed-term hired workers.

[5]The *Enquête Emploi* is administrated by the public institute for statistics, *Insee*.

that the decision to sign a *forfait jours* agreement also relies on a preference for flexibility and liberation from employer control over hours, paid at the cost of potential heavy weekly workloads. Prior research on flexible work arrangements (Mas and Pallais, 2017; Adams-Prassl et al., 2023) has identified that workers tend to favor flexible arrangements conditional upon retaining sufficient autonomy over their schedule management.

Despite the widespread use of *forfait jours* agreements in France, there is remarkably little empirical research examining these contracts and their implications for workers. This paper contributes to filling this gap by providing new evidence on *forfait jours* agreements, particularly regarding their association with job satisfaction and wage premia.

3 Data

3.1 French Matched Employer-Employee Dataset (DADS)

The *Déclarations Annuelles de Données Sociales* (DADS) is a French linked employer-employee database widely used in the economic literature (see e.g. Abowd et al. (1999)). It is based on annual social security records of firms and contains for each employee information related to employment, labor earnings, number of hours worked, and other relevant information provided by employers. The report is usually done by HR services and has important consequences, e.g. on the amount of social security contributions paid by the firm. We use the exhaustive yearly versions of this dataset that cover the entire salaried workforce in each of their employment spell (DADS-Postes), for years 2015 to 2019. A crucial element to our approach is the presence, starting from 2017, of a variable that describes the working time unit (day or hours) of the employee. This variable provides administrative information on the legal arrangement of working time, i.e. on whether the employee works under a contract in days or in hours. We also use net annual labor earnings and paid annual hours worked, as reported by the employer. This measure of hours includes all periods that involve a remuneration, hence not only regular working weeks but also paid leave. Note that the reported measure of hours is meaningless for workers with a day contract, consistent with their status[6].

[6]Employers are not required to report hours of workers with day contracts, so an imputation is done by Insee, the French National Institute for Statistics and producer of the database, to assign 1,820 or 2,200 annual hours to all day contract workers.

3.2 REPONSE

The empirical analysis is also based on the French Ministry of Labor's Workplace Employment Relations Survey for 2016-2017 (REPONSE17), covering 5,948 non-agricultural business workplaces with more than 10 employees. The REPONSE17 survey is run between January and June 2017. REPONSE17 is one of the leading sources of data on industrial relations in France. Its main originality and strength is to collect information in most participating workplaces from a management representative, a sub-sample of employees, and a worker representative. In this paper, we do not use any information from the worker representative's part of the survey.

Employer survey (REPONSE17-Employer). In 4,363 of the participating workplaces, a management representative could complete a lengthy face-to-face interview relating mainly to work organization and industrial relations. The answers constitute the employers' part of the survey, from which we retrieve information on the presence of union representatives, the practices in terms of mutually agreed contract ends, use of overtime hours or telework, the nature of collective agreements, and other workplace characteristics.

Worker survey (REPONSE17-Workers). A random sample of 5 to 10 workers in each participating workplace finally receives a 2-page, 50-item questionnaire by mail or by email. The questionnaires are filled out by a core sample of 21,320 workers in the subset of 4,363 workplaces that participate in the employer survey, plus an additional sample of 7,643 workers in 1,584 more workplaces for which no workplace level information is available. The structure of the survey, collected on several workers per workplace, allows us to use a workplace fixed effect in most of our specifications. The data includes the usual worker demographics, work organization, job satisfaction, union membership and representation mandates. Hourly earnings for 2015, taken from the DADS, have directly been matched with REPONSE17 by the Ministry of Labor. These hourly earnings are constructed as annual earnings divided by the number of hours worked. They include basic wages, performance-related pay and non-performance related bonuses. They are net of employers and workers' social security contributions, but gross of income tax.

As part of the survey, workers are asked if their working time is subject to a *forfait jours* agreement. We use their answer as a reliable information about worker beliefs regarding their work arrangement. The question is asked in the following terms (in

French): "*Is your working duration determined in the form of a forfait jours agreement? The principle of forfait jours agreements is based on counting working time in terms of the number of days per year rather than in hours.*". Individuals are offered to answer "yes", "no" or "do not know". This last option legitimates our interpretation of positive answers as conveying a worker's belief about their arrangement, thus is important to the purpose of the paper. After dropping observations where the information on *forfait jours* is missing (1% of the sample)[7], we obtain a dataset of 28,529 workers.

3.3 Sample

Our goal is to identify workers who report themselves as subject to a *forfait jours* agreement in the survey, but who do not appear as so in administrative records. Then, we need to connect the REPONSE17 dataset, containing the survey information, with the DADS 2017 dataset at the individual level. To build this sample, we procede in multiple steps.

First, we link REPONSE17 to the DADS 2015 dataset using the workplace's ID and the main characteristics of the workers[8]. The high matching quality relies on the presence in REPONSE17 of annual earnings and annual hours worked from the DADS 2015 dataset, that provide a consistent and very granular matching variable. We are able to perfectly match 27,682 individuals out of the initial 28,529 (97% matching rate). This first match yet combines survey information from the year 2017 with admin information regarding the year 2015, which does not permit a proper comparison. To confront both sources of information on the same year, we use the method from Babet et al. (2022) chaining DADS datasets across years[9], hence building unique workers' IDs between 2015 and 2017 to construct a quasi-exhaustive panel dataset. Using a correspondence table of yearly identifiers to this unique identifier, the matched sample is reduced to 23,160 observations (84% matching rate). Out of this number, we are able to connect 21,708 workers (94% matching rate) to a unique 2017 identifier. It means that we have access to both administrative and survey information on the presence of a *forfait jours* agreement for 76% of the original sample.

Throughout the construction of the sample, the main loss of observations occurs in the 2015-2017 DADS chaining step. In their original paper, Babet et al. (2022) report

[7] These workers are similar in characteristics to workers who report not knowing their contract and their reported hours are concentrated around 35 hours per week, which suggests that working time is not a salient issue for them.

[8] Worker-related match variables are age, sex, annual net labor earnings, annual hours worked.

[9] The method exploits the overlap of information generated by variables describing the worker's situation in the previous year.

matching rates of 98% between 2015 and 2016, and 91-93% between 2016 and 2017, which produces a 90% (0.98×0.92) overall matching rate from 2015 to 2017, thus slightly superior to our 84%. This difference is likely due to the scope of REPONSE17, which only concerns workplaces with more than 10 employees. As the chaining procedure relies on the overlap of information in t and $t-1$ datasets, we argue that information is less likely to be consistent across years for workers in large workplaces. Table E.1 in the Appendix compares the final sample with the original REPONSE17 dataset on main characteristics. Workers who report having a day contract in the survey are slightly under-represented in the matched sample, which is partly explained by the under-representation of high-skilled workers who gather most workers who truly work under a day contract. Overall, the matched sample remains sufficiently close to the original REPONSE17 for the findings to bear external validity.

The final sample divides as follows with respect to the survey and administrative information. 8.7% of the sample are workers with a day contract who report themselves accurately in the survey data. 56.6% are workers with an hours contract who report themselves accurately in the survey data. 18.0% are workers with an hours contract who misreport themselves in survey data, i.e. they claim that they work under a day contract. Those individuals are our main group of interest throughout the paper. Finally, 15.4% of the sample are workers with an hours contract who answer in the REPONSE17-Workers survey that they do not know whether their contract is in days or in hours. Table 3.1 recapitulates the distribution of the different status in the sample. We remove from the sample the few individuals (1.2% of the sample) who work under a day contract according to the administrative records but who either answer that they have an hours contract or that they do not know their contract status in the REPONSE17-Workers survey. This yields a final sample of 21,438 workers. In the course of the paper, workers with hours contract who accurately report are used as the reference group in most specifications, while we are primarily interested in studying the characteristics of workers in hours contracts who either don't know or misreport their status.

We address some potential issues related to the definitions of contract and information status. First, we consider the employer-reported information from the DADS variable as describing the true working time status of the individual. This assumption is supported by the administrative nature of the database, and by the nearly 10% share of workers with an actual day contract that is in line with other sources (12% in the French LFS, 9% in *ECMOSS*) published by Insee, the French national institute of statistics.

Table 3.1: Distribution of Workers by Contract and Information Status

		Worker's belief about their contract (REPONSE17-Workers)		
		Day Contract	Hours Contract	Do Not Know
Contractual administrative information (DADS)	Day Contract	Accurate Reporters 8.7% N = 1,883	- 0.9% N = 199	- 0.3% N = 71
	Hours Contract	Misreporters 18.0% N = 3,915	Accurate Reporters 56.6% N = 12,289	Do Not Know 15.4% N = 3,351

Note: This table presents the distribution of contract × information status in the final analytical sample based on the combination of answers in the REPONSE17-Workers survey and DADS administrative records. The sample is composed of 21,708 workers. Workers' beliefs about their contract are derived from their answer to the question about *forfait jours* agreements in the survey. Day contracts denote labor contracts associated with a *forfait jours* agreement, i.e. without mandatory monitoring of hours worked. Hours contracts gather all other labor contracts. Workers are classified into four categories: (1) "Day Contract - Accurate Reporters" who report holding a day contract in the survey and who appear as so in the administrative records; (2) "Hours Contract - Accurate Reporters" who report not being subject to a day contract in the survey, consistently with DADS administrative records; (3) "Hours Contract - Misreporters" who report working under a day contract in the survey but do not appear as such in DADS administrative records; (4) "Hours Contract - Do Not Know" workers who respond "do not know" when asked about their contract status in the survey, while working under an hours contract according to DADS administrative records. Individuals who have a day contract in administrative records but answered "no" or "do not know" in the survey (1.2% of the sample) are excluded from the sample hereafter.

However, employers may have strategic incentives to misreport some workers with day contracts as having hourly contracts. Since social security contributions are higher for corporate executives (*cadres*), who are typically eligible for *forfait jours* agreements, employers have financial incentives to misreport the status of these workers to avoid extra costs. This would require misreporting both the worker's occupation (as intermediate worker rather than *cadre*) and the contract type to maintain consistency. In this scenario, workers who we label as misreporters would in fact be correct but their administrative information would be wrong. To evaluate this risk, we examine the workplace-level correlation between the share of intermediate workers in the workplace and the share of misreporters among intermediate workers, including an industry fixed effect. The idea is that workplaces that undertake those reporting strategies would have a higher share of intermediate workers implied by the under-declaration of *cadres*. We find no correlation between measures in our sample.

Second, we argue that the group of misreporters does not simply result from random error in workers' perceptions of their contract and that they reflect their genuine beliefs. Under random error, the probability of misreporting would be equal

regardless of the actual type of contract. However, given that 90% of our sample have hourly contracts, the misreporting rate among hourly contract workers is approximately 20% (18/90), while the equivalent rate among day contract workers is only 9% (0.9/10) from Table 3.1. The rate of random error is therefore at most 9%, implying that at least 11% of workers under an hour contract are true misreporters. While this share is still significant, it is lower than the baseline one, which could induce some attenuation bias in our comparisons of the different groups.

4 Description of the Misreporters

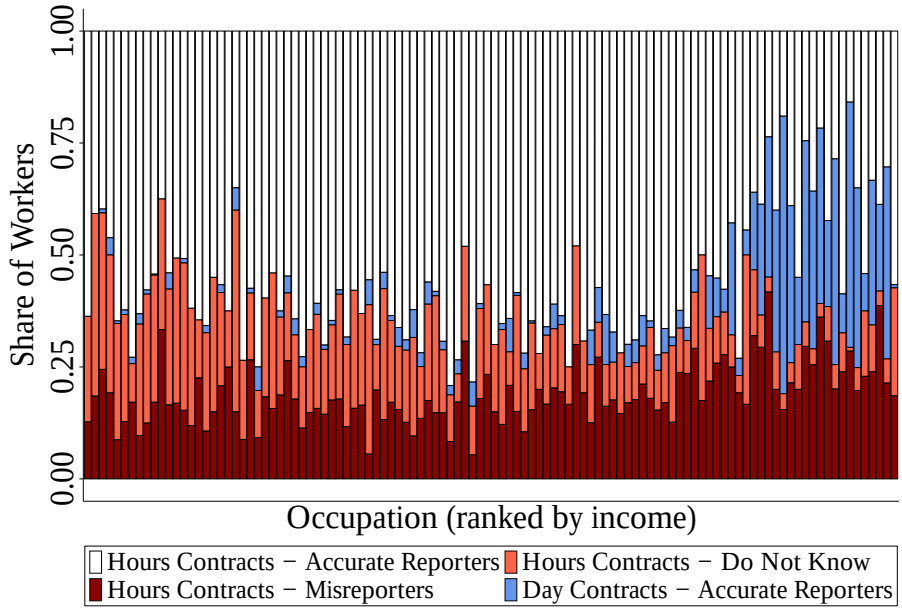
Section 4.1 describes the characteristics of misreporting individuals and isolates potential determinants for their misreport. Section 4.2 establishes to what extent misreporting occurs in some specific workplaces.

4.1 Individual Characteristics

First, we focus on the individual characteristics of workers with an hours contract who misreport their working time status. The goal of the section is to understand who those potentially at-risk individuals are. For example, are they similar in profile to workers with an actual day contract, hence their beliefs, or rather to uncertain workers, as their knowledge of their working time arrangement is also limited? Figure 3.1 plots the distribution of workers' types by occupation at the 3-digit level in the PCS classification (110 values), where occupations are ranked by average annual labor earnings. Workers with a day contract are concentrated in high-income occupations. This is consistent with legal requirements associated with *forfait jours* agreements that stipulate that workers should have great autonomy in organizing their work tasks and schedules—typically managers, engineers, and senior professionals. In contrast, misreporters, the main group of interest, show a markedly different occupational profile. While slightly overrepresented in typical day-contract occupations, they are dispersed across the entire occupational distribution. Most strikingly, more than 50% of these employees work in an occupation that is supposedly not eligible for such contracts[10], therefore the misreporting population appears as relatively diverse in jobs. On the other hand, the representation of workers who do not know their working time arrangement decreases systematically with respect to the income distribution. This suggests that misreporters should be considered as distinct in profile from workers who report not knowing their type of contract.

[10]Here, we consider an occupation as ineligible to *forfait jours* agreement if less than 1% of workers in this occupation have a day contract according to the administrative source.

