Job Flexibility and Informality*

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Abstract

Labor market regulations may constrain the availability of part-time jobs, creating challenges for workers who prefer shorter hours. I provide empirical evidence that mothers with young children in Mexico are more likely to work informally due to the limited availability of short-hour employment in the formal sector. I analyze two distinct life events that increase mothers' demand for shorter hours: childbirth and the loss of childcare support following the death of a grandmother. In both cases, mothers are more likely to transition to informal employment, with adjustments in working hours occurring exclusively within the informal sector. I develop a model of labor supply and sector choice based on the key assumption that the formal sector does not accommodate shorter hours. Using this model, I evaluate two potential policy interventions: reducing constraints on minimum hours in the formal sector and expanding subsidized childcare. I find that relaxing minimum-hour constraints in the formal sector increases the share of formal employment for women, raises their wages and welfare, and, unlike expanding subsidized childcare, does so without straining the government budget.

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1 Introduction

Women's primary role in childcare and unpaid work at home can influence their preference for shorter hours (Cortés & Pan, 2023). To accommodate the need for flexibility, women may sort into occupations and firms where they can adjust their market hours or switch to part-time employment. This paper aims to explore whether women's preference for shorter working hours leads them to work informally due to the limited availability of short-hour employment in the formal sector.

Providing workplace flexibility and shorter hours is an amenity that often comes with a wage trade-off for workers and additional costs for employers (Goldin & Katz, 2011, 2016). One potential reason why offering shorter hours can be costly for employers is related to productivity; part-time workers may be seen as less effective substitutes for full-time employees. This limitation may lead women to seek more flexible and family-friendly occupations. Labor market regulations can further increase the cost of hiring additional employees, limiting the availability of part-time jobs. In developing countries, the informal sector may help alleviate these regulatory constraints and potentially allow for shorter working hours.

Furthermore, in developing countries, where public childcare services are often scarce, the demand for flexible job arrangements and shorter hours may be even higher, allowing the informal sector to once again play an important role. Women in Latin America are more likely than men to be employed in the informal sector (ILO, 2018). While informal jobs typically offer lower earnings, poorer working conditions, and fewer social safety benefits, they provide a crucial opportunity for women to remain active in the labor market (Berniell *et al.*, 2021, 2023). In this sense, the informal sector can provide women with the flexibility in short hours they need to balance work and childcare responsibilities.

In this paper, I study the role of short hours in the informal sector. Specifically, are mothers with young children sorting into the informal sector due to their preference for shorter hours? Furthermore, I assess whether different public policies could mitigate the need for women to choose informal employment. To explore these questions, I focus on Mexico, where around 60 percent of women are engaged in informal jobs, compared to 49 percent of men. My analysis proceeds in three steps.

First, I document several descriptive facts about the labor market in Mexico. I show that women in

the informal sector work 12.6 hours less than women in the formal sector, compared to 2.5 hours for men. This indicates that the informality gap—measured as the difference in hours worked between individuals in the informal sector and their counterparts in the formal sector—is larger for women than for men. I also show that the share of formal employment varies across occupations and that there is a negative correlation between the dispersion of hours worked and the share of formal employment. These facts suggest that the informal sector, rather than the specific occupation, offers greater flexibility in hours worked.

Second, I analyze two distinct life events that increase mothers' demand for shorter hours. The rationale for using both shocks is that they complement each other by addressing each other's limitations, with one capturing long-term effects and the other focusing on short-term impacts. I start by examining the causal effect of motherhood on labor market outcomes using a pseudo-event study approach following the methodology of Kleven (2023). The results show that, conditional on being employed after the first child is born, the probability of having a formal job decreases for mothers by 4.8 percent, and not for fathers. Mothers in the informal sector adjust their working hours by 3.15 hours more in the year of birth compared to mothers in the formal sector, conditional on working. This reflects the temporal flexibility that mothers may seek in the informal sector in the year of birth.

I next estimate the effect of a shock to available hours, using the death of a grandmother as an exogenous shock.[1] The hypothesis is that the grandmother's death affects women's time endowment by increasing the time they must now dedicate to childcare. In Mexico, grandparents play a crucial role in childcare, so the demand shock for shorter hours arises from the loss of childcare provided by grandparents. I draw on the work of Marcos (2023) and use a triple difference-in-differences approach, comparing mothers with young children to mothers with older children. The results show that mothers with young children who experienced the death of a grandmother are 17.4 percentage points ($p < 0.05$) less likely to be employed in the formal sector and reduce their number of hours worked by 9.4 percent ($p < 0.01$). Interestingly, when looking at occupations, there is no significant effect on the probability of mothers with young children changing occupations. Furthermore, I find

[1]The use of death as a source of variation builds on previous work Marcos (2023); Azoulay *et al.* (2010); Jäger & Heining (2022)

that mothers with young children who experience the shock are 16.7 percentage points ($p < 0.01$) less likely to be in occupations with a high share of formal employment. This suggests that, rather than switching occupations, mothers are more likely to remain in the informal sector, where their need for shorter working hours is more readily accommodated than in the formal sector.

Third, I assess how different policies can mitigate the need for women to choose informal employment. To do this, I build a model of labor supply and sector choice that addresses the underlying demand for short hours, building on the work of Cortes & Tessada (2011); Ngai & Petrongolo (2017); Erosa *et al.* (2022); Bick *et al.* (2022). The key assumption is a constraint on the minimum number of working hours required in the formal sector. The model incorporates time allocation between home and market hours, two employment sectors (formal and informal), and two markets (goods and services). I calibrate the model based on data and reduced-form evidence. Specifically, to calibrate a key parameter—the elasticity between market-based and home-based childcare—I use the empirical finding that mothers adjust their work hours in response to increased childcare demands. This parameter is set to reflect mothers' responsiveness to shocks in the demand for shorter hours.

Using this model, I quantitatively assess how different policies influence women's employment choices between the informal and formal sectors, identifying the specific conditions under which policies may reduce reliance on informal employment. I examine two potential policy interventions. The first counterfactual considers increasing the availability of short-hour options within the formal sector by reducing the constraint on minimum hours by 10 percent. This policy decreases informal employment by 16.67 percent, while workers in the formal sector reduce their average weekly hours by 5.69 percent. Overall, welfare (measured as utility) increases by 1.2 percent. In the second counterfactual, I examine the effect of a 10 percent reduction in the hours required for childcare responsibilities. This reduction decreases informal employment by 3.7 percent, and workers in the formal sector reduce their working hours by 2.8 percent. Welfare (utility) increases by 9.2 percent. The differences in outcomes between these two policy interventions can be attributed to structural constraints within the formal sector and workers' preferences for providing childcare. Both policies reduce reliance on informal employment and improve welfare. However, while subsidized

childcare—by reducing the hours required for childcare—could yield substantial benefits, it may require significant public investment, making increased short-hour options in the formal sector a potentially more economically feasible solution.

My contribution to the literature is twofold. First, this paper adds to the growing literature that explores gender differences in hours worked and preferences for job flexibility. In the context of developed countries, previous work documents that women value flexible work arrangements and that occupational flexibility can affect female labor supply (Goldin, 2014; Cortés & Pan, 2019). An extensive body of research further shows that female workers value flexible work arrangements more highly than men (Goldin, 2014; Goldin & Katz, 2016; Wiswall & Zafar, 2018; Mas & Pallais, 2017). I contribute to this literature by showing that the demand for shorter working hours is more effectively met within the informal sector rather than through specific occupations. Whereas Goldin (2014) finds that women in developed countries often switch occupations to gain flexibility, I demonstrate that, in the context of a developing country, this flexibility is instead provided by the informal sector. This suggests that when labor market regulations constrain the availability of part-time jobs, the informal sector may offer shorter hours, allowing women to balance work demands without needing to change occupations.

Second, this work contributes to the expanding literature on informality and gender in developing countries.[2] Evidence shows that the option to work part-time is an important determinant of female labor supply (Narita, 2020) and that the informal sector reduces the likelihood of women exiting the labor market upon motherhood (Berniell *et al.*, 2023). I contribute to this literature by first documenting an important fact about the number of hours worked across sectors, showing a significant informality gap in hours worked for women but not for men. Furthermore, I introduce a new mechanism that highlights the role of flexibility in hours worked within the informal sector. While Berniell *et al.* (2021) suggest that women may prefer informal sector jobs for the flexibility they offer, their study does not empirically examine how hours vary between formal and informal sectors. My research fills this gap by directly analyzing the link between informality and hours worked, examining two distinct

[2]Previous studies have primarily focused on the effects of welfare policies on labor supply and the factors influencing a firm's decision to formalize (see Ulyssea (2020) for a comprehensive review).

life events that increase mothers' demand for shorter hours and providing empirical evidence of the relationship between informal employment and hours worked.

The rest of the paper is organized as follows: Section 2 introduces the institutional background. Section 3 presents the main data used and the key descriptive facts about informality, occupations, and hours worked. Section 4 presents the empirical evidence and estimation results. Section 5 introduces a model of sector choice and the quantitative analysis. Section 6 concludes.

2 Institutional background

Given the growing demand for shorter working hours, particularly among women balancing work and family responsibilities, understanding the labor market structures influencing this dynamic is crucial. Labor market regulations can increase the costs for firms to offer shorter hours or part-time employment by raising expenses associated with hiring additional employees. In the formal sector, hiring costs are substantial, as firms face strict labor regulations mandating payroll taxes, benefits, and compliance with various other expenses. These added costs make it challenging for employers to offer flexible, part-time, or reduced-hour positions, making the informal sector an appealing alternative for women seeking shorter hours.