Figure 3.1: Distribution of Contract and Information Status by Occupation

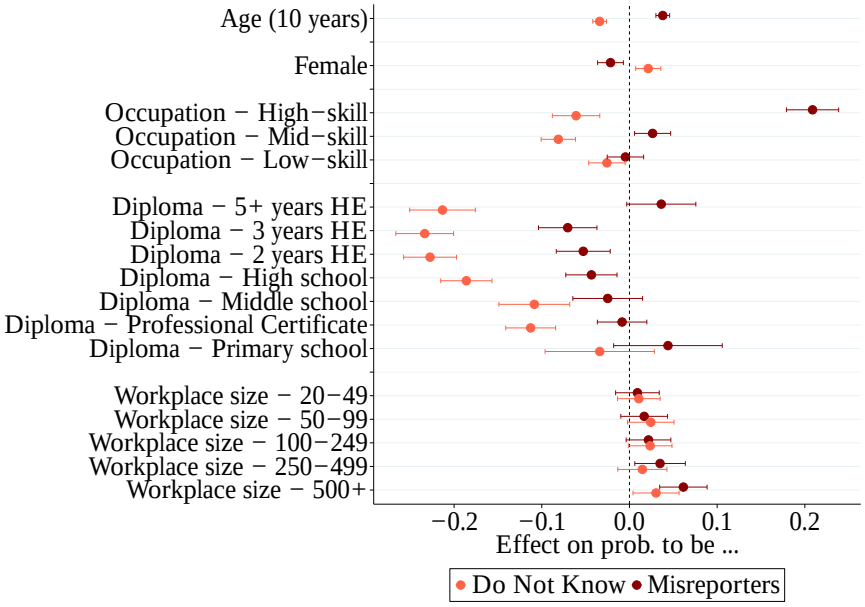


Note: This figure represents the distribution of contract × information status by occupation, as derived from the combination of the REPONSE17-Workers survey and DADS administrative records. The sample is composed of 21,438 individuals after the removal of workers with a day contract who either answer that they have an hours contract or that they do not know their contract status in the REPONSE17-Workers survey. Workers are classified into four categories: "Day Contract - Accurate Reporters" who report holding a day contract in the survey and who appear as so in the administrative records; "Hours Contract - Accurate Reporters" who report not being subject to a day contract in the survey, consistently with DADS administrative records; "Hours Contract - Misreporters" who report working under a day contract in the survey but do not appear as such in DADS administrative records; "Hours Contract - Do Not Know" workers who respond "do not know" when asked about their contract status in the survey, while working under an hours contract according to DADS administrative records. Occupation groups correspond to the 3-digit level in the PCS classification (110 values) and are ordered by mean DADS annual earnings with lowest-paid occupations on the left. Occupation groups with less than 20 workers in the sample are not displayed.

This statement is reinforced by considering other characteristics. Figure 3.2 examines the demographic and workplace factors that predict misreporting behavior. We first study the role of age, gender, occupation, highest level of diploma, and workplace size. The coefficients are estimated in two separate linear regressions using a dummy equal to 1 if they belong to the corresponding contract × information group as the outcome and all characteristics simultaneously as covariates. The first regression compares misreporters with workers with an hours contract who accurately report, while the second compares workers who report not knowing their status to the same reference group. We thus compare workers with the same type of contract, hours contract, but who hold different beliefs about it. The results reveal several significant patterns. Older workers are more likely to misreport their contract status, but less likely to report not knowing it. Similarly, women show opposite patterns in regard of both types of beliefs—they are more likely to report not knowing their contract status

and less likely to misreport. As previously shown in Figure 3.1, high-wage occupations are more likely to misreport, but not to report that they do not know their status in the survey. The magnitude of the estimate for misreporters ($\hat{\beta} = 0.209$) is enhanced by the relatively low proportion of white collar workers in the reference group. Within occupations, educational attainment is negatively correlated with misreporting, although much less than not knowing. Lastly, larger establishments are associated with higher rates of misreporting, with the estimate increasing monotonically across size categories. All details of those results are shown in Table E.2.

Figure 3.2: Characteristics of Misreporters and Uncertain Workers (Hours Contracts)



Note: This figure presents OLS estimates and 95% confidence intervals from regressions examining the relation between misreporting or not knowing their contract status and worker characteristics. The sample is restricted to workers with an hours contract and no missing values on explanatory variables. "Misreporters" and "Do Not Know" workers are respectively workers who report working under a day contract and who report not knowing their contract in the REPONSE17-Workers survey. For each status, a regression is run on all characteristics simultaneously (along with an industry fixed effect), using accurate reporters as group of comparison. Occupations are defined at the 1-digit level in the PCS classification (4 values). Sample sizes in each regression are respectively 16,126 and 15,563. Reference categories are respectively male workers, low-skill manual occupation, no diploma, and workplace size of 11-19 employees. HE = Higher Education. All estimates are relative to workers with an hours contract who report correctly. Estimates are available in Table E.2.

Next, we investigate the importance of the information channel in the phenomenon of misreporting by studying unionized workers and worker representatives. As discussed in Bourdieu et al. (2023), the role of worker representatives is likely to be important and related to the social climate, possible industrial conflicts, and the outcome of negotiations. In the context of this study, we expect worker representatives to be more aware of working time regulations and to act as a source

of information for their coworkers. Similarly, unionized workers should be more sensitive to working time issues. We also exploit four additional questions from the REPONSE17 survey measuring worker autonomy: work supervision intensity, work-life balance quality, work schedule nature, and information quality about working time arrangements. Figure E.2a shows how these factors relate to misreporting behavior. We find that being a worker representative has no correlation with misreporting the forfait status, but is significantly negatively correlated with the probability to report not knowing it. The better knowledge of worker representatives yet does not trickle down to other employees in the workplace. Conversely, unionized workers tend to misreport their working time status less, while it is not associated with not knowing it. Additional results show that workers who report having poor information about their working time arrangements are significantly more likely to report unknown contract status.

4.2 Distribution Across Workplaces

This second part aims to study whether misreporters tend to work in specific workplaces, with particular employment structures and practices. Misreporters are relatively widespread: while representing 18% of the sample, they appear in 2,582 workplaces (47% of the sample), as compared to 1,102 workplaces (20% of the sample) for workers with an actual day contract, representing about 9% of the sample. Do those two types of workers tend to work in the same firms? Figure E.3 shows that the presence of misreporters or uncertain workers is not strongly correlated with the share of day-contract workers at the workplace level (split in deciles). We do observe a decrease in the highest decile, where the majority of day contracts are, but overall misreporting does not appear to be primarily driven by mimetic behavior within workplaces where *forfait jours* agreements are common.

Using the employer part of the survey, we then examine the link between employment practices and labor relations in the workplace and misreporting behavior. The results, shown in Figure E.2b, depict misreporters as more likely to work in companies with flexible management. The probability for a worker to misreport increases, sometimes non-significantly, in workplaces with regular negotiations, mutually agreed contract ends, firm-level agreements on working time, and strikingly telework, while it decreases in places with tense climate and with a strong use of overtime hours. Some of those results are driven by the larger proportion of high-skill workers in the group of misreporters (e.g. negotiations, contract ends), but other factors, such as telework and use of overtime hours, also remain significant when restricting the sample to workers with lower skills. This

suggests that misreporting may not specifically denote confusion among workers, but rather informal practices in the workplace.

The descriptive analysis reveals that workers with hours contracts who misreport or do not know their contract status are different between themselves and also from workers with hours contracts who accurately report their status. The evidence suggests that misreporting is not simply confusion, but reflects how certain workplace conditions might blur the lines between different contract types. This raises an important question: do these workers' incorrect beliefs about their contracts correlate with worse working conditions?

5 Labor Market Outcomes of Misreporters

This section focuses on the relation between misreporting and labor market outcomes. We assess to what extent workers who misreport their working time arrangements are disadvantaged in their job, in terms of monetary and non-monetary features, as compared to similar workers with correct beliefs.
The analysis proceeds in two parts. Section 5.1 examines differences in hours, wages, earnings and job satisfaction between misreporters and correctly informed workers. Section 5.2 explores misreporters' employment trajectories in the short-run.

5.1 Working Conditions

Hours Worked. Do misreporting workers work more hours due to their apparent wrong beliefs about their working time arrangement? To answer this question, we compare their hours worked to similar workers with hours contracts who accurately report their status. We consider two alternative definitions of hours that reflect two different conceptions. First, administrative hours, as reported by employers in annual social security records and displayed in the DADS datasets, correspond to the number of paid hours worked. Paid hours are defined as including all remunerated periods, not only regular working weeks but also paid leave, a definition close to contract hours. Those annual hours are recomputed as a full-time equivalent over the entire year and divided by 52 to create a weekly measure of hours. Second, reported (usual) weekly hours from the REPONSE17-Workers survey provide a worker perspective comparable to measures from the Labour Force Survey. At this point, we restrict the sample to workers with both reported and paid hours between 15 and 70 hours per week. This narrows the sample of analysis from 21,438 to 20,210 workers.

Figures 3.3a and 3.3b present distributions of both measures for the two main groups

of workers with hours contracts: accurate reporters and misreporters. There is no striking difference between both groups in terms of paid hours but significantly higher reported hours for workers who misreport. In particular, the latter appear to be more likely to work 40 hours or more per week, a duration that would imply overtime compensation. Consequently, the difference between reported and paid hours is larger for misreporters than for accurate reporters, as shown in Figure 3.3c. This suggests that a larger share of their hours worked may not be associated with a payment. In the rest of the paper, we thus consider the difference between reported and paid hours as unpaid hours worked. Note that this new outcome is meaningless for workers with an actual day contract as their working time is measured in days rather than hours[11].

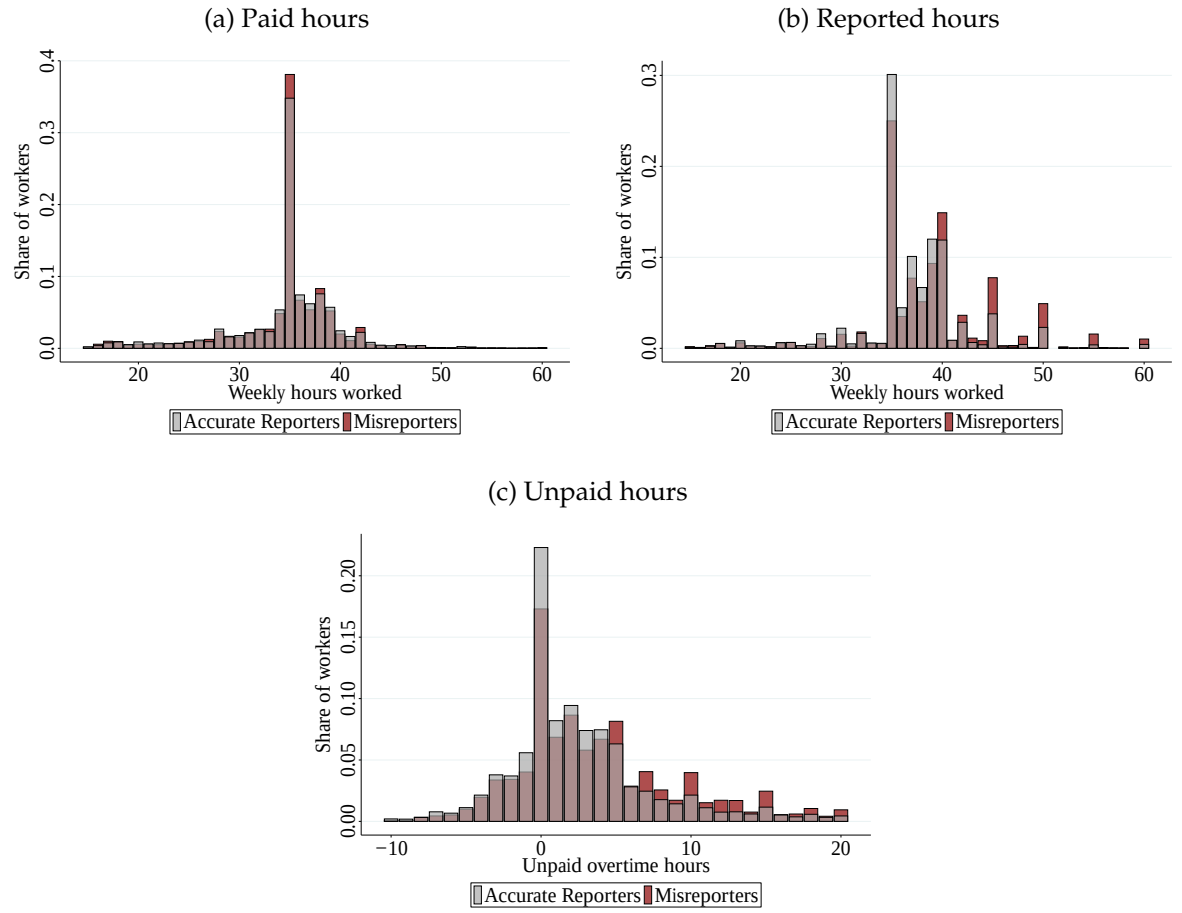
We turn to a regression approach to account for differences in individual characteristics that may drive the difference in hours worked. We use simple linear regressions, where the coefficient of interest captures the difference in hours associated with being a misreporter as compared to workers with an hours contract who report correctly, holding observables equal. The set of controls includes age, sex, diploma level (8 categories), a dummy for being a part-time worker, and we use two sets of fixed effects dummies for occupation (2-digit level in the PCS classification, 23 levels) and workplace. We consider the three outcomes previously introduced in Figure 3.3: reported hours, paid hours and unpaid overtime hours.

Columns (1) to (3) of Table 3.2 display the results in two separate panels, with Panel B adding controls on worker's autonomy (work supervision, work-life balance, schedule and information on working time.). Being a misreporter is associated with a 1.7%, or 1.8% with additional controls, significant increase in reported hours while having no correlation with paid hours. The combination of both estimates leads to a significant increase in unpaid overtime hours equal to approximately 0.8 hour per week. Misreporters thus appear to work excess hours as compared to similar workers with correct beliefs. On the other hand, we observe no difference in any definition of hours worked for workers who report not knowing their contract status. Finally, although the notion of hours worked is not relevant for them, workers with day contracts report working on average 10% more hours than workers with hours contracts and similar jobs

We find that workers who misreport their working time arrangement report on average significantly more hours than workers with similar characteristics and

[11]Employers are not required to report hours of workers with day contracts in the DADS records. Hence, their hours in the dataset are extremely homogeneous and likely result from an imputation by Insee, the French National Institute for Statistics and producer of the database

Figure 3.3: Hours of Accurate Reporters and Misreporters (Hours Contracts)



Note: These figures represent the distributions of weekly hours worked by workers with hours contracts who either accurately report or misreport their type of contract. The sample is composed of 15,174 workers after restricting it to "Misreporters" and "Accurate Reporters" with both reported and paid hours between 15 and 70 hours per week. Values above 60 in (a) and (b) and below -10 and above 20 in (c) are not displayed. "Accurate Reporters" report not being subject to a day contract in the survey, consistently with DADS administrative records and "Misreporters" report working under a day contract in the REPONSE17-Workers survey but do not appear as such in DADS administrative records.
(a) Paid hours are reported by employers in annual social security records published in the DADS data and cover all periods that involve a remuneration. Those annual hours are recomputed as a full-time equivalent over the entire year and divided by 52 to create a weekly measure of hours.
(b) Reported hours correspond to answers to the question *"how many hours per week do you work on average?"* in the REPONSE17-Workers survey.
(c) Unpaid hours are defined as the difference between weekly hours reported in the REPONSE17-Workers survey and DADS paid hours.

contractual administrative information. We interpret those results as evidence of non-compliance to regulations, since employers should control hours of their workers. As paid hours are identical, the additional reported hours are likely not remunerated and thus could imply a loss in earnings. The next sections examine the relation of misreporting to earnings and other types of compensation.