2.1 Mexican Federal Labor Law

Historically, Mexico's labor regulations prioritized full-time employment with strong worker protections, often limiting flexibility for part-time arrangements. While part-time work was not legally prohibited, early labor laws—especially the Mexican Federal Labor Law (Ley Federal del Trabajo) established in 1970—lacked clarity regarding part-time roles and proportional benefits. This ambiguity hindered the development of part-time options in the formal sector, indirectly encouraging informal employment as an alternative for workers needing flexible hours. A significant reform in 2012 introduced clearer regulations on part-time and flexible employment, defining rights to proportional benefits and social security contributions. However, enforcement of these provisions has been

inconsistent, and ambiguity still surrounds aspects of part-time work in practice.

Federal labor laws in Mexico also place a substantial tax burden on employers who hire formal employees. As detailed by Samaniego de la Parra & Fernández Bujanda (2024), employers bear the majority of payroll taxes, which are structured through both fixed and variable contributions. Due to the fixed fee structure, employer contributions range from 17% of the worker's after-tax wage for those earning 25 times the minimum wage to 35% for minimum wage earners. Additionally, firms face other costs associated with formal employees, including minimum wage requirements, annual profit-sharing, severance and overtime pay, paid leave, minimum vacation days, training obligations, and adherence to workplace safety and health standards. Because the informal sector operates outside of these formal labor laws, it allows firms to reduce costs associated with offering flexible, shorter-hour positions.

2.2 Formal & Informal sector

However, even after accounting for all these regulations and costs, the formal and informal sectors are not entirely separate labor markets. Evidence suggests that both sectors often coexist within the same industries, occupations, and even within the same firm. Research by Meghir *et al.* (2015), Allen *et al.* (2018), and Ulyssea (2018) shows that, in Latin America, the formal and informal sectors are not completely separate markets; instead, there is significant overlap in the productivity distributions of formal and informal firms. This overlap is essential because it explains why the same occupations can be found across both sectors, with workers able to continue in their roles regardless of the sector. For many, being in the informal sector is a strategic choice influenced by personal preferences, human capital constraints, and productivity levels in the formal sector (Maloney, 2004).

The availability of shorter hours and overlapping occupations between the formal and informal sectors makes informal employment an attractive option for women in Mexico. This perspective is essential to understanding why women may turn to the informal sector despite its trade-offs, including reduced earnings, limited benefits, and lower job security.

3 Data and Descriptive Facts

In this section, I describe the primarily data use thought out this paper and provide several main facts about the Mexican labor market. I show that the informality gap in the number of hours worked is larger for women than men. Women in the informal sector work 12.6 hours less than women in the formal sector. Men in the informal sector work 2.5 hours less than men in formal sector. I also show that the formal employment varies across occupations and hours worked.

3.1 Data

The main data source I use is Mexico's Quarterly National Employment and Occupation Survey (ENOE), a rotating panel that follows each household for five consecutive quarters. This dataset includes labor market outcomes for individuals aged 15 and older, such as type of employment (formal or informal), days worked, daily hours worked, and earnings. For this analysis, I adopt ENOE's definition of formal employment, which classifies informal workers as those employed in non-agricultural informal firms, self-employed agricultural workers, unpaid workers, non-salaried workers, and employees in formal firms who lack access to social security, health services, written contracts, or retirement plans. The data also provides demographic information and details on household time use. The analysis focuses on the period from the third quarter of 2012 to the third quarter of 2023, the most recent available data.

Mexico's labor market is characterized by high levels of informality, with women being less likely to participate in the labor force and more likely to work in informal jobs compared to men. Around 60 percent of employed women in Mexico are engaged in informal (non-agricultural) jobs, compared to 49 percent for men. These rates have seen minimal change over the past two decades (see Figure 1).

Table 1 presents relevant labor market statistics for men and women in Mexico. In the first quarter of 2020, with a working-age population of 83.7 million, formal employment accounted for 54.6% of male employment and 51.5% of female employment. Although men and women had similar rates of formal employment, women were 29.7% less likely to be employed overall. This disparity translates into women working an additional 22 hours per week in household labor. Across all forms

of work, hours are long, with men averaging 47.2 hours per week compared to 38.9 hours for women. Interestingly, men are also 1.7% more likely to be self-employed than women.[3]

Table 2 shows gender disparities in formal employment. First, employed women are 9.1 percent less likely to have a formal job compared to men (column 1). Second, mothers with children under 12 are 10.5 percent less likely to have a formal job, an additional 3 percent compared to women without children under 12 (column 2). Columns (3)-(6) report the likelihood of women switching sectors. Women are 0.5 percent more likely to transition from formal to informal jobs than men, with a mean transition rate of 12.7 percent. Interestingly, women are 5.7 percent less likely to transition to formal employment.[4]

3.2 Hours worked and the Informal sector

The informality gap in total hours worked is larger for women than for men. I define the "informality gap" as the difference in hours worked between individuals in the informal sector and their counterparts in the formal sector.

I begin by examining the distribution of hours worked across sectors. Figure 2 shows the distribution of hours worked by sector for both women and men. The left panel illustrates that women in the informal sector experience a broader dispersion in hours worked compared to women in the formal sector. For men (right panel), the distributions of hours worked are more similar across sectors. Interestingly, both men and women have nearly identical distributions in total hours worked within the formal sector.[5]

[3]It is noteworthy that men are more likely to be self-employed (see Figure A1). The percentage of women who are self-employed in the formal sector is 8.19 compared to 33.97 in the informal sector. For men, the percentage of self-employed in the formal sector is 12.26, and 34.64 in the informal sector (ENOE: 2020 Q1).

[4]Appendix A, Figure A2 (top) shows the life-cycle pattern of workforce composition in Mexico by gender. At the beginning of their working lives, most young workers are in the informal sector. Later, they move into formal sectors. However, around age 27, women tend to migrate back to informal jobs. This transition from formal to informal employment continues until age 64, marking the end of their work-life cycle. This pattern does not occur for men. After men transition from informal to formal jobs, their formal employment share remains constant until age 55. Two notable features emerge: first, around age 45, there are more women in informal jobs than in formal ones, suggesting that women are often burdened not only by household responsibilities during their childbearing years but also later when they may have responsibilities as grandmothers. Second, unemployment is not a significant feature of the labor force, as the informal sector serves as a buffer. The bottom two figures present the workforce composition by type of employment, employee vs. self-employed, with a consistent pattern across genders.

[5]Figure A4 shows the distribution of hours worked between employees and the self-employed across sectors.

Next, using a linear probability model, Table 3 shows that, after controlling for observable characteristics, women in the formal sector work an average of 12.6 more hours than their counterparts in the informal sector (with a mean of 38.7 hours worked). Notably, this disparity is less pronounced among men, with the gap in total hours worked between formal and informal male workers being just 2.5 hours (mean 47.4). Columns (3)-(6) present the transitions across sectors. When women switch from formal to informal employment, they reduce their weekly working hours by an average of 6.4 hours, while men reduce theirs by only 2.1 hours. Conversely, when women transition from informal to formal jobs, they increase their weekly working hours by an impressive 9.6 hours, compared to a 3.9-hour increase for men.

When comparing women with children under 12 to those without, column (3) in Table 4 shows that women who transition from formal to informal employment reduce their hours by an additional 2.6 hours.[6] This difference may suggest that informal jobs offer shorter working hours, making them a preferable option for women with childcare responsibilities.

3.3 Formal employment, occupations and hours worked

Formal employment varies across occupations and hours worked. To understand this relationship, I first examine whether the formal and informal sectors function as separate labor markets. This approach helps clarify whether certain occupations are exclusive to one sector or if shorter hours are available in both.

To investigate this, I begin by showing the distribution of hours worked across sectors. Figure 3 illustrates the relationship between occupation and the dispersion of hours worked by sector. The top-left panel shows the share of formal employment across 3-digit occupational categories, revealing that most occupations have a formality rate between 25% and 75%, indicating substantial variation across occupations. The top-right panel further illustrates the occupational mean hours worked across

[6]The informality gap in the number of hours worked is consistently greater for women than for men throughout their life cycle. Appendix A, Figure A5, shows that workers in formal jobs consistently work more hours than informal workers, regardless of age. For men, this difference is around 2-3 hours, whereas for women, the gap ranges from 8 to 12 hours. The informality gap in hours worked narrows for men between ages 25 and 55, while for women, the gap remains steady throughout their life cycle.

sectors, demonstrating that occupations with high average hours are found in both formal and informal sectors. This suggests that occupations with a high mean of hours worked are not exclusive to either sector.

I then examine the correlation between formal employment and hours worked. The bottom-left panel shows a positive correlation, with most of the variation in formal employment occurring within the 35-55 hours worked range.[7] This finding implies that the share of formal employment is not solely dependent on hours worked but varies significantly across occupations. To provide more detailed insights, Table 5 presents the share of formal employment for 35 different occupations. For example, only 2% of food street vendors are formally employed, compared to 99% of armed forces personnel. However, there is considerable variation within this range: hairdressers have a 25% formality rate, government officials and legislators 43%, and telemarketers and sales workers 49%. In contrast, roles like social science researchers (74%), middle and high school teachers (81%), and CEOs (91%) exhibit high levels of formality.