Earnings and Wages. We then follow the same approach as in the previous section, considering monetary outcomes instead of hours worked. Variables used as outcomes are weekly labor earnings (equal to net annual labor earnings divided by the number of weeks worked over the year) and hourly wages using reported (the *true* hourly wage) or paid hours (the *official* hourly wage). In addition, we measure the differential outcome of workers with actual day contracts in order to compare estimates across different types. This particularly provides a reference for the wage premium associated with the group of misreporters and illuminates their underlying status: are they closer to workers with whom they share the same contract, or to workers with an actual day contract who they believe to be?

As before, the coefficient of interest captures the difference in outcome between misreporters and similar workers with hours contracts but correct beliefs. Although it is not the central focus of this paper, the estimation of the coefficient associated with day contracts provides new evidence on the value attached to flexible work arrangements using a unique setting. Columns (4) to (6) of Table 3.2 report estimates on monetary outcomes. Workers with day contracts are compensated for their important workload by much higher earnings, leading to a 12-14% premium in true wages associated with day contracts. This premium is large and, albeit subject to selection bias, reflects the high value that employers attach to flexible arrangements. In Section 5.2, we leverage panel data to provide similar estimates on earnings controlling for worker fixed effects.

Next, we focus on misreporting workers, whose reported hours exceed those of the reference group. Estimates on earnings and wages show that those workers are overcompensated for their extra hours worked. Their weekly earnings are about 3% higher, which yields, when combined with the gap in reported hours, a slightly significant 1.7% difference in true hourly wages in Panel B[12]. Paid hours are similar across workers, as in Figure 3.3a, so the coefficient on hourly wages using paid hours is close to the one on weekly earnings. Overall, results show that misreporters do not have worse working conditions than accurate reporters. Hence their apparent lack of information does not lead to higher rent extraction by their employers.

[12]Note that the wage premium does not solely reflect compensation for overtime work, which is paid at higher rates than standard hours in France. Using a simple framework to compute the share of the wage difference that should be explained by overtime compensation given the difference in reported hours worked, we find that the counterfactual change in wages driven by the increase in overtime hours is 0.41%. Then, the difference in true hourly wages that we estimate is not solely driven by compensation for overtime work, but also results from underlying gaps in the baseline wage.

Table 3.2: Hours and Wages Gaps between Misreporters and Non-Misreporters

Dependent Variables:	Reported Hours	Paid Hours	Unpaid Hours	Weekly Earnings	Wages (True)	Wages (Official)
Variable Type:	*Log*	*Log*	*Level*	*Log*	*Log*	*Log*
Model:	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: Baseline						
Hours Contract - Misreporter	0.017***	-0.005	0.856***	0.027***	0.011	0.032***
	(0.003)	(0.004)	(0.125)	(0.008)	(0.008)	(0.008)
Hours Contract - Do Not Know	0.001	0.000	0.015	-0.017**	-0.018***	-0.017**
	(0.003)	(0.004)	(0.105)	(0.007)	(0.007)	(0.007)
Day Contract	0.098***	-	-	0.212***	0.114***	-
	(0.005)	-	-	(0.017)	(0.016)	
Observations	19,511	19,511	19,511	19,511	19,511	19,511
R^2 Adj.	0.72	0.58	0.52	0.77	0.72	0.74
Mean Dep. Var.	37.0	34.6	3.2	482	13.0	14.1
Panel B: With Controls on Worker's Autonomy						
Hours Contract - Misreporter	0.018***	0.002	0.760***	0.035***	0.017*	0.033***
	(0.003)	(0.004)	(0.142)	(0.009)	(0.009)	(0.009)
Hours Contract - Do Not Know	0.000	0.002	-0.098	-0.013	-0.013	-0.015*
	(0.003)	(0.004)	(0.124)	(0.009)	(0.008)	(0.009)
Day Contract	0.098***	-	-	0.233***	0.135***	-
	(0.006)	-	-	(0.018)	(0.018)	
Observations	14,447	14,447	14,447	14,447	14,447	14,447
R^2 Adj.	0.74	0.59	0.53	0.77	0.72	0.74
Mean Dep. Var.	37.0	34.6	3.1	477	12.9	13.9
Baseline controls: Age, Sex, Diploma, Part-Time, U-WR						
Occupation	X	X	X	X	X	X
Workplace	X	X	X	X	X	X

*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1.*

Note: This table presents OLS estimates of the relationship between contract × information status and different labor outcomes. "Misreporters" and "Do Not Know" workers are respectively workers who report working under a day contract and who report not knowing their contract in the REPONSE17-Workers survey. Reported hours correspond to responses to self-reported weekly hours worked in the REPONSE17-Workers survey. Paid hours, from the DADS data, are derived from employer-reported annual social security records and converted to weekly full-time equivalents. Unpaid hours represent the difference between reported and paid hours (in levels). Weekly earnings are equal to net annual labor earnings divided by the number of weeks worked over the year. Wages (true) and Wages (official) are computed respectively using reported hours from REPONSE17-Workers survey and DADS paid hours as the definition of hours worked. Log transformations are used for all outcomes except unpaid hours. Panel A uses baseline controls: age, sex, diploma, full-/part-time, U-WR status, along occupation and workplace fixed effects. "U-WR" refers to a dummy variable equal to 1 if the individual is unionized or acts as a worker representative. Occupations correspond to the 2-digit level in the PCS classification (23 levels). Panel B also includes controls on workers' autonomy: work supervision, work-life balance, schedule and information on working time. The sample for Panel A is composed of 19,511 workers due to the removal of missing values in baseline controls. The sample for Panel B drops to 14,447 workers because of missing values in additional controls. All estimates are relative to workers with an hours contract who report correctly. Standard errors are heteroskedasticity-robust and reported in parentheses.

We then examine the heterogeneity behind the main estimates across various worker and firm characteristics, using the sample and specification from Panel B. Figure 3.4 presents estimates on hours and earnings are mostly driven by high-skill and mid-skill occupations (low-skill manual occupations serve as reference). The occupation-based heterogeneity is particularly pronounced for high-skill jobs (most of them being executive jobs in private firms), where misreporters work on average more unpaid hours per week, leading to substantial compensation in weekly earnings. Coefficients on hours and earnings cancel out in true wages so that the 2% wage premium appears as relatively common across occupations, although superior to the reference group.

The figure also shows that estimates vary significantly in other dimensions. Age shows slightly positive correlation with both hours and earnings. In contrast, female workers exhibit negative correlation with earnings and true wages, indicating that women may be more disadvantaged by their limited knowledge. Estimates associated with higher education are nuanced, with workers having 3 years of higher education showing a positive correlation, while other education levels show more mixed results. Workplace size appears to play a neutral role, as coefficients remain relatively consistent across different firm sizes.

Job Satisfaction. Finally, we apply the same approach to job satisfaction outcomes, finding results consistent with the hours and wages analysis. We consider three dimensions of job satisfaction based on the REPONSE17-Workers survey which cover overall satisfaction, satisfaction with the work schedule, and satisfaction associated with working conditions. Each outcome variable is a dummy variable equal to 1 if the individual reports being either "very satisfied" or "mostly satisfied" about the given topic, as opposed to "mostly not satisfied" and "not satisfied". The expected findings on job satisfaction for both day contract workers and misreporters are theoretically ambiguous, as these groups earn higher wages but also work longer hours.

Table 3.3 shows how job satisfaction differs between workers who misreport their hours and those who do not. Workers who misreport their hours tend to report slightly higher overall job satisfaction and satisfaction with working conditions compared to accurate reporters, though the estimates are small and generally not statistically significant due to sample size limitations. Importantly, these modest differences are consistently smaller than the satisfaction premia enjoyed by workers with day contracts. As in previous results, workers who misreport locate in the interval between common workers with hours contracts and workers with day contracts. Regarding the working schedule, misreporters show virtually no difference

Figure 3.4: Hours and Wages Gaps: Variation across Workers' and Firms' Characteristics

Note: These figures present OLS estimates and 95% confidence intervals from regressions examining the influence of individual characteristics on the relation between contract × information status and labor outcomes. The sample is composed of 14,447 workers because of missing values in worker autonomy controls. Each outcome is fit on a separate regression on (i) worker characteristics, (ii) worker characteristics interacted with a dummy for misreporting their status and (iii) worker characteristics interacted with a dummy for not knowing their contract status. Plotted coefficients correspond to the interaction coefficients for each type of worker and each interacted covariate. Controls used are age, sex, diploma, full-/part-time, U-WR status, along occupation and workplace fixed effects. "U-WR" refers to a dummy variable equal to 1 if the individual is unionized or acts as a worker representative. Occupations correspond the 1-digit level in the PCS classification (4 values). The reference categories are respectively male workers, low-skill manual occupation, no diploma or primary school diploma, and workplace size of 11-19 employees. We also include controls on workers' autonomy: work supervision, work-life balance, schedule and information on working time. HE = Higher Education. Log transformations are used for all outcomes. All estimates are relative to workers with an hours contract who report correctly. Standard errors are heteroskedasticity-robust and reported in parentheses.
(a) Reported hours correspond to responses to self-reported weekly hours worked in the REPONSE17-Workers survey.
(b) Weekly earnings are equal to net annual labor earnings from the DADS divided by the number of weeks worked over the year.
(c) True wages are computed using reported hours from REPONSE17-Workers survey.
(d) Official wages are computed using DADS paid hours.

from accurate reporters, consistent with previous estimates on reported hours.

This analysis of job satisfaction outcomes provides important complementary evidence beyond traditional measures of hours and earnings. The finding that misreporting workers' satisfaction related to workers conditions falls between levels of accurate reporters and day contract workers suggests that misreporters benefit from looser management. The consistency between objective measures (hours and wages) and satisfaction strengthens the validity of the findings and demonstrates that incorporating worker well-being metrics alongside traditional economic indicators provides a more complete understanding of labor market dynamics.

Table 3.3: Job Satisfaction Gaps between Misreporters and Non-Misreporters

Dependent Variables:	*Overall JS*		*Working schedule JS*		*Working conditions JS*	
Model:	(1)	(2)	(3)	(4)	(5)	(6)
Hours Contract - Misreporter	0.013	0.012	0.001	-0.003	0.019**	0.015
	(0.008)	(0.009)	(0.008)	(0.009)	(0.009)	(0.010)
Hours Contract - Do Not Know	-0.008	-0.013	0.004	0.000	0.002	0.001
	(0.009)	(0.011)	(0.008)	(0.010)	(0.010)	(0.011)
Day Contract	0.025**	0.045**	-0.016	-0.007	0.030**	0.038**
	(0.012)	(0.017)	(0.011)	(0.016)	(0.012)	(0.017)
Controls: Age, Sex, Diploma, Part-Time, U-WR						
Occupation	X	X	X	X	X	X
Workplace Size	X		X		X	
Industry	X		X		X	
Workplace		X		X		X
Observations	19,440	19,440	19,440	19,440	19,440	19,440
R^2 Adj.	0.03	0.32	0.03	0.34	0.04	0.36
Mean Dep. Var.	0.78	0.78	0.81	0.81	0.73	0.73

*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1.*
Note: This table presents OLS estimates of the relationship between contract × information status and different job satisfaction outcomes. Controls used are age, sex, diploma, full-/part-time, U-WR status. The sample is composed of 19,440 workers due to the removal of missing values in outcomes and controls. "U-WR" refers to a dummy variable equal to 1 if the individual is unionized or acts as a worker representative. For each outcome, the first specification includes occupation, workplace size and industry fixed effects. Occupations correspond to the 2-digit level in the PCS classification (23 values). Industries correspond to 13 aggregate groups in the NAF classification. The second specification replaces workplace size and industry fixed effect by a workplace fixed effect. Outcomes are built using questions from the REPONSE17-Workers survey. Each outcome is a dummy variable equal to 1 if the individual reports being either very satisfied or mostly satisfied with their overall job, working schedule, and working conditions, respectively. All estimates are relative to workers with an hours contract who report correctly. Standard errors are heteroskedasticity-robust and reported in parentheses.

5.2 Labor Market Trajectories

In this last section, we study the evolution of misreporting workers in the short-run, as compared to workers with hours contracts who accurately report. Our goal is to understand whether the distinct working conditions, in terms of hours and earnings, experienced by misreporters persist in the years following our initial observation. We track these workers' trajectories based on key employment decisions: whether they remain with the same employer, move to a different firm, or *switch* to a day contract. Then, we exploit those *switchers* from our data in order to estimate changes in outcome associated with signing a *forfait jours* agreement for a given individual.

To track workers across job transitions, we use the chaining procedure from Babet et al. (2022) (detailed in Section 3) to construct a panel dataset based on DADS records covering most of our previously linked workers. This approach allows us to follow 17,318 workers from 2017 to 2019[13] and to observe their employment spells, earnings, paid hours[14] and working time status up to that point. Throughout this analysis, we classify workers as "movers" if their main employer (i.e. workplace) in that year differs from the previous year, where the main employer is defined as the one providing the highest annual earnings. Conversely, "stayers" are workers who remain in the same workplace across consecutive years. Movers represent 18% of the sample of workers for which we observe labor market trajectories. The distinction between movers and stayers is important as we want to understand if misreporters experience particular trajectories in their original firm, where they arguably have an ambiguous status leading to their misreport, or if they also evolve differently across employer-to-employer mobility. Selection issues associated with intrinsic differences between stayers and movers are not a first-order threat for our study as we compare workers with different beliefs among stayers and movers.

First, we observe whether misreporters tend to sign a *forfait jours* agreement more often in the short-run, either at their current firm or elsewhere. We define the outcome variable as a dummy equal to 1 if the individual works under a day contract in 2018 or 2019. This is an indication of their proximity to day contracts during their period of misreport. As before, our reference group is composed of workers with hours contracts who report accurately in 2017.

Table 3.4 shows that workers who misreport in 2017 are 3 percentage points more

[13] We consider 2019 instead of 2018 to get a longer time span and a larger number of switchers in the last specification.

[14] As we do not observe reported hours in 2019, we cannot study this key outcome with panel data, which is why our primary analysis focuses on the match between REPONSE17-Workers and the DADS 2017.

likely to have signed a *forfait jours* agreement by 2019. This gap is equally driven by workers who stay in their firm and by those who move, indicating that misreporters' tendency toward day contracts is not conditional on previously working with an hours contract. Instead, these workers also appear as more willing or more likely to sign a day contract agreement in other firms.

We then split our sample by occupation. Column 3 concerns high-skill and mid-skill workers while column 4 concerns low-skill, both manual and non-manual, workers. We find significant positive correlation between misreporting and signing a day contract in both groups, but the coefficient is much larger in the high-skilled sample, where day contract agreements are more common. Most low-skilled workers who end up signing an agreement are tertiary sector workers who move to an executive position. Given that misreporters are more likely to sign *forfait jours* agreements in the short run, this suggests they already have some proximity with respect to day contracts.

Second, we consider the trajectories in earnings and hours between 2017 and 2019 of workers who misreport or do not know their status in 2017. Given that misreporters tend to have more advantageous working conditions, we investigate whether this translates into better career progression. For each individual of our panel, we compute the evolution rate in hours and earnings, using measures from the DADS records. Outcome variables are thus defined as $y_i = (y_{i,2019} - y_{i,2017})/y_{i,2017}$ for a given individual i. We then regress these evolution rates on the "misreporter" and "do not know" dummy variables and focus on the percentage point difference in growth rates between each type of workers and accurate reporters with hours contracts. We remove from the sample workers whose hours or earnings more than double across two consecutive years as we consider them as too extreme. This filter reduces the sample to 15,748 workers.

Table E.3 displays the results and suggests that misreporters in 2017 have no differences with accurate reporters in terms of subsequent earnings and hours trajectories through 2019. The coefficient estimates for misreporters are consistently small in magnitude and non-statistically significant across all specifications. These findings provide no evidence of meaningful differences in career progression between workers who misreported their hours in 2017 and those who reported accurately, suggesting that misreporting behavior does not systematically relate to subsequent labor market outcomes in the short run. On the other hand, workers who report not knowing their status experience slightly worse career trajectories in earnings, which is consistent with the overall claim that misreporters and "do not know" workers are drastically different types of workers.

Table 3.4: Signing a Day Contract in the Short-Run

Dependent Variable:	Day Contract by 2019			
Sample:	*Baseline*		*High-Skill*	*Low-Skill*
Model:	(1)	(2)	(3)	(4)
Misreporter	0.033***		0.049***	0.011***
	(0.005)		(0.012)	(0.004)
Misreporter × Stayer		0.019***		
		(0.003)		
Misreporter × Mover		0.014***		
		(0.004)		
Do Not Know	0.002		-0.006	-0.003
	(0.003)		(0.012)	(0.002)
Controls: Age, Sex, Diploma, Part-Time				
Occupation	X	X	X	X
Workplace	X	X	X	X
Observations	17,318	17,318	6,839	10,479
R^2 Adj.	0.48	0.49	0.62	0.58
Mean Dep. Var.	0.026	0.026	0.055	0.008

*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1.*
Note: This table presents OLS estimates of the relationship between contract × information status in 2017 and signing a day contract by 2019. The sample consists of 17,318 workers, due to the imperfect tracking of workers between 2017 and 2019 following the chaining procedure by Babet et al. (2022). The outcome variable is a dummy variable equal to 1 if the individual works under a day contract in 2019. "Misreporter" is an indicator variable equal to 1 if the worker had an hours contract in 2017 but misreported their contractual arrangement in the REPONSE17-Workers survey. "Do Not Know" is an indicator variable equal to 1 if the worker had an hours contract in 2017 but reported not knowing their contractual arrangement in the REPONSE17-Workers survey. "Stayer" and "Mover" correspond to dummy variables equal to 1 if the individual is, respectively, in the same firm or in a different firm as in 2017. The "High-Skill" and "Low-Skill" samples gather all workers whose occupation's 1-digit level is respectively 3 or 4, and 5 or 6. Occupation fixed effects correspond to the 2-digit level in the PCS classification (23 values). All estimates are relative to workers with an hours contract who report correctly in 2017. Standard errors are heteroskedasticity-robust and reported in parentheses.

In the last part of the section, we focus on estimating changes in earnings associated with day contracts, leveraging the panel dimension of our data. Specifically, we examine whether the estimated changes differ when we account for workers' misreporting status. Individual fixed effects are included to control for time invariant unobserved heterogeneity, implying that changes associated with day contracts are estimated on workers who switch between hours and day contracts during the period of observation. The sample consists of 13,333 workers, and 26,666 observations, with each worker appearing in both 2017 and 2019. The drop in the

number of observations is due to our focus on full-time workers[15] to avoid our estimates on earnings to be contaminated by changes in working time. 7.5% of workers initially on hours contracts switched to day contracts, while 9.6% of workers initially on day contracts switched to hours contracts. To identify how the earnings of these switchers changed, we perform linear regression models of the type:

$$Y_{it} = \alpha Day_{it} + \beta Day_{it} * Misreporter_{i2017} + \gamma_i + \delta 1_{t=2019} + \phi X_{it} + \epsilon_{it} \tag{3.1}$$

with Y_{it} the daily labor earnings of worker i in year t[16], Day_{it} an indicator variable if worker i holds a day contract in year t, $Misreporter_{it}$ an indicator variable if worker i has an hour contract in year 2017 and misreports it, γ_i a worker-specific fixed effect, $1_{t=2019}$ a dummy variable equal to 1 if the year is 2019, and X_{it} a set of time-varying characteristics. Daily earnings are computed as the ratio between net annual labor earnings from the DADS data and the number of days worked over the year. Daily earnings are calculated as the ratio of net annual labor earnings from the DADS data to the number of days worked during the year. We exclude observations below the 5th percentile and above the 95th percentile to eliminate extreme values, e.g. that may result from very short employment periods.

We start by studying the earnings premium associated with switching from an hours to a day contract or vice versa. To this aim, we do not include the interaction term $Day_{it} * Misreporter_{i2017}$ in the first columns of Table 3.5. Column 1 shows the results without controls while column 2 controls for workers' occupation and tenure, workplace size and industry. The results indicate that day contracts increase daily earnings by approximately 7% compared to hours contracts. The estimates remain stable when controls are added, suggesting that switchers are relatively homogeneous along these dimensions.

Columns 3 and 4 split the sample by whether workers remain in the same workplace or change workplaces when switching contracts. The increase in daily earnings is significantly larger for movers, but reflects the strong endogeneity of mobility to changes in earnings. Columns 5 and 6 reproduce the baseline specification but exclude workers who switch from day to hours contracts, focusing solely on the more common transition to day contracts. This restriction yields a larger estimate on daily earnings, equal to about 9%.

Finally, columns 7-10 replicate the earlier specifications while including the

[15] Full-time workers are identified in the DADS data through a separate variable from hours worked, allowing us to identify these workers regardless of contract type.

[16] We cannot estimate the regression on hours worked as paid hours, measured in the DADS data, are meaningless for workers with day contracts. The same applies to hourly wages.

interaction term with misreporters. This allows us to examine whether the correlational effect of switching to a day contract differs for workers who were initially unaware of their contractual arrangement. Stayers who switch from hours to day contract earn 3 percent higher wages, while movers experience almost a 9% increase. Again, the difference is driven by the perspective of earnings' improvement on the decision to move. Comparing prior misreporters and accurate reporters within category, we find that the interaction term on misreporters is consistently negative, albeit non-significant, and almost offsets the earnings premium. This result suggests that workers who initially misreported their contract type experience almost no earnings gains when switching to day contracts. For stayers, the lack of wage gains is possibly simply due to their better working conditions prior to the switch as compared to accurate reporters with hours contracts. However, wide differences in wage gains for movers also raise questions about the long-term career trajectories of these workers as compared to accurate reporters.

Table 3.5: Earnings Premium of Day Contracts

Dependent Variable:	Daily Earnings									
Sample:	*Baseline*		*Stayers*	*Movers*	*No "Day to Hour"*		*Baseline*		*Stayers*	*Movers*
Model:	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Day Contract	0.069***	0.066***	0.019*	0.066***	0.090***	0.082***	0.116***	0.104***	0.033**	0.088**
	(0.012)	(0.012)	(0.010)	(0.022)	(0.013)	(0.013)	(0.019)	(0.018)	(0.013)	(0.036)
Day Contract × Misreporter 2017							-0.059**	-0.051**	-0.023	-0.070
							(0.026)	(0.026)	(0.020)	(0.048)
Controls and Fixed effects										
Demographics		X	X	X		X		X	X	X
Worker FE	X	X	X	X	X	X	X	X	X	X
Year FE	X	X	X	X	X	X	X	X	X	X
Observations	26,666	26,623	22,337	4,286	26,426	26,383	26,426	26,383	22,225	4,158
R^2 Adj.	0.90	0.90	0.92	0.82	0.90	0.90	0.90	0.90	0.92	0.82

*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1.*
Note: This table presents estimates from event-study regressions specified in Equation 3.1 using linked DADS-REPONSE17 panel data between 2017 and 2019. The dependent variable is the log of net annual labor earnings from the DADS datasets divided by the number of days worked over the year. "Day Contract" is an indicator variable equal to 1 if the worker holds a day contract. "Misreporter 2017" is an indicator variable equal to 1 if the worker had an hours contract in 2017 but misreported their contractual arrangement. The baseline sample is based on the population of 17,318 workers that we successfully track between 2017 and 2019, but we focus on full-time workers observed in both years to get a sample of 13,333 workers and 26,666 observations. The "Stayers" specifications restrict the sample to workers who remained with the same employer, while the "Movers" ones keep workers who changed employers between 2017 and 2019. The "No Day to Hour" specifications exclude workers who switched from day to hour contracts. Demographics controls include worker occupation, tenure, workplace size, and industry. Worker fixed effects (Worker FE) control for time-invariant unobserved heterogeneity. Year fixed effects (Year FE) control for common time trends. Heteroskedasticity-robust standard errors are reported in parentheses.

6 Discussion

Our research reveals a critical and often overlooked dimension of contemporary labor markets: the growing complexity of working time arrangements and the consequent information asymmetries that emerge. By examining the discrepancies between legal frameworks and workers' understanding of their employment contracts, we uncover a significant phenomenon where approximately 20% of workers misreport their working time arrangements.

The transformation of work towards more flexible and individualized models has created challenges in enforcing labor regulations[17]. Our findings demonstrate that this flexibility is not uniformly understood or experienced across the workforce. The implications of these information gaps are profound. Workers who are unaware of their precise contractual status may inadvertently accept working conditions that deviate from their legal protections. This suggests the need for more transparent mechanisms of communication within workplaces and potentially more robust regulatory oversight to ensure workers are fully informed about their rights and obligations.

Moreover, our research points to the complex ways in which workplace-specific organizations negotiate flexibility. Workers who have limited knowledge about their working time arrangement tend to have higher earnings and wages. We interpret this compensation process as a strategic approach by firms to encourage worker flexibility, often operating in grey areas of labor regulations.

By documenting these employment practices, we aim to provide insights that can help policymakers and labor regulators prevent potential abuses and adapt existing frameworks to the evolving nature of work. Future research should continue to explore these information asymmetries and their broader implications for worker welfare and labor market dynamics.

[17] As of 2023, *forfait jours* agreements grew from 10% to 17% of the salaried workforce. The increase is equally due to a booming of high-skilled tertiary sector jobs than to within-sector dynamics.

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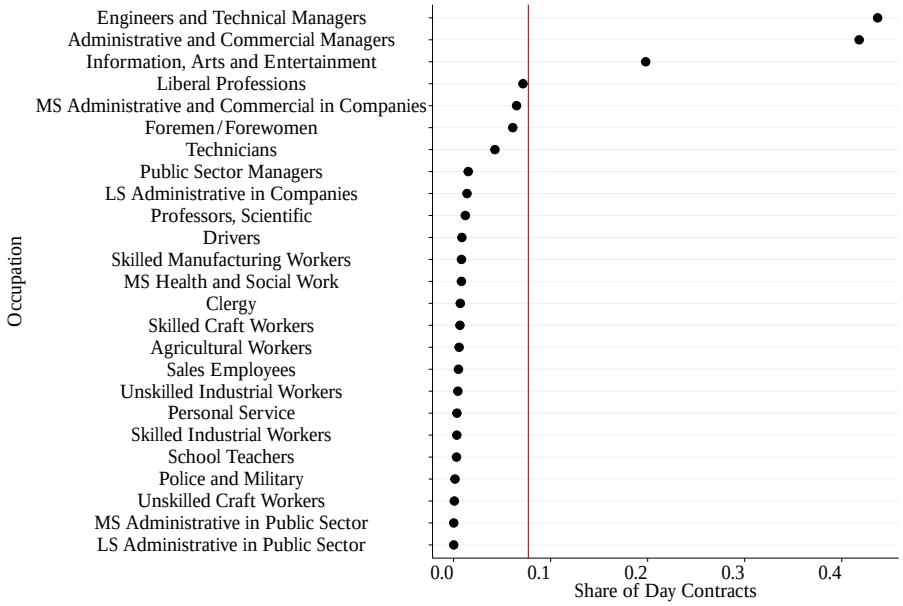
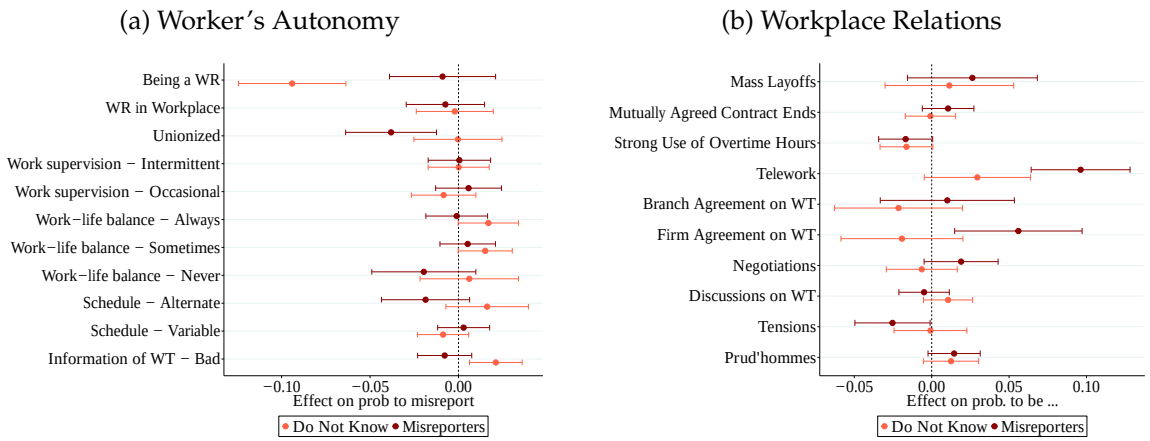
Appendix E Additional Figures and Tables

Figure E.1: Share of Day Contracts by Occupation



Note: This figure represents the share of workers with day contracts by occupation, defined at the 2-digit level in the PCS classification (23 values), in the DADS records. The DADS dataset is restricted to primary jobs, defined as the job associated with highest earnings, in workplaces of at least 10 employees with non-missing information on day contracts. This restriction is introduced in order to reproduce the scope of the REPONSE17 sample. "MS" = "Mid-Skilled" ; "LS" = "Low-Skilled".

Figure E.2: Workplace Characteristics of Misreporters and Uncertain Workers (Hours Contracts)



Note: This figure presents OLS estimates and 95% confidence intervals from regressions examining the relation between misreporting or not knowing their contract status and workplace characteristics. The sample is restricted to workers with an hours contract and no missing values on explanatory variables. "Misreporters" and "Do Not Know" workers are respectively workers who report working under a day contract and who report not knowing their contract. For each information status, a regression is run on all characteristics simultaneously (along with an industry fixed effect). All estimates control for demographic and workplace characteristics shown in Figure 3.2. Sample sizes in each regression are respectively 10,592 and 10,228 due to the removal of missing values in explanatory variables. WR = Worker Representative. WT = Working Time. "Prud'hommes" are French labor courts which handle employment disputes and contract violations. All estimates are relative to workers with an hours contract who report correctly.