Overall, these findings suggest that women may choose informal sector employment due to the availability of shorter working hours. Women primarily drive the informality gap in total hours worked, indicating that informal jobs can be beneficial for those with family responsibilities or constraints related to childcare and household duties. Notably, the variation in formal employment across occupations and hours worked is an important aspect of the labor market, as it allows individuals to transition between sectors without necessarily changing occupations.

4 Empirical Evidence

As mentioned before, this study aims to investigate the role of shorter working hours in the informal sector, particularly whether women with young children are drawn to informal employment due to the availability of shorter hours. In the previous section, I documented significant differences in hours worked across sectors. Notably, while the informality gap in hours worked is negligible for men, it stands at approximately 12.6 hours for women. This indicates that the informal sector offers crucial

[7] See Figure A6 for additional details on mean hours.

opportunities for women to work fewer hours within the same occupation compared to the formal sector.

To conduct a causal analysis, I document two distinct shocks to the demand for shorter hours. These shocks complement each other by addressing each other's limitations, and with one capturing long-term effects while the other focusing on short-term impacts. The first shock, the motherhood shock, affects a substantial portion of the population but has certain limitations, such as anticipation effects. Additionally, motherhood can introduce potential discrimination from employers. To address this, I use a second, more specific shock: the death of a grandmother as a shock to available hours. While this approach has its limitations, it directly addresses issues like fertility choices and discrimination. However, it remains highly specific, targets only a certain segment of the population, and captures short-term effects.

4.1 Motherhood shock

In the first analysis, I follow Kleven *et al.* (2023) and Kleven (2023) to examine the causal effect of motherhood on labor market outcomes. Using a pseudo-event study approach based on cross-sectional data, I estimate the long-term child penalties in labor market outcomes for Mexico. This approach investigates whether there are differences in labor adjustments across sectors and analyzes whether the informal sector can provide shorter working hours for mothers.

The focus of this event study is to understand if women experience distinct labor adjustments in the formal and informal sectors after childbirth and whether the informal sector accommodates the need for reduced hours more effectively. Specifically, it explores how the availability of shorter hours influences household labor supply and whether increasing the availability of shorter working hours in the formal sector could mitigate gender disparities in labor outcomes following childbirth.

Recent research by Aguilar-Gomez *et al.* (2019) in Mexico highlights the significant gendered impact of childbirth on total time allocation. This research primarily focuses on short-term effects, examining immediate labor market and household adjustments following childbirth.[8] Similarly,

[8] Aguilar-Gomez *et al.* (2019) estimate the gendered impact of childbirth on total time allocation, including unpaid work at home. They find that women experience a 15-hour increase in weekly unpaid hours, whereas the increase in men's

Berniell *et al.* (2023) focus on Latin America, emphasizing the short-term labor market consequences of motherhood. To complement and extend this existing literature, I aim to analyze the long-term effects of childbirth on labor market outcomes in both the formal and informal sectors.

4.1.1 Pseudo-panel

One of the significant challenges faced by many countries, particularly developing ones, is the lack of high-quality panel data, which limits the ability to analyze long-term labor market dynamics (Kleven *et al.*, 2023). To overcome this limitation and study the long-run effects of childbirth on labor market outcomes in Mexico, I adopt the methodology of Kleven (2023) by creating a pseudo-panel. This pseudo-panel tracks men and women before and after the birth of their first child by using matching techniques to transform repeated cross-sectional data into a longitudinal-like dataset.

The matching process relies on key demographic variables, including gender, education (four categories), marital status (five categories), and state of residence (across 32 states). This setup enables the use of a pseudo-event study approach to estimate the child penalties in labor market outcomes for Mexico, providing a valuable framework for understanding how labor adjustments differ over time in both formal and informal sectors.

4.1.2 Event study approach around childbirth

To estimate the impact of having children on women's labor market outcomes, I employ an event study approach centered around the birth of the first child, as proposed by Kleven *et al.* (2019). The event study specification is given by the following equation:

$$Y_{it}^{g} = \alpha^{g} \cdot D_{it}^{\text{event}} + \beta^{g} \cdot D_{it}^{\text{age}} + \gamma^{g} \cdot D_{it}^{\text{year}} + \nu_{it}^{g} \tag{1}$$

where Y_{it}^{g} represents the outcome for individual i of gender $g = w, m$ at event time t. The term D_{it}^{event} includes dummies for each event time t, with a base year before childbirth omitted. Event time t is indexed relative to one year before the birth of the first child, with each interval

unpaid work is about 5 hours per week.

representing a 12-month period. The terms D_{it}^{age} and D_{it}^{year} include a full set of age and year dummies, respectively, interacted with gender to control non-parametrically for lifecycle trends and time trends. The identification of the impact of children relies on the assumption that the precise timing of childbirth is unrelated to other non-child-related dynamics in labor market outcomes for women compared to men.

4.1.3 The child penalty

In this section, I present estimates of the impacts of children on labor market outcomes for men and women, focusing on whether women adjust differently in the formal and informal sectors. The estimates in each panel present an event study around the birth of the first child, indexed as year $t = 0$, for men and women separately. The series depict the percentage impact of childbirth at each event time, estimated from equation (1). These impacts are measured relative to event time $t = -2$, the year before pregnancy.

Figure 4 illustrates the pseudo-event study results for men and women around the birth of their first child. The top left panel shows changes in labor supply at the extensive margin, while the top right panel depicts the impact on formal employment. Conditional on being employed, the probability of having a formal job decreases for mothers by 4.8 percent after the birth of the first child, a change not observed for fathers.

The bottom two panels show the impact on weekly working hours by sector. The estimates highlight differences in the impacts of children by sector in the pre-birth period. The left panel displays changes in the intensive-margin labor supply for mothers, and the right panel shows these changes for fathers. The figure reveals significant differences in mothers' intensive-margin labor adjustments across sectors. Specifically, mothers in the informal sector adjust their working hours by 3.15 more in the year of birth, conditional on being employed, compared to mothers in the formal sector. This reflects the temporal flexibility that the informal sector offers, suggesting that it can act as a buffer in terms of mitigating the impact of childbirth on intensive labor supply adjustments.

4.2 Shock to available hours

For the second analysis, I examine a shock to available hours by using the death of a grandmother as an exogenous shock. Evidence suggests that the availability of family members as caregivers enables mothers to increase their labor supply (Akyol & Yılmaz, 2021; Posadas & Vidal-Fernandez, 2013; Marcos, 2023). Thus, if the need for childcare suddenly arises due to the death of a caregiver, this could push women toward the informal sector. The main hypothesis is that, following a shock to the demand for shorter hours, women may need to reduce the number of hours worked in the market. Given the rigidity of job contracts in the formal sector, there may be minimal adjustment in hours worked (the intensive margin) for women who remain in the formal sector. However, some women may switch to the informal sector to achieve the desired reduction in hours worked.

4.2.1 Sample selection

As before, the data used in this section is from ENOE, where I follow households for up to five quarters. I follow Marcos (2023) and restrict the sample to three-generation households. In my sample, around 28.3 percent of households are three-generation households where, on average, 6.7 people live. The treatment group is those households that experience the death of a grandmother in one of those five quarters. The average age of death in the sample within this three-generation household is 71.75 years of age for women and 70.1 for men.

To argue that the deaths are unexpected, I restrict the sample to the deaths of grandmothers who are younger than 70 at the time of death.[9] Second, I focus on grandmothers who were either employed or taking care of children in the household before the time of death to rule out deaths that were preceded by a debilitating disease. In both the treatment and the comparison groups, for the individual analysis, I restricted the sample to females between 20 and 50 years, with at least one child under 12 living in the household.[10]

Table 6 reports the descriptive statistics for women aged 20-50 living in three-generation households. On average, women have 9.9 years of education, and 50 percent are married. Furthermore, 81

[9] Life expectancy for women is 75 years and 66 for men (World Bank indicators 2021).
[10] I follow the same restrictions when looking at death of grandfather for robustness checks.

percent of women in the sample have at least one child, with a mean number of 1.86 children and 1.5 children under age 12. Regarding their labor market characteristics, 54 percent are employed, with 49 percent having formal jobs and working 40.1 hours per week. Similar to the facts presented in Section 2, there is also an informality gap in the number of hours. Women in the formal sector work an average of 44.7 hours per week compared to women in the informal sector, who work an average of 35.7 hours. Table 6 reports the labor market flows. Of the women who make a labor market transition, 11.64 percent move from formal to informal employment and 12.68 percent from informal to formal. Something interesting to notice is that the majority of women who move transition from either informal employment to being non-employed or from being non-employed to informal jobs.

4.2.2 Reduced form analysis

To estimate the effect of a shock to demand for short hours, I use the following estimating equation:

$$Y_{it} = \beta_1 \text{Post}_{it} \times \text{Death}_i + \beta_2 \text{Post}_{it} \times \text{Death}_i \times \text{young}_i + \gamma_i + \delta_{lt} + \epsilon_{it} \tag{2}$$

where $Y_{i,t}$ is a labor market outcome (employment, formal employment, hours worked, occupational change) of a individual i in quarter t. Post_t is an indicator for every period after the death grandmother. $Death_i$ is an indicator for the individual that experience death of the grandmother at any point in time. $young_i$ takes the value of 1 if the mother has young children δ_t are quarter fixed-effects. γ_i are individual fixed effects, and ϵ_{it} is the idiosyncratic unobserved component. The coefficient of interest in (2) is β_2, which captures the triple difference of individual i on the outcome variable before and after the death of the grandmother comparing mother with young kids with mother with older kids. The standard errors are cluster at household level.