Figure E.3: Misreporters and Uncertain Workers by Workplace Intensity in Day Contracts

Note: This figure represents the proportion of misreporters and uncertain workers among hours contracts by decile of workplace intensity in workers with day contracts, defined as their share in the workplace. The sample is composed of 19,032 workers after restricting to workers with hours contracts in workplaces with at least 2 workers. "Misreporters" and "Do Not Know" workers are respectively workers who report working under a day contract and who report not knowing their contract. The first column gather workplaces with no day-contract workers.

Table E.1: Descriptive Statistics of Original and Matched Samples

		REPONSE17	DADS-REPONSE17
Number of workers		28,529	21,708 (76%)
Number of workplaces		5,956	5,448
Self-Reported Day Contract (%)		29.7	26.7
Gender (%)	Women	43.6	43.4
Age (%)	15-24	4.0	3.5
	25-34	22.0	21.5
	35-44	29.3	29.9
	45-54	31.3	32.0
	55+	13.4	13.1
Occupation (%)	High-Skill	23.1	20.0
	Mid-Skill	23.1	23.9
	Low-Skill Non-Manual	25.9	26.8
	Low-Skill Manual	27.8	29.3
Earnings (%)	$<$ 15,000	18.2	14.9
	15,000 - 20,000	20.5	19.5
	20,000 - 25,000	20.1	21.7
	25,000 - 35,000	21.7	24.3
	$>$ 35,000	19.5	19.6
Size of Workplaces (%)	11-19	7.4	7.7
	20-49	20.2	21.5
	50-99	15.4	15.9
	100-499	32.4	33.1
	$>$ 500	24.6	21.7
Part-Time (%)		13.3	11.7

Note: This table compares characteristics between the final DADS-REPONSE17 sample, the original REPONSE17 sample, and the and DADS dataset for 2017. The DADS-REPONSE17 sample is obtained by a 1-to-1 linkage procedure described in Section 3.3.

Table E.2: Characteristics of Misreporters and Uncertain Workers (Hours Contracts)

Dependent Variables:	Misreporter		Do Not Know	
Model:	(1)		(2)	
	Estimate	S.E.	Estimate	S.E.
Age	0.004***	(0.000)	-0.003***	(0.000)
Female	-0.022***	(0.007)	0.021***	(0.007)
Occupation - High-Skill	0.209***	(0.014)	-0.061***	(0.015)
Occupation - Mid-Skill	0.026**	(0.010)	-0.081***	(0.010)
Occupation - Low-Skill	-0.005	(0.011)	-0.026**	(0.010)
Diploma - 5+ years HE	0.036*	(0.019)	-0.213***	(0.019)
Diploma - 3 years HE	-0.070***	(0.017)	-0.233***	(0.016)
Diploma - 2 years HE	-0.053***	(0.015)	-0.227***	(0.014)
Diploma - High School	-0.043***	(0.015)	-0.186***	(0.013)
Diploma - Middle School	-0.025	(0.020)	-0.108***	(0.018)
Diploma - Professional Certificate	-0.008	(0.014)	-0.113***	(0.012)
Diploma - Primary School	0.044	(0.029)	-0.034	(0.027)
Workplace Size - 20-49	0.009	(0.013)	0.011	(0.013)
Workplace Size - 50-99	0.017	(0.014)	0.024*	(0.014)
Workplace Size - 100-249	0.022	(0.013)	0.024*	(0.013)
Workplace Size - 250-499	0.035**	(0.015)	0.015	(0.015)
Workplace Size - 500+	0.061***	(0.014)	0.030**	(0.014)
Fixed-effects				
Industry	X		X	
Observations	16,126		15,563	
R^2 Adj.	0.06		0.05	

*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1.*

Note: This table presents OLS estimates and standard errors from regressions examining the probability of misreporting or not knowing their contract status. Samples are restricted to workers with an hours contract and no missing values on explanatory variables. "Misreporters" and "Do Not Know" workers are respectively workers who report working under a day contract and who report not knowing their contract in the REPONSE17-Workers survey. For each information status, a regression is run on all characteristics simultaneously (along with an industry fixed effect), using accurate reporters as group of comparison. Occupations are defined at the 1-digit level in the PCS classification (4 values). Reference categories are respectively male workers, low-skill manual occupation, no diploma, and workplace size of 11-19 employees. HE = Higher Education. All estimates are relative to workers with an hours contract who report correctly. Standard errors are heteroskedasticity-robust and reported in parentheses.

Table E.3: Earnings and Hours Worked in the Short-Run

Dependent Variables:	ΔEarnings			ΔHours		
Sample:	*Baseline*	*Stayers*	*Movers*	*Baseline*	*Stayers*	*Movers*
Model:	(1)	(2)	(3)	(4)	(5)	(6)
Misreporter	-0.001	0.002	-0.017	-0.002	-0.002	-0.014
	(0.006)	(0.006)	(0.028)	(0.005)	(0.005)	(0.022)
Do Not Know	-0.012**	-0.011*	-0.016	-0.006	-0.008	0.011
	(0.006)	(0.006)	(0.029)	(0.005)	(0.006)	(0.026)
Controls: Age, Sex, Diploma, Part-Time						
Occupation	X	X	X	X	X	X
Workplace	X	X	X	X	X	X
Observations	15,748	12,804	2,944	15,748	12,804	2,944
R^2 Adj.	0.42	0.42	0.76	0.40	0.43	0.74

*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1.*

Note: This table presents OLS estimates of the relationship between misreporting or not knowing their contract in 2017 and trajectories in earnings and hours up to 2019. The sample consists of 15,748 workers due to the imperfect tracking of workers between 2017 and 2019 following the chaining procedure by Babet et al. (2022) and the removal of workers who more than double their earnings or hours across two consecutive years. "Misreporters" and "Do Not Know" workers are respectively workers who report working under a day contract and who report not knowing their contract in the REPONSE17-Workers survey. Occupations correspond to the 2-digit level in the PCS classification (23 levels). Outcome variables are computed as evolution rates in earnings and hours between 2017 and 2019, i.e. $y_i = (y_{i,2019} - y_{i,2017})/y_{i,2017}$. The variables used are net annual labor earnings and paid annual hours from the DADS data. All estimates are relative to workers with an hours contract who report correctly in 2017. Standard errors are heteroskedasticity-robust and reported in parentheses.

Résumé de la Thèse

Introduction générale

PARMI les tendances les mieux documentées en économie du travail au cours du XX^{e} siècle figure la baisse tendancielle des heures travaillées par travailleur. Dans la plupart des pays développés, cette évolution est le fruit de conflits sociaux et politiques récurrents sur la part du temps humain que la société devrait consacrer au travail. Sur le plan macroéconomique, les heures travaillées constituent l'unité fondamentale de l'apport en travail et un déterminant central de la création de richesse au sein du pays. Du côté des travailleurs, le temps passé au travail est du temps soustrait aux loisirs, au repos et à la vie personnelle, si bien que la réduction du temps de travail est devenue un symbole d'émancipation depuis l'aube de l'ère industrielle. Cette double nature, à la fois facteur de production et source individuelle de désutilité, place le temps de travail au cœur de la structure économique.

Pourtant, l'histoire des luttes sur le temps de travail révèle quelque chose que les modèles économiques standard passent souvent sous silence : les travailleurs ne maîtrisent que rarement le nombre d'heures qu'ils effectuent. Dans la théorie standard de l'offre de travail, un travailleur choisit son volume horaire, à l'aide d'un arbitrage entre consommation et loisir qui lui permet de définir un nombre d'heures optimal à chaque niveau de salaire horaire, sa courbe d'*offre de travail*. L'idée que cet optimum puisse être inatteignable en pratique remonte aux travaux fondateurs de Lewis (1967), qui soulignait que les employeurs ont également un intérêt quant à la durée de travail de leurs salariés. L'existence de ces préférences peut ainsi restreindre les choix horaires des salariés, un phénomène formalisé par la suite sous le nom de *contraintes d'heures de travail* (Kahn and Lang, 2001).

Les heures de travail sont ainsi mieux appréhendées comme une caractéristique non salariale de l'emploi, une *aménité* (Mas, 2025), sur laquelle travailleurs et entreprises ont des préférences et à partir de laquelle ils s'apparient sur le marché du travail. Cette conception soulève naturellement la question de l'efficacité de cet appariement : dans les faits, les travailleurs parviennent-ils à trouver des emplois offrant le nombre d'heures qu'ils souhaitent ?

Pour répondre à cette question, les chercheurs ont exploité des données d'enquêtes dans lesquelles les travailleurs déclarent leurs heures désirées à leur taux de salaire actuel (Ham, 1982; Blundell et al., 1987; Kahn and Lang, 1991; Stewart and Swaffield, 1997; Bloemen, 2008; Tuda, 2020; Bell and Blanchflower, 2021; Jarosch et al., 2025). La comparaison entre heures désirées et heures effectives fournit une mesure directe de l'écart à la courbe d'offre de travail individuelle. Il en ressort un tableau saisissant : une part importante des salariés se trouve en situation de contrainte horaire, qu'il s'agisse d'un excès ou d'un déficit d'heures par rapport à leurs préférences, et cette contrainte revêt une forte dimension de genre.

En France, environ 20 % des salariés sont en situation de sous-emploi au sens large, une proportion qui atteint 33 % parmi les travailleurs à temps partiel. Ce sous-emploi touche très majoritairement les femmes, surreprésentées parmi les travailleurs à temps partiel, tandis que les salariés à temps plein souhaitant travailler davantage sont surtout des hommes. En Allemagne, les disparités de genre entre temps plein et temps partiel sont tout aussi marquées, mais c'est le suremploi qui domine, et dans une ampleur plus importante qu'en France : les femmes allemandes souhaitent nettement plus souvent travailler à temps partiel qu'elles ne le font, alors que les hommes cherchent surtout à réduire leurs heures tout en restant à temps plein. Ces écarts nationaux se retrouvent au-delà du seul couple franco-allemand : les États-Unis se rapprochent du cas français, tandis que le Royaume-Uni s'apparente davantage au cas allemand (Jarosch et al., 2025), suggérant que si les contraintes horaires sont un phénomène répandu, leur direction varie grandement selon les pays.

Ces différences sont en partie façonnées par les institutions du marché du travail, les structures industrielles et les conventions collectives. La France représente un cas particulièrement instructif (Cohen et al., 2025). Sa réglementation du temps de travail est à la fois complexe et rigide, conçue pour protéger les travailleurs contre les abus patronaux, mais au prix d'une flexibilité horaire limitée. On pourrait dès lors penser

que la réglementation est le principal moteur du sous-emploi français. Or la forme la plus répandue de contrainte horaire est le temps partiel involontaire, que la réglementation ne peut guère expliquer directement : des emplois à temps plein restent en principe accessibles. Même en France, où le marché du travail est considéré comme l'un les plus réglementés au monde, la réglementation du temps de travail ne suffit pas à rendre compte de l'ampleur du sous-emploi.

Un résultat frappant des données françaises tient à la remarquable stabilité de la part de travailleurs sous-employés dans le temps. Entre 2003 et 2023, cette proportion demeure relativement constante et ne présente pas de corrélation significative avec le cycle économique : le sous-emploi n'augmente pas nettement dans les années qui suivent la crise financière de 2008. Ce constat est difficilement conciliable avec une explication purement conjoncturelle des contraintes horaires.

La littérature distingue deux grandes approches pour expliquer pourquoi les travailleurs se retrouvent contraints dans leurs heures. La première met l'accent sur les fluctuations conjoncturelles (Hart and Sharot, 1978; Tuda, 2020; Borowczyk-Martins and Lalé, 2019) : dans la mesure où le licenciement est coûteux, les entreprises ajustent les heures plutôt que les effectifs en réponse aux variations de la demande, en particulier lorsque les salaires sont rigides. La seconde attribue les contraintes à des caractéristiques structurelles du marché du travail : elles seraient inscrites dans la nature même des postes, les horaires étant fixés par le métier (Altonji and Paxson, 1986; Dickens and Lundberg, 1993) ou déterminés par les contraintes de production propres à chaque entreprise (Labanca and Pozzoli, 2022; Lachowska et al., 2026).

Ces deux approches laissent toutefois de côté la question de l'ajustement au niveau du marché. Si une entreprise ne peut offrir davantage d'heures en raison de ses contraintes productives, d'autres le peuvent peut-être. La persistance des contraintes horaires dépend donc, en dernière analyse, de la capacité des travailleurs à accéder aux postes correspondant à leurs préférences horaires.

Une limite centrale de la recherche existante tient à l'absence de données adaptées à l'étude des contraintes horaires. Les préférences horaires sont un objet complexe à saisir empiriquement. À quelques exceptions près (Labanca and Pozzoli, 2022; Lachowska et al., 2026), la méthode la plus répandue repose sur des enquêtes auprès

des travailleurs, rarement couplées aux données administratives employeurs-salariés. Ce cloisonnement rend difficile l'observation conjointe des heures désirées, des trajectoires professionnelles effectives et des caractéristiques des entreprises.

Pour dépasser ces limites, cette thèse mobilise un appariement inédit entre l'Enquête Emploi en Continu (EEC) et la Base Tous Salariés (DADS), le fichier administratif apparié employeurs-salariés français. En s'appuyant sur la procédure de panelisation développée par Godechot et al. (2025), ce jeu de données réunit la richesse des variables individuelles de l'EEC et la profondeur longitudinale des données administratives, permettant ainsi de suivre les travailleurs d'une entreprise à l'autre au fil du temps. L'articulation entre données d'enquête et données administratives est au cœur de cette thèse, et ce couplage ouvre de nouvelles perspectives pour l'étude des contraintes horaires.

Le premier chapitre examine si les travailleurs contraints parviennent à contourner leurs contraintes horaires et à augmenter leurs heures effectives au fil du temps. En exploitant le panel EEC-DADS et une approche *event-study* comparant des travailleurs contraints et non contraints autour de leurs mobilités professionnelles, ce chapitre montre que changer d'employeur est associé à une hausse plus marquée des heures et des salaires pour les travailleurs à temps partiel contraints. Cet effet positif est principalement porté par les mobilités vers un autre métier ou vers une entreprise avec une politique d'heures longues, mesurée comme telle via un effet fixe entreprise AKM (Abowd et al., 1999). Malgré ces améliorations, la majorité des travailleurs contraints n'atteignent pas leurs heures souhaitées dans les années suivant leur présence dans l'enquête.

Le chapitre apporte également des éléments montrant que, si les travailleurs sous-employés sont disproportionnellement concentrés dans certains métiers et entreprises, des emplois à temps plein existent bel et bien dans leur segment local de marché du travail. Ainsi, 85 % des travailleurs à temps partiel involontaire de l'échantillon partagent le même établissement et le même métier qu'au moins un collègue à temps plein. La plupart n'arrivent pourtant pas à basculer vers un emploi à temps plein à court terme, ce qui suggère l'existence d'une forme de segmentation opérant même au niveau le plus local, au-delà de ce que les politiques d'heures propres aux entreprises ou aux secteurs peuvent expliquer.

Le deuxième chapitre se concentre sur une population spécifique de sous-employés : les mères reprenant le travail après une naissance. La surreprésentation du sous-emploi parmi les travailleurs à temps partiel implique que les femmes figurent parmi les plus touchées par les contraintes horaires. Par ailleurs, les mères connaissent un basculement bien documenté vers le temps partiel autour de la naissance (Kleven et al., 2019a,b, 2024a), jouant un rôle important dans la pénalité enfant (*child penalty*) en revenus. En s'appuyant sur le Socio-Economic Panel allemand (SOEP), ce chapitre quantifie le rôle des contraintes horaires dans la persistance de la pénalité enfant. À l'échelle agrégée, les contraintes horaires n'en expliquent qu'une part négligeable, mais la proportion de mères sous-employées double environ dans la décennie suivant la naissance. Pour ce groupe, les contraintes horaires rendent compte d'environ 40 % de la pénalité enfant en heures.

Le troisième chapitre, coécrit avec Thomas Breda et Vladimir Pecheu, porte sur le régime du *forfait jours*, un dispositif d'amènagement du temps de travail concernant 17 % des salariés français en 2024, dans lequel le temps de travail est décompté en jours plutôt qu'en heures. En combinant données d'enquête et données administratives sur la réglementation du temps de travail, nous montrons que 18 % des salariés sous un contrat standard en heures déclarent à tort relever du forfait jours. Ces salariés mal informés travaillent davantage et accumulent plus d'heures supplémentaires non rémunérées que leurs collègues correctement informés, tout en percevant une rémunération plus élevée et en déclarant une satisfaction au travail comparable. Nous interprétons ce résultat comme une manifestation possible d'arrangements informels permettant d'ajuster heures et rémunération au-delà des frontières contractuelles.

Si cette thèse a un message central, c'est que les contraintes horaires pèsent lourd sur les travailleurs. Le premier chapitre estime, par une approche de préférences révélées, que les travailleurs sous-employés accepteraient en moyenne une réduction de 10 % de leur salaire horaire pour combler leur déficit d'heures, ce qui concorde avec les estimations de Lachowska et al. (2026) pour les États-Unis. La persistance des contraintes horaires et les coûts qu'elles font peser sur les travailleurs plaident fortement en faveur d'une intervention publique.

Cette thèse esquisse trois grandes pistes de politique publique pour réduire le sous-emploi.

La première consiste à **agir sur les salaires horaires**. La motivation principale du sous-emploi étant le désir de gagner davantage, toute politique augmentant le rendement d'une heure de travail (hausse du salaire minimum, allégements des cotisations sur les bas salaires) pourrait réduire la prévalence du temps partiel involontaire. Dans ce cadre, étudier l'effet des revalorisations du salaire minimum sur les préférences horaires constituerait un prolongement naturel de ce travail, en s'inscrivant dans la tradition du cadre classique de l'offre de travail et en permettant d'estimer l'ampleur relative des effets de substitution et de revenu.

La deuxième piste touche à **l'organisation du travail**. Des contrats innovants incitant les employeurs à internaliser le coût des emplois à faibles horaires pourraient modifier les pratiques de recrutement et d'organisation. Dans certains secteurs, une centralisation de la demande de travail permettant de mutualiser les heures disponibles entre plusieurs employeurs offrirait à davantage de travailleurs un volume horaire suffisant pour vivre décemment de leur travail, bien qu'une telle centralisation pourrait s'accompagner d'effets sur le chômage parmi les travailleurs les moins productifs (Carry, 2024).

La troisième piste consiste à **traiter le sous-emploi comme un équivalent en marge intensive du chômage**, et à développer des outils (formation professionnelle, accompagnement à la mobilité occupationnelle) permettant aux travailleurs sous-employés de transiter vers des emplois offrant davantage d'heures. Le sous-emploi est, à sa racine, un problème de qualité de l'emploi. La politique de l'emploi s'est longtemps préoccupée de la dimension extensive du travail, c'est-à-dire avoir ou non un emploi, mais garantir à ceux qui travaillent de pouvoir en vivre décemment constitue un enjeu tout aussi fondamental.

Chapitre 1

A la recherche du temps de travail? Contraintes horaires, entreprises, et mobilité professionnelle

Motivation

Les contraintes horaires (le fait de travailler plus ou moins d'heures que ce que l'on souhaiterait à son taux de salaire actuel) sont documentées depuis longtemps dans la littérature économique. Pourtant, une question fondamentale reste en suspens : ces contraintes sont-elles temporaires ou persistantes ? Les travailleurs contraints parviennent-ils, au fil du temps, à trouver des emplois mieux adaptés à leurs préférences horaires ? Ce premier chapitre répond à cette question en exploitant des données longitudinales et en comparant les trajectoires professionnelles de travailleurs contraints et non contraints.

La question est particulièrement pertinente dans le contexte français. Environ 20 % des salariés sont sous-employés, et le sous-emploi est massivement concentré parmi les travailleurs à temps partiel. Si ces contraintes résultent de caractéristiques propres aux emplois ou aux entreprises (exigences de production fixes, politiques salariales spécifiques), alors changer d'employeur pourrait constituer la principale voie de sortie. En revanche, si les contraintes sont plutôt structurelles ou liées aux caractéristiques des travailleurs eux-mêmes, la mobilité pourrait n'offrir qu'une solution limitée.

Ce chapitre s'inscrit dans une littérature grandissante qui appréhende les heures de travail comme une aménité d'emploi sur laquelle s'opère un appariement entre travailleurs et entreprises (Rosen, 1974; Mas, 2025). Des travaux comme ceux de Lachowska et al. (2026) pour les États-Unis ou Labanca and Pozzoli (2022) pour le Danemark suggèrent que les contraintes horaires sont souvent le reflet de propriétés spécifiques aux emplois occupés. L'originalité de ce chapitre est d'examiner si et comment la mobilité professionnelle permet aux travailleurs de contourner ces contraintes, en combinant pour la première fois données d'enquête sur les heures désirées et données administratives longitudinales.

Données et stratégie empirique

L'appariement EEC-DADS

La principale contribution sur le plan des données est la construction d'un panel longitudinal combinant l'Enquête Emploi en Continu (EEC) et la Base Tous Salariés (DADS). L'EEC est l'enquête emploi trimestrielle de l'INSEE, qui contient des informations détaillées sur les heures travaillées, les heures désirées, le salaire, le type de contrat, le métier et les caractéristiques sociodémographiques des répondants. La DADS est un fichier administratif exhaustif, issue de la déclaration sociale nominative (DSN) des entreprises, recensant l'ensemble des postes salariés en France, avec des informations sur l'employeur (identifiant, secteur, taille), la rémunération et les volumes horaires annuels.

L'appariement entre ces deux sources est réalisé grâce à un ensemble de variables communes et cohérentes entre les deux sources. La procédure de panelisation développée par Godechot et al. (2025) permet de suivre les individus de l'EEC dans les DADS, et donc de reconstituer leurs trajectoires professionnelles sur plusieurs années autour de leur date d'enquête. Le panel ainsi constitué représente une première dans la littérature sur les contraintes horaires : il permet d'observer conjointement les préférences horaires déclarées, les heures effectives, les salaires, les employeurs successifs et les caractéristiques de ces employeurs.

L'échantillon de travail est restreint aux salariés du secteur privé en emploi stable (hors emploi aidé, apprentissage et stage). La variable centrale est la mesure des contraintes horaires, construite à partir de la comparaison entre les heures habituellement travaillées et les heures que le répondant déclare vouloir travailler à son taux de salaire actuel. Un travailleur est dit sous-employé (resp. suremployé) s'il souhaite travailler davantage (resp. moins) que ses heures habituelles.

Stratégie par étude d'événement

La stratégie empirique principale repose sur une approche par étude d'événement (*event study*), qui compare les trajectoires d'heures et de salaires de travailleurs contraints et non contraints autour de leurs changements d'employeur. L'idée de base est la suivante : si les contraintes horaires sont spécifiques aux emplois occupés, les travailleurs contraints qui changent d'employeur devraient connaître une

augmentation de leurs heures plus forte que les travailleurs non contraints effectuant la même mobilité.

Pour isoler l'effet de la contrainte, la comparaison est effectuée au sein de cellules très fines, définies par le métier, le secteur, la région, le type de contrat et le statut à temps plein ou à temps partiel. Cette approche permet de comparer des travailleurs aussi similaires que possible dans leurs caractéristiques observables, seul le statut de contrainte différant entre les deux groupes d'étude. Le modèle intègre des effets fixes individuels, ce qui permet de neutraliser les différences persistantes entre travailleurs.

Le cadre théorique sous-jacent s'inspire de la littérature sur les aménités d'emploi et l'appariement (Rosen, 1974; Mas, 2025). Dans ce cadre, les heures de travail constituent une dimension du panier de caractéristiques d'emploi sur lequel les travailleurs se positionnent. Un travailleur contraint se trouve dans un emploi dont le volume horaire est inférieur à son optimum et cherche donc, sur le marché, à atteindre un meilleur appariement.

Les travailleurs contraints sont-ils plus mobiles ?

Un premier résultat est que les travailleurs contraints ne sont pas significativement plus mobiles que leurs homologues non contraints, une fois leurs caractéristiques observables neutralisées. Ce résultat est en apparence paradoxal : si les contraintes constituent une source d'insatisfaction, on s'attendrait à ce qu'elles stimulent la mobilité. Plusieurs explications peuvent rendre compte de cette absence d'effet. D'une part, la mobilité professionnelle est coûteuse (coûts de recherche, incertitude, perte d'ancienneté), et ces coûts peuvent décourager les mouvements même chez les travailleurs insatisfaits. D'autre part, les travailleurs contraints peuvent être concentrés dans des segments du marché du travail où les opportunités de mobilité sont objectivement limitées.

L'effet de la mobilité sur les heures et les salaires

Le résultat central du chapitre est que, pour les travailleurs à temps partiel, changer d'employeur est associé à une augmentation significativement plus forte des heures de travail et des salaires lorsque le travailleur était contraint avant la mobilité. L'effet

estimé est de l'ordre de 2 à 3 heures supplémentaires par semaine lors de la transition, soit une augmentation de 15 à 20 % par rapport aux heures initiales pour un travailleur à temps partiel standard. L'effet salarial est cohérent avec cette augmentation des heures.

Ces effets sont robustes à l'inclusion de contrôles stricts pour les caractéristiques individuelles et le type d'emploi précédent, ainsi qu'aux différentes définitions de la contrainte horaire et aux différents horizons temporels d'observation. En revanche, pour les travailleurs à temps plein sous-employés (ceux qui souhaitent dépasser les 35 heures légales), l'effet de la mobilité sur les heures est moins marqué, ce qui peut s'expliquer par le coût que le régime des heures supplémentaires français impose aux employeurs pour toute extension horaire au-delà du temps légal.

Les mécanismes de sortie de la contrainte

Pour identifier les mécanismes sous-jacents à l'effet positif de la mobilité, le chapitre décompose les gains en heures selon le type de mobilité effectuée. Deux canaux principaux émergent.

Le premier est la **mobilité vers un autre métier**. Lorsqu'un travailleur contraint change à la fois d'employeur et de métier, l'augmentation d'heures est nettement plus forte que lors d'une simple mobilité intrasectorielle. Ce résultat est cohérent avec l'idée que les contraintes horaires sont en partie déterminées au niveau du métier : certaines professions sont davantage organisées autour du temps partiel, notamment dans le commerce, les services à la personne ou l'hôtellerie-restauration, et y échapper nécessite de changer de métier.

Le second canal est la **mobilité vers une entreprise à politique d'heures longues**. Pour mesurer cette politique d'entreprise, le chapitre exploite la décomposition d'Abowd et al. (1999), qui permet d'estimer des effets fixes entreprises sur les heures après contrôle des effets fixes individuels. Une entreprise à effet fixe élevé est une entreprise dont les salariés travaillent, en moyenne, davantage d'heures que ce que leurs caractéristiques individuelles laissent prévoir. Les travailleurs contraints qui rejoignent de telles entreprises connaissent des gains d'heures significativement supérieurs à ceux qui rejoignent des entreprises à politique d'heures plus neutre. Ce résultat souligne l'importance des caractéristiques idiosyncratiques des entreprises

dans la détermination et la résolution des contraintes horaires.

La persistance du sous-emploi malgré la mobilité

Un résultat particulièrement frappant est que, malgré les gains positifs associés à la mobilité, une majorité de travailleurs contraints n'atteignent pas leurs heures souhaitées dans les années suivant leur déclaration initiale. La mobilité améliore la situation horaire des travailleurs contraints sans la corriger entièrement. Plusieurs années après avoir déclaré une contrainte horaire, la plupart des individus concernés restent en situation de sous-emploi, même s'ils ont entre-temps changé d'employeur.

Ce résultat suggère que les contraintes horaires ne sont pas uniquement déterminées par les caractéristiques de l'emploi occupé, mais aussi par des facteurs propres aux travailleurs ou aux segments de marché sur lesquels ils évoluent. La segmentation du marché du travail, soit la coexistence de bons et de mauvais emplois au sein même d'un segment local très fin, semble jouer un rôle clé.

Segmentation locale et coexistence d'emplois contraints et non contraints

Une contribution originale du chapitre est l'examen de la structure des contraintes horaires à un niveau très local. L'analyse montre que, bien que les travailleurs sous-employés soient disproportionnellement concentrés dans certains métiers et entreprises, des emplois à durée plus longue existent bel et bien dans leur segment de marché du travail le plus immédiat. Par exemple, 80 % des travailleurs à temps partiel involontaire de l'échantillon partagent leur lieu de travail et leur métier avec au moins un collègue à temps plein.

Pourtant, la plupart de ces travailleurs contraints n'arrivent pas à basculer vers un emploi à temps plein à court terme. Ce constat pointe vers une forme de segmentation qui opère même au niveau le plus local, au-delà de ce que les politiques d'heures propres aux entreprises ou aux secteurs peuvent expliquer. L'expérience professionnelle et le genre émergent comme des dimensions de l'hétérogénéité individuelle jouant un rôle dans cette segmentation. Dans le contexte français, cette segmentation peut être particulièrement prononcée en raison de la très forte séparation entre emplois à temps partiel et à temps plein. Les employeurs

n'internalisent pas le coût que les emplois à faibles horaires imposent aux travailleurs (Acemoglu, 2001), ce qui explique que bons et mauvais emplois coexistent durablement au sein d'un même segment local.