Under the hypothesis, that women value flexible work schedules, due to *e.g.* childcare responsibilities, informal labor is more flexible in the total number of hours than formal jobs. Hence, if women with young children value short hours, they should be more likely to switch to an informal job after a shock in their flexibility. Table 7 report the estimation results of eq (2) on several labor market outcome. Mothers with young children who experienced the death of a grandmother are 7 percentage

points ($p < 0.05$) less likely to be employed, (column (1)) and 17.4 percentage points ($p < 0.1$) less likely to have a formal job (column (2)). Moreover, mothers with young children that experience the shock reduce overall their number of hours worked (column (3)). Finally, there is no significant effect on the probability of mothers changing occupation.[11]

Results so far show that women with young children are less likely to be employed in the formal sector and less likely to change occupations. Meaning that the demand for short hours is coming from the informal sector and not the occupation per se. To shed more light at how the informal sector work as a buffer, I estimate (2) but now the outcome variables are the different measures to capture this. Table 8 report the estimation results with the new outcome variables. Women with young children are 16.7 ($p < 0.05$) percentage point less likely to be in occupations with a high share of share of formality (column 1), 14.5 ($p < 0.1$) percentage point less likely to be employed in high wages jobs (column 2) and 19.3 ($p < 0.5$)percentage points more likely to be in jobs that have a higher dispersion in hours worked (column 5). Overall, the results suggest that that the demand for shorter working hours is more prevalent in the informal sector rather than within specific occupations.

5 A Model of Labor Supply and Sector Choice

So far, I have shown that the informal sector exhibits a broader dispersion in hours worked compared to the formal sector, indicating a greater availability of shorter-hour jobs. Additionally, formal employment varies significantly across occupations and hours worked, with a negative correlation between the dispersion of hours worked and the share of formal employment. Moreover, the formal and informal sectors are not entirely separate labor markets, which suggests that occupations are not exclusive to either sector. Finally, empirical evidence shows that mothers, in response to a shock increasing the demand for shorter hours, are more likely to transition to informal employment, with adjustments in working hours occurring almost exclusively within the informal sector.

[11] One potential concern with these results is that income effects may be at play. To address this concern, I use two different specifications. First, I estimate eq (2), but now, with the death of the grandfather. Usually, grandfathers do not contribute as childcare providers. There are no significant effects on the rest of the labor market variables. The second exercise I do to address income effects is by restricting the sample to grandmothers who were only spending time caring for children in the household and not working before the death.

To assess how different policies can reduce reliance on informal employment among individuals who demand or need shorter hours, I develop a model of labor supply and sector choice, building on the work of Cortes & Tessada (2011); Ngai & Petrongolo (2017); Erosa *et al.* (2022); Bick *et al.* (2022). The key assumption of the model is that the formal sector does not accommodate shorter hours, i.e., it imposes a lower bound on the number of working hours, whereas the informal sector does not have such constraints. Using this model, I evaluate two potential policy interventions: reducing minimum-hour constraints in the formal sector and reducing the hours required for childcare responsibilities by potentially expanding access to subsidized childcare.

5.1 Model

The model features two employment sectors—the formal and informal sectors—a time allocation between leisure, home production of childcare, and hours worked in the market, and two markets where one focuses on goods and the other on producing childcare services.

1. **Sector:** formal or informal
2. **Time use:** leisure, home production of childcare, hours worked in the market
3. **Market:** goods and childcare services

Individuals consume goods and childcare services. The consumption good can only be purchased in the market, while childcare services can either be bought in the market or produced at home. Individuals differ in their preferences and sector-specific productivity. They take market wages and output prices as given. The markets are perfectly competitive, and firms employ both formal and informal labor, with the formal and informal sectors differing in their average productivity. Free labor mobility ensures wage equalization across the market within each sector. The optimal labor supply decision is solved in two stages: in the first stage, individuals determine the optimal hours worked conditional on their sector choice; in the second stage, they decide which sector to work in. The model is static.

5.2 Market/Sector

In this economy, all individuals are employed and can choose to work either in the formal sector ($s = F$) or the informal sector ($s = I$). There are two markets ($j = g, z$), each one with a representative firm that employs both formal labor (L^F) and informal labor (L^I). Firms in each market produce output using the following production technology:

$$Y_j = A_j(L_j^F)^{\alpha}(L_j^I)^{1-\alpha} \tag{3}$$

Both markets feature constant returns to scale technology with aggregate labor productivity A_j. Free labor mobility implies wage equalization across the markets for each sector:[12]

$$w_g^F = w_z^F \text{ and } w_g^I = w_z^I \tag{4}$$

Formal and informal sectors differ in average productivity, such that $w^F > w^I$. Given that each individual is endowed with a pair of sector-specific productivities (z_i^F, z_i^I), the total income of individual i is: $w_i^s = z_i^s w^s h_i^s$ where w^s is the hourly wage in sector s.

5.3 Individuals

There is a continuum of individuals, i, with preferences over consumption (c_i) and leisure (l_i), represented by the utility function:

$$\ln c_i + \nu_i \frac{l_i^{1-\gamma}}{1-\gamma} \tag{5}$$

where c_i denotes a bundle of goods and childcare services. Individuals are heterogeneous in their preferences for work, with the parameter ν_i capturing individual differences in these preferences and serving as a potential source for variations in hours of work. The parameter $\gamma > 0$ reflects the disutility of work.

[12]Wage equalization across the markets within each sector implies that if a worker switches between occupations within the same sector, the average wage they receive remains the same. In the model, this means that a worker producing goods in the formal sector earns the same average wage as a worker providing childcare services in the formal sector.

Individuals consume a composite good, c_i, which is a bundle of consumption goods, c_{ig}, and all childcare services combined, c_{iz}. The consumption good, c_{ig}, can only be purchased in the market (its price is normalized to 1). Childcare services, c_{iz}, can either be bought in the market (c_{im}) at a price p or produced at home (c_{ih}). The composite good is represented as:

$$c_i = [\omega c_{ig}^{\frac{\epsilon-1}{\epsilon}} + (1-\omega)c_{iz}^{\frac{\epsilon-1}{\epsilon}}]^{\frac{\epsilon}{\epsilon-1}}; \;\; c_{iz} = [\psi c_{im}^{\frac{\sigma-1}{\sigma}} + (1-\psi)c_{ih}^{\frac{\sigma-1}{\sigma}}]^{\frac{\sigma}{\sigma-1}} \tag{6}$$

Goods and childcare services are poor substitutes ($\epsilon < 1$), while market and home childcare services are good substitutes ($\sigma > 1$) in the combined childcare service bundle. The production of home-based childcare services is given by:

$$c_{ih} = Bg_{ih} \tag{7}$$

where B represents home productivity, and g_{ih} denotes the hours devoted to household work specifically for childcare.

5.4 Equilibrium analysis

The optimal labor supply decision is solved in two stages. In the first stage, the individual chooses optimal hours worked conditional on sector choice, h_i^s. In the second stage, the individual make the optimal sector choice, S.

First stage: Given S, individual i chooses $\{c_{ig}, c_{im}, g_{ih}, h_i^s\}$ to maximize:

$$U(c_{ig}, c_{im}, c_{ih}, l_i) = \ln c_i + \nu_i \frac{l_i^{1-\gamma}}{1-\gamma}$$

subject to

$$c_{ih} = Bg_{ih}$$

$$p_g c_{ig} + p_m c_{im} \leq w_i^s h_i^s + I_i \tag{8}$$

$$c_{im} + c_{ih} \geq T_c \tag{9}$$

$$l_i + h_i^s + g_{ih} = 1 \tag{10}$$

Each individual is endowed with a pair of sector-specific productivities (z_i^F, z_i^I), so their wage in Equation (8) is given by $w_i^s = z_i^s w^s$, while I_i denotes non-wage income. Equation (9) represents the childcare constraint, with T_c denoting the minimum units of childcare required. Finally, each individual is endowed with one unit of time and chooses how to allocate it among leisure (l_i), hours worked in the market (h_i^s), and home production of childcare (g_{ih}). Using the first-order conditions (FOC) and assuming that all four constraints hold with equality, the optimal hours worked in the market are given by $h^* = \{h^{F^*}, h^{I^*}\}$.

Second stage: The individual makes the sector choice. In the formal sector, the individual cannot adjust their number of hours below a minimum threshold, $\overline{h}$. Therefore, the individual will choose to work in the formal sector only if the optimal number of hours worked in the market is at least $\overline{h}$.

$$V(h_s^*) = \begin{cases} \max\limits_{S \in \{F,I\}} \{U(c_g^{F^*}, c_m^{F^*}, h^{F^*}, g_h^{F^*}), U(c_g^{I^*}, c_m^{I^*}, h^{I^*}, g_h^{I^*})\} & \text{if } h^{F^*} > \overline{h} \\ \max\limits_{S \in \{F,I\}} \{U(\overline{c_g}, \overline{c_m}, \overline{h}, \overline{g_h}), U(c_g^{I^*}, c_m^{I^*}, h^{I^*}, g_h^{I^*})\} & \text{if } h^{F^*} \leq \overline{h} \end{cases} \tag{11}$$

Notice that the choice of sector depends on the optimal number of hours in the formal sector (h^{F^*}). If $h_F^* > \overline{h}$, the individual will choose between the sector that offers the highest utility, given the optimal hours in both. However, if $h_F^* \leq \overline{h}$, the minimum-hours constraint binds in the formal sector. In this case, the individual evaluates utility by comparing the utility of working exactly $\overline{h}$ hours in the

formal sector to the utility of their optimal decision in the informal sector (h^{I^*}).

5.5 Calibration

In this subsection, I describe the two sets of parameters used to estimate the model. The first set consists of parameter values set exogenously, and the second set comprises parameters calibrated endogenously. The calibration is based on data and reduced-form evidence, and the model is estimated for women with children aged 20–50.

Parameter Values Set Exogenously: Table 9 presents the parameter values set exogenously. The values for the disutility of work (γ) and the elasticity of substitution between goods and services (ϵ) are drawn from existing literature. I set $\gamma = 3$ so that the intertemporal elasticity of labor along the intensive margin is fixed at $1/3$, consistent with established estimates in the literature. Following Ngai & Petrongolo (2017), ϵ is set to 0.01, reflecting minimal substitutability between goods and services, as these authors report a range of estimates close to zero.[13]

The values of the share between goods and childcare services (ω) and the share between market-based and home-produced childcare (ψ) are derived from the National Survey of Household Income and Expenditure (ENIGH). These are set at 0.7 and 0.55, respectively. The price of childcare (p_m) is calculated as the percentage of total income allocated to market-based childcare, based on household expenditure data from ENIGH.[14]

The model assumes a time dimension of one working week (five days), with $T_c = 35$ representing the childcare units required per week. The minimum hours constraint in the formal sector, $\overline{h}$, is set at 42 hours, a value empirically motivated by observed data where formal sector employees tend to cluster around this threshold (see Fig. 2). Finally, the home sector productivity parameter, B, is normalized to one for simplicity and comparability.

Parameters Set to Match Moments: The second set are the parameters set endogenously. In particular, I use the reduced-form evidence from Section 4 to calibrate the elasticity between market-

[13] In Appendix C, I test the model's sensitivity to alternative values of ϵ.

[14] The price of childcare (p_m) is calculated as the average share of childcare expenditure across households. I approximate p_m as a representative cost relative to income, ensuring the model reflects real spending patterns on childcare services.

based and home-based childcare (σ). This parameter is set to match the response of the shock to the demand for short hours.[15]

As described earlier, the heterogeneity across individuals is characterized by the 3-tuple (ν_i, z_i^F, z_i^I). The preference parameter (ν_i) and the sector specific productivities (z_i^F, z_i^I) are drawn from a multivariate distribution. The preference parameter is drawn from a gamma distribution ($\nu \sim \text{Gamma}(k, \theta)$) and the sector productivities from a log-normal distribution ($z^F \sim \text{LogNorm}(\mu_{z_F}, \sigma^2_{z_F}), z^I \sim \text{LogNorm}(\mu_{z_I}, \sigma^2_{z_I})$).

The remaining nine parameters in the model are jointly estimated to replicate ten key moments observed in the data. The moments to match are the change in hours worked in response to an increase in the demand for shorter hours, the share of formal employment, the mean hours worked in the market (formal and informal), the standard deviation of hours worked in the market (formal and informal), the mean log wages (formal and informal) and the standard deviation of log wages (formal and informal). The parameter to estimate are $\Theta = \{\sigma, \mu_{z_F}, \mu_{z_I}, \sigma^2_{z_F}, \sigma^2_{z_I}, k, \theta, \rho_{z_I\nu}, \rho_{z_F,\nu}\}$. I estimate Θ by simulated method of moments (SMM). The estimates minimize the sum of squared distances between the data moments and the simulated moments

Parameter values and discussion Table 10 reports the targeted moments in the model and data. Overall, the estimated model does match the targeted moments fairly closely. The model underestimate slightly the share of formal employment (46 percent in the model compared to 48 percent in the data). It does a great job matching the change in hours worked, the mean hours worked for both sectors, and the log wages. However, the moments with a sizable differences are the standard deviation in hours worked and log wages. In particular, the model implies that there is not enough variation in hours worked in both sectors, and also a low variation in log wages within the informal sector.

Table 11 reports the estimated parameters. The calibration yields a negative correlation between preference in leisure with productivity in the formal sector ($\rho_{z_F,\nu} = -0.81$) and a positive correlation

[15]To calibrate σ, I rely on the observed response to shocks in childcare availability—specifically, the increased demand for shorter hours when the grandmother dies. On average, women increase the number of hours dedicated to childcare by 2.7 hours per week following such a shock. In the model, I simulate this scenario by adjusting the total required childcare time (T_c) from 35 to 37.7 hours per week to reflect the increased childcare burden. The value of σ is chosen to match the corresponding change in hours worked in the market, which is observed to be approximately 0.01 hours on average. This approach ensures that the model reflects the observed labor supply adjustments in response to childcare shocks.

with the informal sector ($\rho_{z_I,\nu} = 0.39$.) This combination indicating that high productivity individuals tend to be more willing to work longer hours, thus implying that high hours workers will be positively selected with regard to productivity. Furthermore, the calibration for the elasticity between childcare market and childcare home yields a positive estimate of 1.87 which is fairly closed to the existing estimates in the literature.[16]

5.6 Quantitative analysis

In this section, I use the model to quantitatively assess the impact of policy changes on women's employment choices between the informal and formal sectors, identifying specific conditions under which policies may reduce reliance on informal employment. The model explores two potential policy interventions: first, increasing the availability of shorter working hours within the formal sector; and second, reducing the time required for childcare, for instance, through expanded subsidized childcare options.

Flexibility in the Formal Sector (changes in $\overline{h}$): To begin, I evaluate the effects of increasing the availability of shorter working hours in the formal sector. In this counterfactual scenario, I reduce the constraints on minimum working hours in the formal sector. Table 12 shows the results. Allowing the formal sector to offer shorter hours by reducing the lower bound of weekly hours worked by 10 percent decreases the share of informal employment by 16.67 percent. On average, there is a 5.69 percent reduction in weekly hours worked for formal sector employees and a 1.78 percent increase for informal sector workers. Overall, this policy increases welfare (utility) by 1.2 percent.

Childcare Availability (changes in T_g): Next, I assess the impact of reducing the time required for childcare, such as through expanded subsidized childcare options. Specifically, I examine how a 10 percent reduction in childcare requirements affects labor decisions. Table 12 presents the results, which show a 3.7 percent decrease in informal employment. Concurrently, workers in the formal sector reduce their working hours by 2.8 percent, and those in the informal sector by 20.58 percent.

[16]The most common approach in the literature to estimate the elasticity between market and home goods is to used micro data on consumer expenditure and home production hours. I use the reduced form evidence and my estimate is fairly closed to the existing values in the literature that set $\sigma = 2$.

This policy yields a more substantial welfare increase, with utility rising by 9.2 percent.

Comparing the effects of these two potential policy interventions reveals that relaxing minimum-hour constraints in the formal sector has a greater direct impact on increasing formal employment, while reducing childcare requirements produces a stronger welfare effect. This difference arises because many women in the formal sector face rigid work hour requirements, limiting their ability to adjust hours to accommodate childcare needs. As a result, their choices are highly sensitive to the availability of market-based childcare options that can substitute for home-based care. Both interventions demonstrate significant potential to reduce reliance on informal employment and improve welfare outcomes. Expanding subsidized childcare enhances flexibility and provides considerable welfare gains but may require substantial public investment. In contrast, increasing the availability of short-hour options within the formal sector offers a relatively low-cost alternative with meaningful reductions in informal employment and moderate welfare gains. These findings suggest that, while both policies have their benefits, enhancing flexibility within the formal sector may represent a more economically feasible short-term strategy for promoting formal employment among women.

6 Discussion

This paper investigates the role of shorter working hours in the informal sector and its impact on women's employment choices, particularly for mothers with young children. The study highlights the broader implications of labor market regulations that inadvertently raise employers' costs for offering flexible working arrangements. By operating outside formal labor laws, the informal sector alleviates some of these constraints, providing necessary job opportunities for women, even if such jobs lack the benefits associated with formal employment.

The findings indicate that the informal sector offers a clear advantage in terms of shorter working hours compared to the formal sector. This availability of shorter hours is essential for women who need to manage childcare responsibilities while remaining active in the labor force. I analyze two specific life events that increase mothers' demand for shorter hours: childbirth and the loss of childcare support following the death of a grandmother. In both instances, mothers are more likely to transition

to informal employment, with adjustments in working hours occurring exclusively within the informal sector. The results demonstrate that the demand for shorter working hours is more effectively met by the informal sector than by specific occupations.

To address the reliance on informal employment, I explore two potential policy interventions: relaxing minimum-hour constraints in formal sector jobs and increasing the availability of subsidized childcare. These measures have the potential to significantly enhance women's labor market outcomes and reduce their dependence on informal employment.

Overall, these findings underscore the urgent need for policies that promote workplace flexibility and expand part-time employment opportunities within the formal sector. Labor market regulations often constrain the availability of part-time jobs, creating challenges for workers who prefer shorter hours. This research highlight the importance of understanding how formal and informal sectors interact and how regulatory structures influence employment decisions and worker mobility. By adopting targeted interventions that address women's unique needs for flexibility, policymakers can better support women's labor force participation, ultimately fostering economic growth and improving work-life balance for a significant portion of the workforce.