Le coût des contraintes horaires : une approche par préférences révélées

L'une des contributions méthodologiques les plus originales du chapitre est l'estimation du consentement à payer (*willingness to pay*) des travailleurs pour combler leur contrainte horaire. L'intuition fondamentale repose sur la préférence révélée : lorsqu'un travailleur accepte un nouvel emploi, le panier salaire-heures de destination doit lui procurer au moins autant d'utilité que son panier initial. En exploitant les mobilités employeur à employeur des travailleurs contraints, il est possible de reconstituer des courbes d'indifférence sur l'espace salaire-heures en identifiant le paramètre de préférence qui rationalise au mieux les mobilités observées sous ce critère de préférence révélée.

Les estimations indiquent que les travailleurs sous-employés accepteraient en moyenne une réduction de 10 % de leur salaire horaire pour atteindre leurs heures souhaitées, et jusqu'à 15 % pour les travailleurs à temps partiel. Ces résultats sont cohérents avec les estimations disponibles pour les États-Unis (Lachowska et al., 2026) et confirment que les contraintes horaires représentent un coût substantiel, bien au-delà de leur seul impact immédiat sur les revenus. Ils illustrent aussi pourquoi la question des contraintes horaires est nominalement une question d'heures, mais fondamentalement une question de salaires : la valeur que les travailleurs attribuent aux heures supplémentaires est en grande partie une valeur salariale, le désir de gagner plus étant le moteur principal du sous-emploi.

Implications et conclusion

Ce premier chapitre apporte plusieurs contributions à la compréhension des contraintes horaires. Il montre que la mobilité professionnelle constitue un levier partiel mais réel de sortie du sous-emploi, principalement via les mobilités occupationnelles et les mouvements vers des entreprises à politique d'heures longues. Il documente également la persistance du sous-emploi malgré la mobilité et l'existence d'une segmentation locale du marché du travail difficilement réductible

aux seuls effets de composition sectorielle ou d'entreprise.

Ces résultats ont des implications directes pour les politiques publiques. Ils suggèrent que l'accès des travailleurs sous-employés à la formation professionnelle, notamment les formations permettant de changer de métier, pourrait constituer un levier efficace de réduction du sous-emploi. Par ailleurs, la mise en évidence d'effets fixes d'entreprise significatifs sur les heures plaide pour une meilleure compréhension des pratiques d'organisation du travail qui conduisent certaines entreprises à parfois offrir des durées inférieures aux préférences de leurs salariés.

Chapitre 2

Le rôle des contraintes horaires dans la "pénalité enfant": le cas de l'Allemagne

Motivation

La naissance d'un enfant est l'un des événements les plus documentés dans la littérature sur les inégalités de genre sur le marché du travail. Des travaux influents, en particulier ceux de Kleven et al. (2019a,b, 2024a) sur la *pénalité enfant* (*child penalty*), ont montré que la maternité génère une divergence persistante des trajectoires professionnelles entre mères et pères, qui se manifeste notamment par une réduction des heures travaillées, un recul de la participation au marché du travail et une perte de salaire pour les femmes, sans contrepartie observable pour les hommes. Dans les pays développés, cette pénalité est la cause principale des inégalités de revenus entre hommes et femmes sur l'ensemble du cycle de vie.

Un mécanisme central de cette pénalité est le passage au temps partiel autour de la naissance. Dans de nombreux pays européens, les mères basculent massivement vers des emplois à temps partiel dans les années qui suivent la naissance de leur premier enfant, et cette transition s'avère souvent irréversible, même lorsque les enfants ont grandi (Goldin et al., 2022). Ce phénomène a été documenté pour l'Allemagne, les Pays-Bas, le Royaume-Uni et d'autres pays, où il représente une part substantielle de la pénalité totale.

Ce deuxième chapitre pose une question plus fine : dans quelle mesure cette persistance du temps partiel reflète-t-elle une contrainte imposée à ces mères, c'est-à-dire un sous-emploi involontaire, plutôt qu'une préférence librement exprimée ? La distinction est cruciale à la fois pour le diagnostic et pour les politiques publiques : si le temps partiel post-naissance est pleinement choisi, la pénalité enfant en heures refléterait principalement des préférences individuelles ou bien des normes de genre, et n'appellerait pas nécessairement d'intervention sur le marché du travail. En revanche, si une part importante des mères à temps partiel souhaitent en réalité travailler davantage sans pouvoir le faire, la pénalité enfant est pour partie le résultat d'une contrainte de marché.

Données : le panel socio-économique allemand (SOEP)

Ce chapitre exploite les données du panel socio-économique allemand (SOEP), une enquête de ménage longitudinale de grande ampleur qui suit les individus et leurs familles depuis 1984. Le SOEP présente la caractéristique rare de contenir, comme l'EEC française, une question sur les heures souhaitées au taux de salaire actuel, ce qui permet de définir des indicateurs de contraintes horaires comparables à ceux utilisés dans le premier chapitre.

L'Allemagne représente un cas d'étude particulièrement pertinent. C'est un pays où la pénalité enfant est parmi les plus élevées d'Europe, largement portée par un recours massif au temps partiel féminin après la naissance. Le marché du travail allemand est également caractérisé par une forte concentration du temps partiel féminin dans certains secteurs et métiers, ce qui suggère que des contraintes structurelles pourraient y jouer un rôle important.

L'échantillon est composé de femmes et d'hommes en emploi salarié ayant eu au moins un enfant au cours de la période d'observation. Les informations disponibles incluent les heures habituelles, les heures souhaitées, le salaire, le statut d'emploi (temps plein ou temps partiel), le nombre et l'âge des enfants, le niveau d'éducation et le secteur d'activité.

Cadre méthodologique

L'approche par imputation

L'estimation de la pénalité enfant repose, tout au long du chapitre, sur l'approche par imputation développée par Kaeppel (2025), qui applique au cas de la pénalité enfant le cadre d'étude d'événement (*event study*) proposé par Borusyak et al. (2024). Cette approche se distingue de la méthode standard, introduite par Kleven et al. (2019b) et largement reprise depuis (Andresen and Nix, 2022; Kleven et al., 2024b; Pora and Wilner, 2025), qui régresse directement le résultat d'intérêt sur un ensemble d'indicateurs de temps relatif à la naissance ainsi que sur des effets fixes d'âge et d'année calendaire. Des travaux récents (Melentyeva and Riedel, 2025; Kaeppel, 2025; Leventer, 2026) ont en effet montré que cette méthode standard est exposée à un biais de contamination : en présence d'hétérogénéité des effets de traitement selon l'âge et l'année, les coefficients de temps relatif ne s'interprètent plus comme une moyenne

pondérée correcte des effets de traitement.

L'estimateur par imputation repose sur deux hypothèses identifiantes : une hypothèse de non-anticipation, selon laquelle les individus n'ajustent pas leurs résultats sur le marché du travail en prévision d'une naissance future, et une hypothèse d'indépendance conditionnelle, selon laquelle, à âge et année donnés, le moment de la première naissance est indépendant de ce qu'auraient été les résultats sur le marché du travail en l'absence d'enfant. La plausibilité de cette seconde hypothèse est testée à l'aide d'une procédure fondée sur les moindres carrés ordinaires, proposée par Kaeppel (2025). Sous ces deux hypothèses, les résultats potentiels non traités peuvent être identifiés à partir des individus de contrôle et servir à construire les contrefactuels des individus traités, ici les parents. Le groupe de contrôle est composé des observations « pas encore traitées », c'est-à-dire des individus qui deviendront parents lors de périodes ultérieures. Ce choix restreint les exigences de l'hypothèse d'indépendance conditionnelle à l'exogénéité du moment de la naissance, plutôt qu'à l'exogénéité de la décision même d'avoir un enfant.

L'estimation se déroule en trois étapes. Premièrement, des effets fixes d'âge et d'année sont estimés sur le sous-échantillon des observations pas encore traitées, en régressant le résultat d'intérêt Y_{it} (par exemple les heures travaillées ou le salaire de l'individu i en année t) sur des indicateurs d'âge et d'année de calendrier, afin de tenir compte respectivement des profils de cycle de vie et des tendances macroéconomiques. Deuxièmement, les coefficients estimés permettent de prédire le résultat contrefactuel qu'aurait connu chaque parent s'il était resté sans enfant. L'effet de traitement individuel est alors la différence entre le résultat observé et ce contrefactuel, ce qui mesure directement l'impact de la parentalité sur le résultat considéré, pour chaque individu et chaque année. Troisièmement, ces effets de traitement individuels sont agrégés pour obtenir l'effet moyen du traitement sur les traités à chaque temps relatif à l'événement, sous forme d'une moyenne pondérée dont les poids somment à un. Par construction, cet estimateur garantit que les contrefactuels proviennent uniquement d'observations pas encore traitées, conformément aux hypothèses identifiantes, et évite ainsi le biais de contamination propre aux études d'événement standard lorsque les effets de traitement sont hétérogènes selon le temps relatif à l'événement.

Le temps relatif à l'événement est défini comme le nombre d'années séparant

l'observation de la naissance du premier enfant, l'année de naissance correspondant au temps relatif nul. La fenêtre d'analyse s'étend de trois ans avant la naissance à neuf ans après, ce qui permet d'examiner les trajectoires jusqu'à dix ans après la naissance. Cette fenêtre reflète un arbitrage entre la capacité à saisir des effets de long terme, particulièrement importants ici, et le maintien d'une taille d'échantillon suffisante. L'échantillon équilibré comprend 26 923 observations individus-années pour 2 071 individus, ce qui est jugé suffisant pour produire une estimation robuste. En fin de section, la pénalité enfant est également réestimée sur un panel équilibré alternatif couvrant la période allant de trois ans avant à cinq ans après la naissance, sur environ 3 000 individus.

Ce cadre est appliqué à un ensemble standard de variables du marché du travail : indicatrices d'emploi et de temps partiel, salaire mensuel net et heures hebdomadaires effectives, ce qui permet d'établir des estimations de référence de la pénalité enfant. La contribution principale du chapitre consiste ensuite à étendre cette estimation aux heures désirées. Les heures désirées reflètent l'offre de travail optimale des individus à leur salaire horaire actuel et permettent ainsi de construire une mesure contrefactuelle de la pénalité enfant en heures travaillées, en l'absence de contraintes horaires.

L'estimation des heures contrefactuelles

Utiliser les heures désirées comme mesure des heures optimales contrefactuelles dans le cadre de l'étude d'événement soulève toutefois une difficulté méthodologique. Dans le SOEP, les individus déclarent le nombre d'heures qu'ils souhaiteraient travailler à leur salaire actuel, ce qui peut diverger des heures effectives en raison de frictions de marché déjà présentes avant la naissance. Avant la naissance, l'écart entre heures désirées et heures effectives est en moyenne négatif (les travailleurs déclarent en moyenne vouloir travailler moins qu'ils ne le font), avec une hétérogénéité marquée selon les individus et le genre. Appliquer directement le cadre d'étude d'événement aux heures désirées, ce qu'on appellera par la suite l'estimation *naïve*, capture les changements de préférences autour de la naissance, mais n'intègre pas l'évolution par rapport aux heures effectives d'avant naissance. L'objectif n'est pas d'estimer ce changement de préférences horaires lié à la naissance, mais de fournir une mesure contrefactuelle de l'évolution des heures effectives si les travailleurs pouvaient choisir librement leurs heures après la naissance.

Pour résoudre cette difficulté, une estimation *ajustée* est construite en modifiant la formule de l'effet de traitement : le résultat observé Y_{it} est remplacé par les heures désirées, tandis que les heures effectives restent la base du contrefactuel. Concrètement, les effets fixes d'âge et d'année sont estimés sur les observations pas encore traitées en utilisant les heures effectives comme variable de résultat, ce qui produit le contrefactuel individuel habituel. L'estimation individuelle ajustée correspond alors à l'écart entre les heures que l'individu déclare souhaiter travailler et les heures qu'il aurait effectivement travaillées en l'absence de naissance, compte tenu de sa position dans le cycle de vie définie par son âge et l'année considérée. L'agrégation de cette quantité sur les observations traitées à chaque temps relatif à l'événement donne l'effet moyen du traitement ajusté. Comparer cette estimation à la pénalité enfant en heures effectives permet de mesurer dans quelle mesure la trajectoire d'heures des mères aurait été différente en l'absence de contraintes horaires. Les estimations naïve et ajustée sont donc deux objets distincts : la première reflète le changement des préférences en matière d'offre de travail autour de la naissance, tandis que la seconde identifie la part de l'évolution des heures effectives qui n'est pas imputable aux contraintes horaires.

Résultats

La pénalité enfant en Allemagne

Les estimations confirment l'existence d'une pénalité enfant substantielle en heures pour les mères allemandes. Dans les années qui suivent la naissance du premier enfant, les mères voient leurs heures travaillées baisser significativement par rapport à leur trajectoire pré-naissance, tandis que les pères ne connaissent quasiment aucun changement. La pénalité atteint environ -35 à $-40\,\%$ dans les deux premières années et reste élevée sur l'ensemble de la décennie suivante, confirmant le caractère persistant de cet effet. Cette pénalité se manifeste principalement par une forte hausse du recours au temps partiel chez les mères, transition rapide qui ne se résorbe que très progressivement par la suite.

La part des contraintes horaires dans la pénalité

À l'échelle agrégée, les résultats montrent que les contraintes horaires expliquent une part négligeable de la pénalité enfant totale. La grande majorité de la réduction

d'heures post-naissance observée chez les mères correspond à des heures désirées effectivement réduites : les mères expriment elles-mêmes une préférence pour travailler moins après la naissance. Ce résultat est cohérent avec les travaux mettant en avant le rôle des préférences, notamment liées aux normes de genre et aux préférences pour le *care*, dans la genèse de la pénalité enfant.

Cependant, ce résultat agrégé masque une hétérogénéité importante. Pour les mères sous-employées, dont la proportion double entre la période pré-naissance et cinq ans après la naissance, les contraintes horaires expliquent environ 40 % de la pénalité enfant. Autrement dit, si ces mères pouvaient travailler leurs heures souhaitées, leur pénalité serait réduite de 40 % par rapport à la pénalité observée.

Ce résultat suggère que la naissance d'un enfant ne se traduit pas seulement par un changement des préférences horaires, mais aussi par une dégradation de la qualité de l'appariement horaire pour une fraction non négligeable de mères. Ces dernières se retrouvent dans des emplois à temps partiel qu'elles n'ont pas choisis, sans parvenir à retrouver un emploi à temps plein même lorsque leurs enfants sont plus âgés et que la contrainte familiale s'est allégée.

Ce phénomène renvoie à la littérature sur les *pièges du temps partiel* (*part-time traps*) : les transitions vers le temps partiel autour de la naissance sont, pour de nombreuses femmes, des transitions à sens unique. Une fois basculées dans le temps partiel, les mères ont du mal à retrouver un emploi à temps plein, même si leurs préférences l'exigent. Les barrières structurelles (manque d'emplois à temps plein dans leur segment de marché, discrimination à l'embauche liée au statut de mère, faible ancienneté dans les nouveaux emplois) expliquent en partie cette persistance.

Discussion : préférences ou contraintes ?

Les résultats de ce chapitre invitent à nuancer la lecture désormais standard de la pénalité enfant comme un phénomène essentiellement guidé par les préférences. Si, en effet, la grande majorité des mères semblent avoir ajusté leurs heures en cohérence avec leurs préférences déclarées, une fraction significative d'entre elles se retrouve contrainte dans ses heures, et cette fraction est deux fois plus importante qu'avant la naissance.