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Figures & Tables

Figure 1: **Mexico's labor market**

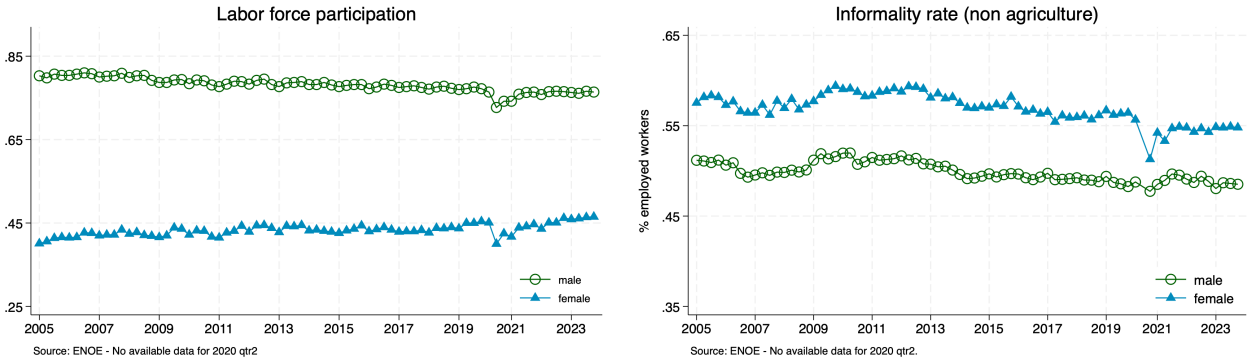


Figure 2: **Distribution of hours worked**

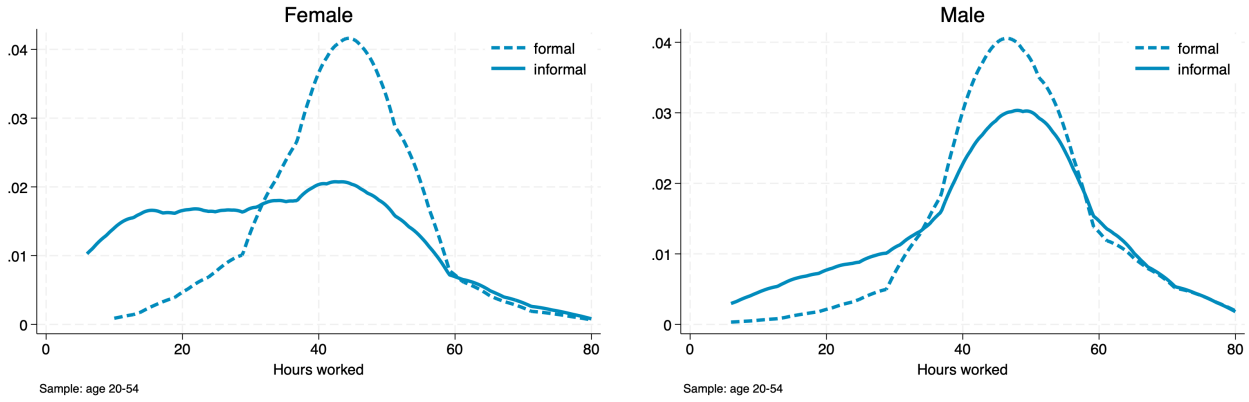
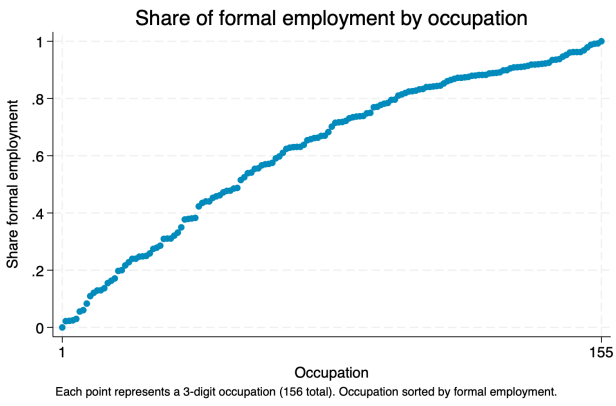
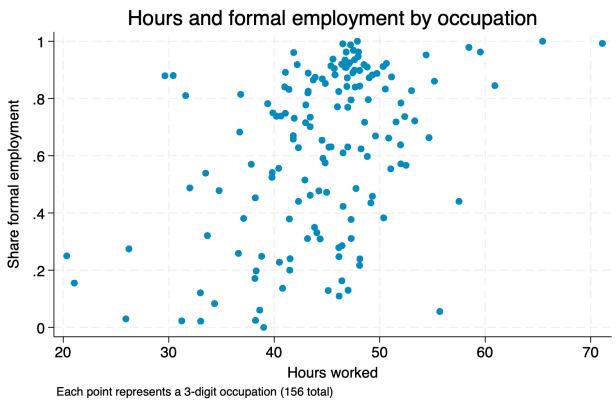
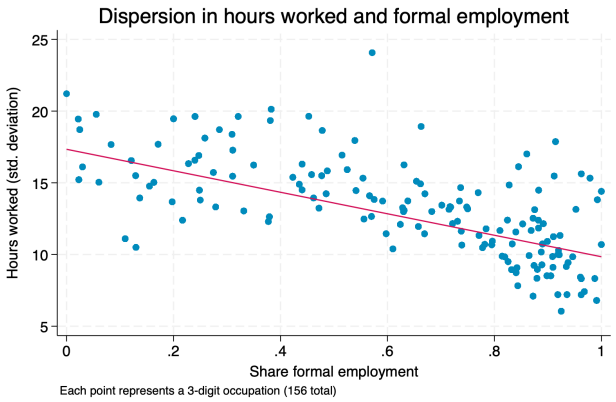


Figure 3: **Occupations and hours worked**







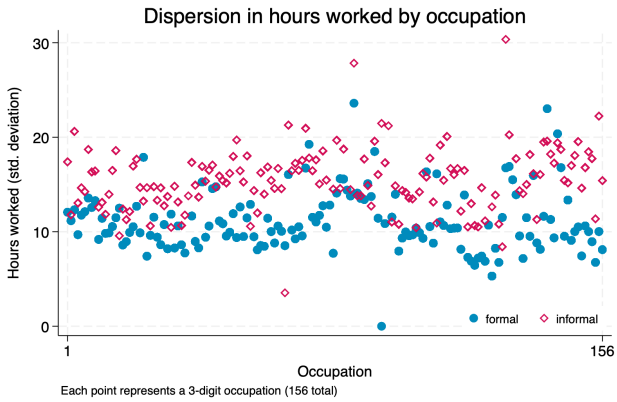


Figure 4: **Event study: Child penalty**

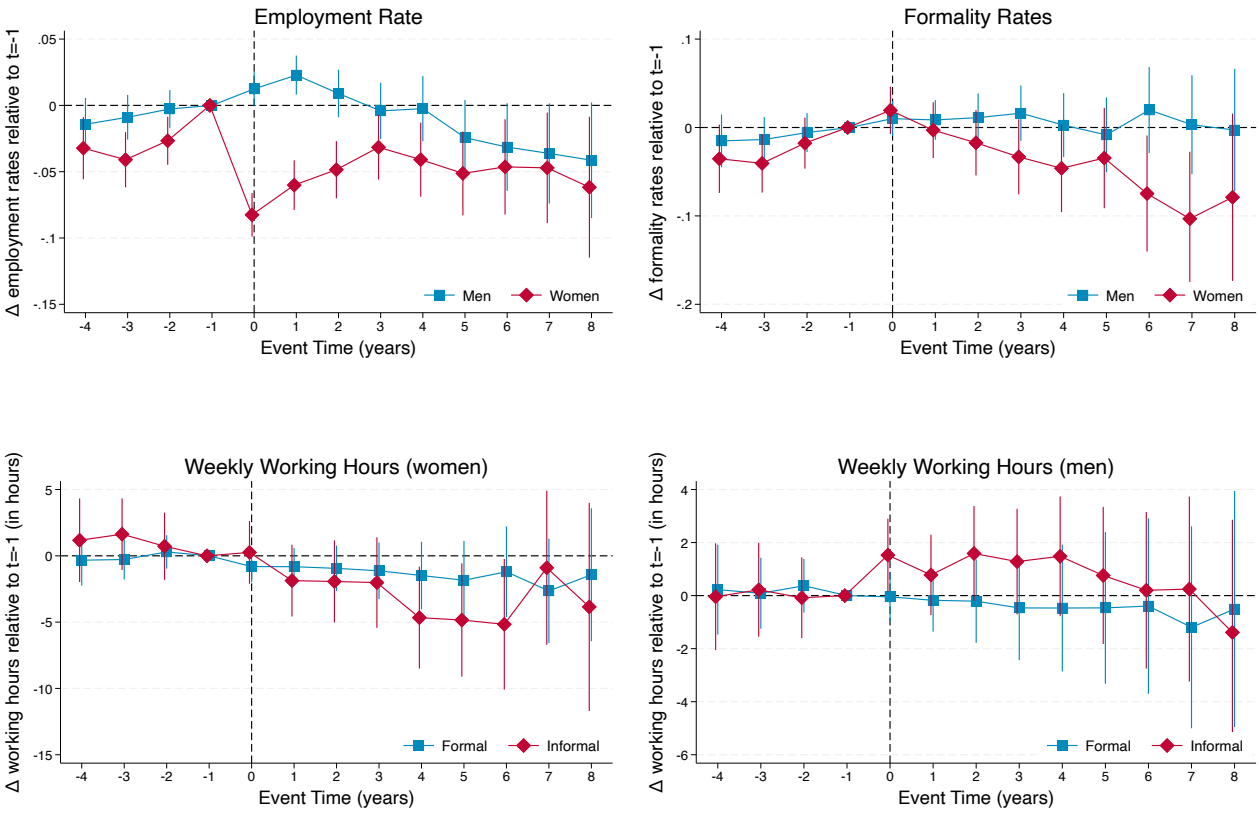


Table 1: **Labor Market Descriptive Statistics for Men and Women in Mexico**

	N	Male	Female	Diff.	t-stat
Employed	196283	0.869	0.572	0.297***	153.916
Formal (employed)	139907	0.546	0.515	0.031***	11.351
Self-employed	139907	0.224	0.207	0.017***	7.779
Hours worked (last week)	133530	47.246	38.912	8.334***	96.306
Hours of home work (last week)	196283	8.053	30.818	-22.765***	-308.773

Notes: This table reports the descriptive statistics for Mexico in 2020 Q1. The sample includes all individuals aged 20-54.

Table 2: **Gender gap in formal employment**

	(1)	(2)	(3)	(4)	(5)	(6)
	formal	formal	formal to informal	formal to informal	informal to formal	informal to formal
female	-0.091***	-0.075***	0.005***	0.006***	-0.057***	-0.050***
	(0.003)	(0.003)	(0.001)	(0.002)	(0.002)	(0.002)
female × child under 12		-0.030***		-0.002		-0.013***
		(0.002)		(0.002)		(0.002)
Observations	4,346,063	4,346,063	1,515,153	1,515,153	1,293,334	1,293,334
Mean dep var	0.512	0.512	0.127	0.127	0.155	0.155
Location & time	Yes	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes

Notes: This table show the linear probability model (LPM) conditioning on people staying in the labor force. Sample: age 20-54. Controls: age, age squared, years of education, number of children under 12, marital status, occupation, industry, and self-employed. All specifications include state x municipality and quarter x year fixed effects. Robust standard errors clustered at individual level *** p<0.01, ** p<0.05, * p<0.1

Table 3: **Hours worked by sector**

	Dependent variable: **Hours worked last week**					
	(1) women	(2) men	(3) women	(4) men	(5) women	(6) men
formal	12.580***	2.626***				
	(0.04)	(0.03)				
transition: formal to informal			-8.872***	-1.522***		
			(0.07)	(0.05)		
transition: informal to formal					10.737***	4.923***
					(0.07)	(0.05)
Observations	1,777,612	2,655,893	546,497	901,568	502,694	855,974
Mean dep var	38.31	46.74	42.062	48.770	36.450	45.681
Location & time FE	Yes	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes

Notes: This table show the linear probability model (LPM) conditioning on people staying in the labor force. Controls: children, age, age squared, educ level, marital status, occupation, industry, and self-employed. All specifications include state x municipality and quarter x year fixed effects. Robust standard errors clustered at individual level *** p<0.01, ** p<0.05, * p<0.1

Table 4: **Hours worked by sector and age of children**

	Dependent variable: **Hours worked last week**					
	(1) women	(2) men	(3) women	(4) men	(5) women	(6) men
formal	8.426***	4.305***				
	(0.160)	(0.142)				
formal × child under 12	1.970***	-1.395***				
	(0.090)	(0.090)				
formal to informal			-3.099***	-2.498***		
			(0.168)	(0.139)		
formal to informal × child under 12			-2.684***	0.571***		
			(0.204)	(0.139)		
informal to formal					8.800***	4.549***
					(0.208)	(0.147)
informal to formal × child under 12					1.602***	-0.962***
					(0.210)	(0.145)
Observations	1,714,696	2,479,928	560,788	893,126	475,967	781,170
Mean dep var	38.71	47.48	42.99	48.88	36.81	46.44
Municipality & time FE	Yes	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes

Notes: This table show the linear probability model (LPM) conditioning on people staying in the labor force. Controls: children, age, age squared, educ level, marital status, occupation, industry, and self-employed. All specifications include state x municipality and quarter x year fixed effects. Robust standard errors clustered at individual level *** p<0.01, ** p<0.05, * p<0.1

Table 5: **Occupations and share of formality**

	% formal employment
Domestic Workers	0.02
Food Street Vendors	0.02
Bricklayers and Construction Workers	0.13
Agricultural Workers	0.14
Performing Artists	0.16
Fishery and Aquaculture Workers	0.20
Livestock Workers and Animal Breeders	0.25
Personal Care Workers	0.25
Hairdressers and Beauticians	0.26
Athletes, Coaches, and Referees	0.27
Gardeners	0.38
Government Officials and Legislators	0.42
Sales Agents, Representatives, and Catalog Salespersons	0.48
Telemarketers and Sales Workers	0.49
Fashion, Industrial, Graphic Designers, and Interior Decorators	0.54
Painters, Artistic Designers, Draftsmen, Sculptors, and Set Designers	0.56
Travel Agency and Tourism Information Workers	0.58
Directors of Political, Labor, and Civic Organizations	0.63
Agronomy Specialists	0.63
Transportation Operation Controllers	0.64
Authors, Journalists, and Translators	0.65
Surveyors and Coders	0.66
Humanities Researchers and Specialists	0.68
Nurses and Medical Technicians	0.74
Social Science Researchers and Specialists	0.74
General and Specialist Physicians	0.75
Civil Engineers, Surveyors, and Architects	0.77
Receptionists, Information Clerks, and Telephone Operators	0.78
Middle and High School Teachers	0.81
Communications and Telecommunications Engineers	0.84
Physics, Mathematics, Statistics, and Actuarial Science Researchers and Specialists	0.84
Elementary School Teachers	0.88
Presidents and General Directors (CEOs)	0.91
Flight Attendants	0.95
Armed Forces Personnel	0.99

Notes: This table reports the share of formal employment for only 35 occupations out of 156 total.

Table 6: **Descriptive statistics for women in three generation households**

	mean	std. dev.	N
Age	33.339	9.382	684099
Years of education	9.941	4.273	683213
Married/living with a partner	0.501	0.500	684099
% women with children	0.813	0.390	661183
# of children	1.863	1.548	661255
# of children under 5 in household	0.824	0.857	684099
# of children under 12 in household	1.507	1.191	684099
Employed	0.542	0.498	684099
Formal (employed)	0.497	0.500	370737
Self-employed	0.170	0.375	370737
Days worked (last week)	5.267	1.290	359265
Hours worked (last week)	40.191	15.556	358633
Days worked (last week) formal	5.443	0.800	176618
Hours worked (last week) formal	44.737	10.649	176435
Days worked (last week) informal	5.096	1.612	182647
Hours worked (last week) informal	35.789	18.087	182198

Notes: This table reports descriptive statistics. Sample: 3 generation households, female aged 20-50.

Table 7: **Estimated Effect of the Death of Grandmother**

	(1)	(2)	(3)	(4)	(5)	(6)
	employed	formal	hours	hours	hours	occupational change
Death GM × Post	-0.033	-0.028	0.029***	0.015*	0.006	-0.129*
	(0.027)	(0.028)	(0.009)	(0.008)	(0.005)	(0.067)
Death GM × Post × young	-0.070**	-0.174*	-0.094***	0.041	-0.036***	-0.061
	(0.042)	(0.089)	(0.027)	(0.026)	(0.011)	(0.156)
Observations	398,622	133,103	133,103	74,425	58,678	73,449
Sample				formal	informal	

Notes: This table show the triple difference-in-differences. Sample: 3 generation households, age 20-50, female with children 12 and under. Young is an indicator that takes the value of one if the women has young children (5 and under) or not. Controls include individual FE, location × quarter FE. Columns (3) - (5) show the inverse hyperbolic sine transformation. Robust standard errors clustered at household level *** p<0.01, ** p<0.05, * p<0.1

Table 8: **Estimated Effect of the Death Grandmother on occupation type**

	(1) formality 50plus	(2) wage 50plus	(3) wagesd 50plus	(4) hrs 50plus	(5) hrssd 50plus
Death × Post	0.023	0.004	0.025	0.027	-0.012
	(0.029)	(0.027)	(0.036)	(0.027)	(0.030)
Death × Post × young	-0.167**	-0.145*	-0.064	-0.044	0.193**
	(0.082)	(0.092)	(0.090)	(0.097)	(0.095)
Observations	133,103	133,103	133,103	133,103	133,103

Notes: This table show the triple difference-in-differences. Sample: 3 generation households, age 20-50, female with children 12 and under. Young is an indicator that takes the value of one if the women has young children (5 and under) or not. Controls include individual FE, location × quarter FE. Columns (3) - (5) show the inverse hyperbolic sine transformation. Robust standard errors clustered at household level *** p<0.01, ** p<0.05, * p<0.1

Table 9: **Parameter Values Set Exogenously**

Parameter		Values	
γ	Disutility from work	3	Existing literature
ϵ	Elasticity b/w goods and services	0.01	Existing literature
ω	Share b/w goods and childcare services	0.7	Data (ENIGH)
ψ	Share b/w childcare market and childcare home	0.55	Data (ENIGH)
p_m	Price of market childcare	0.12	Data (ENIGH)
T_c	Units of childcare require per week	35	
$\overline{h}$	Minimum number of hours worked formal	42	Data (ENOE)
B	Home sector productivity	1	

Notes: This table reports the parameter values. Elasticity between goods and services is from Ngai & Petrongolo (2017). The price of childcare, p_m, is calculated as the percentage of total income allocated to market-based childcare. National Survey of Household Income and Expenditure (ENIGH), Mexico's Quarterly Labor Force Survey (ENOE).