La distinction entre préférences et contraintes a des implications importantes pour la

politique publique. Les dispositifs visant à réduire le coût du *care* (crèches, congés parentaux, allocation de garde) peuvent agir sur les préférences en réduisant l'écart entre les coûts et les bénéfices d'un retour au temps plein. Mais pour les mères véritablement contraintes dans leurs heures, ces dispositifs sont insuffisants si des barrières du côté de l'offre d'emploi persistent. Ce résultat appelle une attention accrue aux politiques qui facilitent le retour au temps plein pour les mères qui le souhaitent : meilleure offre d'emplois à temps plein dans les secteurs féminisés, incitations pour les employeurs à proposer des contrats modulables Par ailleurs, le chapitre souligne l'intérêt de mesurer les préférences horaires dans les enquêtes, au-delà des seules heures effectives. Les données sur les heures souhaitées permettent de distinguer le changement de préférences du blocage de marché, et d'obtenir ainsi un diagnostic plus précis des mécanismes sous-jacents à la pénalité enfant.

Ce deuxième chapitre contribue à la littérature sur la pénalité enfant en introduisant la dimension des contraintes horaires dans l'analyse. Il montre que, si les préférences jouent un rôle prépondérant dans la pénalité enfant agrégée, les contraintes horaires sont une source significative de pénalité pour une fraction non négligeable de mères. La naissance d'un enfant est associée à une augmentation durable du sous-emploi chez les mères, et pour ce groupe, les contraintes expliquent environ 40 % de leur pénalité en heures.

Chapitre 3

Au-delà des heures : forfait jours et arrangements informels sur le marché du travail

Ce chapitre est co-écrit avec Thomas Breda et Vladimir Pecheu.

Introduction : un régime de travail hors normes

Les deux premiers chapitres s'intéressent à des travailleurs dont les heures sont encadrées par des durées contractuelles, et pour lesquels les préférences horaires peuvent être comparées à des heures effectives bien définies. Le troisième chapitre explore un tout autre segment du marché du travail : celui des salariés soumis au régime du *forfait jours*, pour lesquels la notion même de durée du travail en heures est légalement absente.

Le forfait jours est un dispositif spécifiquement français, introduit par la loi Aubry II de 2000 dans le cadre de la mise en place des 35 heures. Il permet à certains salariés (cadres autonomes et salariés itinérants) d'être rémunérés non pas sur la base d'un nombre d'heures, mais d'un nombre de jours travaillés dans l'année, généralement autour de 218 jours. En contrepartie, ces salariés sont exemptés du décompte horaire et des règles sur les heures supplémentaires, et bénéficient habituellement de jours de repos supplémentaires (RTT) et d'une majoration salariale.

Ce régime concerne une part substantielle de la main-d'œuvre française : environ 17 % des salariés du secteur privé en 2024, soit près de 3,5 millions de personnes. Il est particulièrement répandu dans les grandes entreprises, les fonctions managériales et les secteurs très qualifiés. Son impact sur la réglementation du temps de travail est considérable : pour les salariés concernés, la protection offerte par les dispositions légales sur la durée du travail est en grande partie neutralisée.

Une anomalie documentée : les faux forfaits jours

Ampleur du phénomène

Ce chapitre, coécrit avec Thomas Breda et Vladimir Pecheu, part d'un constat empirique frappant. En croisant les données d'enquêtes sur les conditions d'emploi et les données administratives sur les conventions collectives et les statuts

contractuels, nous documentons qu'une fraction importante des salariés déclare être soumise au régime forfait jours alors qu'ils ne répondent pas aux critères légaux d'éligibilité. Plus précisément, nous identifions que 18 % des salariés sous contrat horaire standard déclarent à tort être en forfait jours. Ce phénomène de déclarations incorrectes n'est pas aléatoire : il est corrélé à des caractéristiques précises d'emploi et de salaire, ce qui suggère qu'il reflète une réalité économique sous-jacente plutôt qu'une simple erreur de déclaration.

Sources de données

L'analyse combine deux types de sources. D'une part, l'enquête REPONSE (Relations Professionnelles et Négociations d'Entreprise) et l'enquête Conditions de Travail, qui fournissent des informations détaillées sur le régime de temps de travail déclaré par les salariés, les heures effectivement travaillées et les heures supplémentaires. D'autre part, les données administratives issues des DADS et des déclarations sociales nominatives (DSN), qui permettent d'identifier le statut contractuel formel des salariés et les accords collectifs applicables dans leur entreprise.

La confrontation de ces deux sources permet d'identifier les « mauvais déclarants », c'est-à-dire les salariés dont le statut déclaré en enquête ne correspond pas à leur statut contractuel formel, et de caractériser leurs conditions de travail et leur rémunération par rapport aux salariés correctement informés.

Profil et comportement des mal-informés

Qui sont les faux forfaits jours ?

Les salariés sous contrat horaire standard qui se déclarent en forfait jours présentent un profil distinctif. Ils appartiennent plus souvent à des catégories socioprofessionnelles qualifiées (cadres, professions intermédiaires) que leurs collègues correctement informés, exercent plus fréquemment dans de grandes entreprises et occupent des postes à plus forte responsabilité. Ce profil est cohérent avec l'idée que ces salariés ont une relation au travail qui, dans les faits, ressemble à celle d'un cadre en forfait jours, même si leur contrat formel est un contrat horaire standard.

Les faux forfaits jours travaillent nettement plus que les autres salariés sous contrat

horaire : en moyenne, ils accumulent 5 à 8 heures supplémentaires par semaine de plus que leurs collègues correctement informés, et une grande partie de ces heures sont non rémunérées. Cette intensité de travail suggère que ces salariés opèrent dans un régime informel d'heures longues non reconnu par leur contrat formel.

Rémunération et satisfaction au travail

Un résultat surprenant est que, malgré des heures de travail plus longues et davantage d'heures supplémentaires non rémunérées, les faux forfaits jours perçoivent une rémunération significativement plus élevée que leurs collègues correctement informés. Cette prime salariale est de l'ordre de 8 à 12 % après contrôle des caractéristiques individuelles et des effets fixes d'entreprise. Ce résultat suggère que la rémunération de ces salariés intègre une compensation implicite pour les heures travaillées au-delà des normes contractuelles.

Par ailleurs, les faux forfaits jours ne déclarent pas une satisfaction au travail significativement inférieure à celle de leurs collègues. Ce résultat est cohérent avec l'idée que ces arrangements sont, au moins en partie, le fruit d'un accord mutuel entre l'employeur et le salarié : le salarié travaille davantage que ce que son contrat prévoit, mais reçoit en échange une rémunération plus élevée et, peut-être, une plus grande autonomie ou de meilleures perspectives de carrière.

Interprétation : arrangements informels et flexibilité contractuelle

Le contrat implicite heures-salaire

Le chapitre interprète ces résultats comme la manifestation d'un contrat implicite entre employeur et salarié, dans lequel les heures et la rémunération sont ajustées de manière informelle au-delà des frontières contractuelles. Du côté du salarié, cet arrangement permet de gagner davantage que ce que le contrat standard ne le prévoit ; du côté de l'employeur, il offre une flexibilité dans l'organisation du travail et une exemption de facto des obligations de suivi des heures.

Ce type d'arrangement est plausible dans des contextes où les coûts de renégociation formelle du contrat sont élevés, notamment en raison des rigidités du droit du travail français, où les asymétries d'information entre employeur et salarié sont importantes, et où les deux parties ont intérêt à éviter le formalisme contractuel. Il est

particulièrement cohérent avec la réalité des grandes entreprises françaises, dans lesquelles la multiplication des catégories contractuelles et des accords d'entreprise rend le droit applicable complexe et peu lisible.

Les limites de la réglementation du temps de travail

Ce phénomène met en lumière une limite fondamentale de la réglementation du temps de travail, qui suppose implicitement que les contrats formels décrivent fidèlement les conditions de travail réelles et que les travailleurs ont une connaissance correcte de leur statut. Or, le fait que 18 % des salariés sous contrat horaire se croient en forfait jours suggère que la frontière entre les deux régimes est perçue, par les acteurs du marché du travail eux-mêmes, comme bien moins nette qu'elle ne l'est formellement.

Cette opacité est problématique du point de vue de la protection des travailleurs. Les salariés qui se croient en forfait jours alors qu'ils ne le sont pas pourraient théoriquement revendiquer des heures supplémentaires non payées ou se voir protégés par des règles sur la durée maximale du travail dont ils ignorent l'applicabilité à leur cas. En pratique, ces droits restent largement virtuels en l'absence d'une meilleure information et d'un contrôle plus effectif.

Bien-être des travailleurs et risques de dérive

L'existence d'arrangements informels heures-salaire n'est pas en elle-même problématique si elle reflète le souhait commun des deux parties. Toutefois, sans cadre formel clair, il est difficile de distinguer le cas où un salarié a librement consenti à des heures longues en échange d'une compensation de celui où un employeur exploite une asymétrie de pouvoir pour obtenir des heures non payées. Le risque de semaines de travail excessives est particulièrement aigu pour les salariés en situation précaire ou en début de carrière.

Le chapitre fournit également des éléments sur les conséquences de ces arrangements sur le bien-être au sens large. Les faux forfaits jours déclarent davantage de fatigue chronique et de difficultés à concilier vie professionnelle et vie personnelle que leurs collègues correctement informés, même après contrôle des heures effectives. Ce résultat suggère que c'est moins le volume horaire lui-même que l'incertitude et l'imprévisibilité des heures qui pèsent sur leur bien-être.

Le forfait jours à l'écart des contraintes horaires

Le forfait jours occupe une place particulière dans le cadre conceptuel de cette thèse, précisément parce qu'il échappe à la notion même de contrainte horaire telle qu'elle est mobilisée dans les deux premiers chapitres. Pour un salarié sous contrat horaire, la contrainte se définit par l'écart entre des heures effectives bien identifiées et des heures désirées exprimées au même taux de salaire. Le forfait jours, en faisant disparaître la référence légale à un nombre d'heures, prive cette notion de tout point d'ancrage : il n'existe, pour ces salariés, ni durée contractuelle de référence ni décompte horaire officiel auquel comparer une préférence.

C'est cette absence de définition concrète des heures qui rend cette population intéressante pour la thèse, et non une simple inversion symétrique du sous-emploi. Les faux forfaits jours documentés dans ce chapitre, des salariés sous contrat horaire qui se comportent et se perçoivent comme s'ils étaient en forfait jours, illustrent ce point : en basculant, au moins dans les faits, vers un régime sans référence horaire, ils sortent eux aussi du cadre dans lequel la notion de contrainte horaire a un sens. Le chapitre montre que ce basculement s'accompagne de volumes de travail plus élevés et d'heures supplémentaires non rémunérées, mais ces grandeurs ne peuvent pas être rapportées à une norme contractuelle d'heures, puisque c'est précisément cette norme qui fait défaut.

Conclusion

Ce troisième chapitre apporte un éclairage original sur un angle mort de la littérature sur le temps de travail : la compréhension de la durée contractuelle de travail et les arrangements informels qui permettent à employeurs et salariés d'ajuster heures et rémunération au-delà des frontières contractuelles. En documentant le phénomène des faux forfaits jours et en analysant leurs caractéristiques, le chapitre révèle l'existence d'un contrat implicite heures-salaire qui, s'il peut bénéficier à certains travailleurs, pose également des questions de protection et de transparence.

Les implications pour la politique publique sont claires : une meilleure information des salariés sur leur statut, un contrôle plus strict des pratiques de suivi des heures dans les entreprises, et une clarification du cadre légal applicable aux situations hybrides entre forfait jours et contrat horaire standard constitueraient des avancées

importantes. Ces mesures permettraient à la fois de protéger les travailleurs contre des heures excessives non compensées et de sécuriser les arrangements informels mutuellement bénéfiques dans un cadre légal plus transparent.

Conclusion générale

Cette thèse a examiné les contraintes de durée du travail sous trois angles complémentaires. Le premier chapitre a montré que la mobilité professionnelle permet une sortie partielle du sous-emploi, mais que cette sortie est incomplète et inégalement distribuée. Le deuxième chapitre a révélé que les contraintes horaires jouent un rôle significatif dans la pénalité enfant pour les mères sous-employées, contribuant à perpétuer les inégalités de genre après la naissance. Le troisième chapitre a mis en évidence l'existence d'arrangements informels heures-salaire à l'autre extrémité du spectre, dans le segment des cadres et assimilés, posant des questions de protection et de transparence.

Ces résultats dessinent un tableau global cohérent : les contraintes horaires sont coûteuses pour les travailleurs, de l'ordre de 10 à 15 % du salaire horaire en termes de consentement à payer, persistantes dans le temps, et résistantes à la mobilité professionnelle ordinaire. Elles affectent des segments très différents du marché du travail et se manifestent de manière symétrique, par excès ou par défaut d'heures.

Cette thèse ouvre plusieurs pistes pour des recherches futures. Sur le plan empirique, l'appariement EEC-DADS développé dans le premier chapitre pourrait être exploité pour étudier d'autres dimensions des contraintes horaires, notamment les contraintes temporelles (heures atypiques, imprévisibilité des horaires) qui constituent un objet de recherche croissant dans la littérature internationale. Sur le plan méthodologique, l'approche de préférences révélées pour estimer la valeur des aménités horaires pourrait être étendue à d'autres dimensions non salariales de l'emploi.

Sur le plan thématique, l'articulation entre contraintes horaires et nouvelles formes d'organisation du travail (télétravail, travail hybride, semaine de quatre jours) mérite une attention particulière. Si la flexibilité (Mas and Pallais, 2017; Erhel et al., 2024) et le télétravail (Cullen et al., 2025) constituent des aménités d'emploi très valorisées, leur développement ne semble pas avoir réduit l'importance des heures contractuelles pour les travailleurs les moins qualifiés et les plus exposés au sous-emploi. Comprendre comment ces nouvelles formes d'organisation interagissent avec les contraintes horaires traditionnelles constitue un programme de recherche important.

Enfin, les différences substantielles de taux de sous-emploi entre pays suggèrent que les institutions du marché du travail (conventions collectives, systèmes de représentation des travailleurs, politiques d'activation) jouent un rôle important dans la genèse et la persistance des contraintes horaires. Une analyse systématique de ces effets institutionnels dans un cadre comparé international apporterait des enseignements précieux pour la conception de politiques publiques adaptées.

* * *

Le temps de travail demeure, au XXI^{e} siècle, une ligne de fracture fondamentale sur le marché du travail. Que ce soit par manque d'heures pour les uns ou par excès pour les autres, la contrainte horaire pèse sur les conditions de vie et les trajectoires professionnelles de millions de travailleurs. Cette thèse espère avoir contribué à mieux cerner les mécanismes de cette contrainte, les coûts qu'elle impose aux individus qui en sont victimes, et les leviers d'action disponibles pour en réduire l'ampleur.

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