Table 10: **Moments targeted in the Estimation**

	Data	Model
change in hours worked	0.097	0.010
share of formal employment	0.48	0.46
mean hours worked in market (formal)	43.339	42.121
mean hours worked in market (informal)	32.938	32.852
standard deviation hours worked in market (formal)	11.260	5.529
standard deviation hours worked in market (informal)	18.640	8.4359
mean log wages (formal sector)	40.677	39.941
mean log wages (informal sector)	30.208	32.019
standard deviation log wages (formal sector)	31.078	19.329
standard deviation log wages (informal sector)	28.079	9.546

Notes: This table reports the moments targeted in the estimation and their values in the data and in the model.

Table 11: **Parameter Estimates**

Parameter		Estimate
σ	Elasticity b/w childcare market and childcare home	1.87
μ_{z_F}	mean value formal sector	3.3491
μ_{z_I}	mean value informal sector	3.2549
$\sigma^2_{z_F}$	variance	0.7527
$\sigma^2_{z_I}$	variance	0.6764
k	shape parameter	3.6143
θ	scale parameter	0.0123
ρ_{z_F,ν_u}	correlation between productivity drawn (formal) and preference	-0.8056
ρ_{z_I,ν_u}	correlation between productivity drawn (informal) and preference	0.3939

Notes: This table reports the estimated parameters.

Table 12: **Quantitative analysis**

	changes in $\overline{h}$	changes in T_g
Share of informal employment	− 16.67	− 3.70
Weekly hours worked (formal)	− 5.69	− 2.8
Weekly hours worked (informal)	1.78	− 20.58
Wages (formal)	9.84	− 1.34
Wages (informal)	4.78	11.01
Change in welfare (utility)	1.2	9.2

Notes: This table reports the quantitative results of women's choices between the informal and formal sectors. All changes are expressed in percentage terms. Flexibility in the Formal Sector (changes in $\overline{h}$), Childcare Availability (changes in T_g).

A Additional Figures and Tables

Figure A1: **Labor market: self-employed**

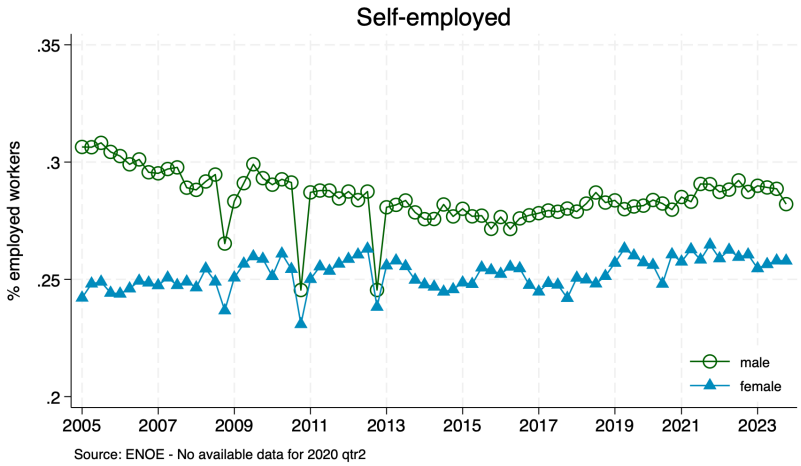
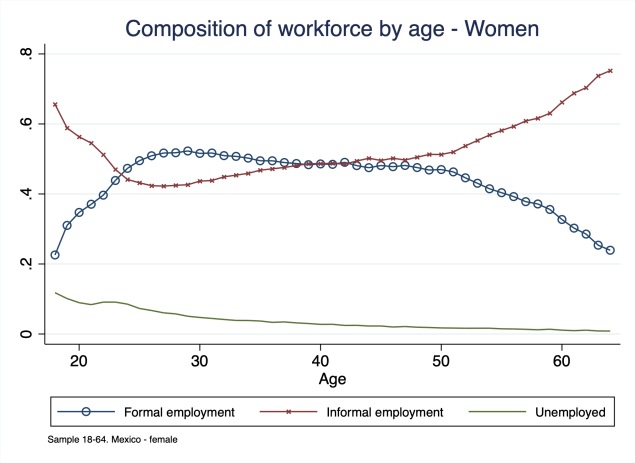
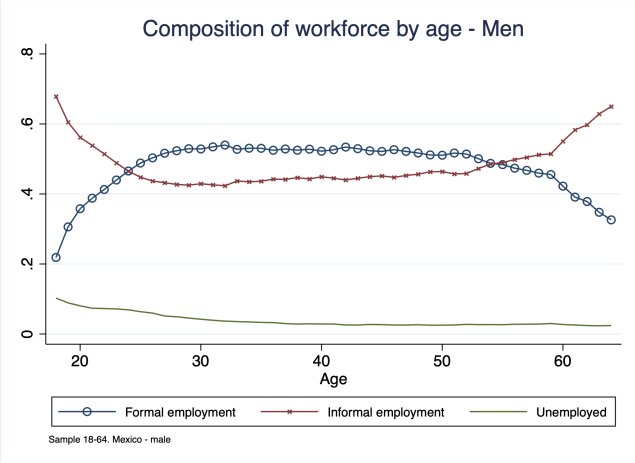
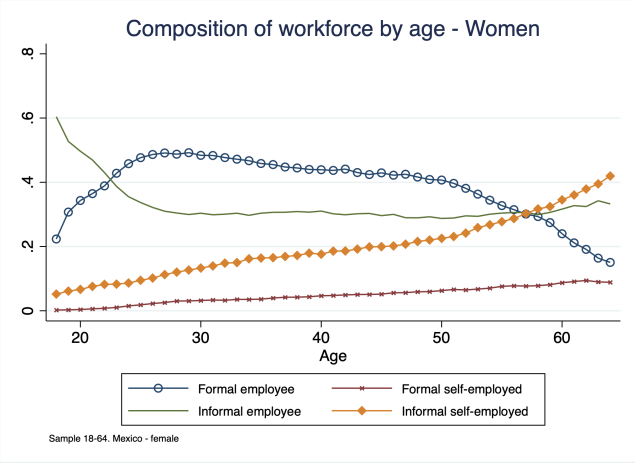


Figure A2: **Composition of Workforce in Mexico**







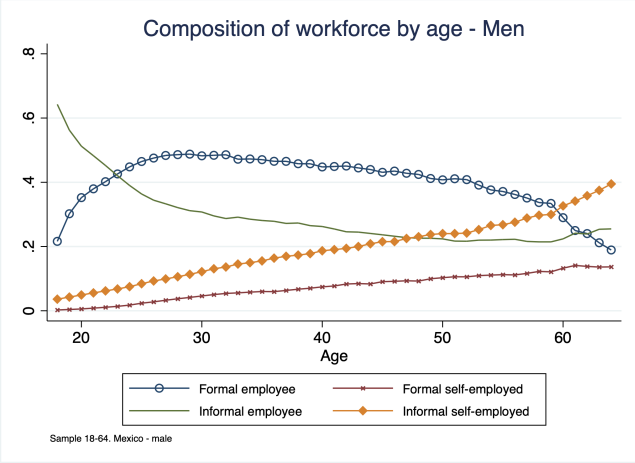
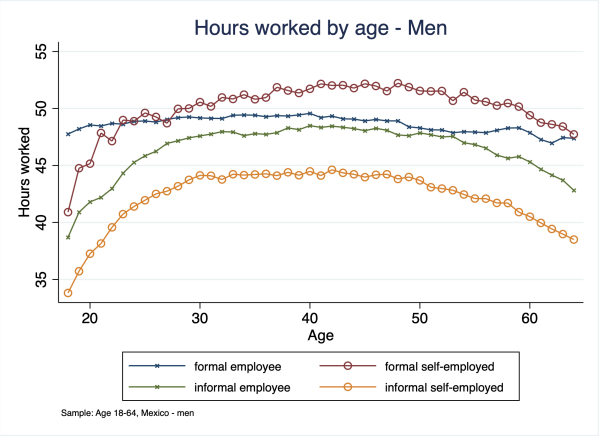


Figure A3: **Composition of Workforce in Mexico (self-employed)**



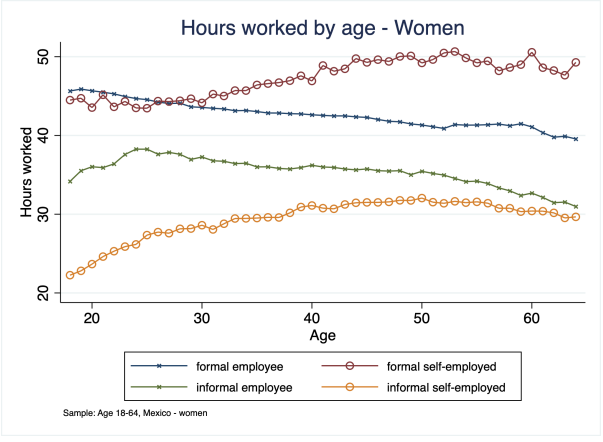


Figure A4: **Hours worked (self-employed)**

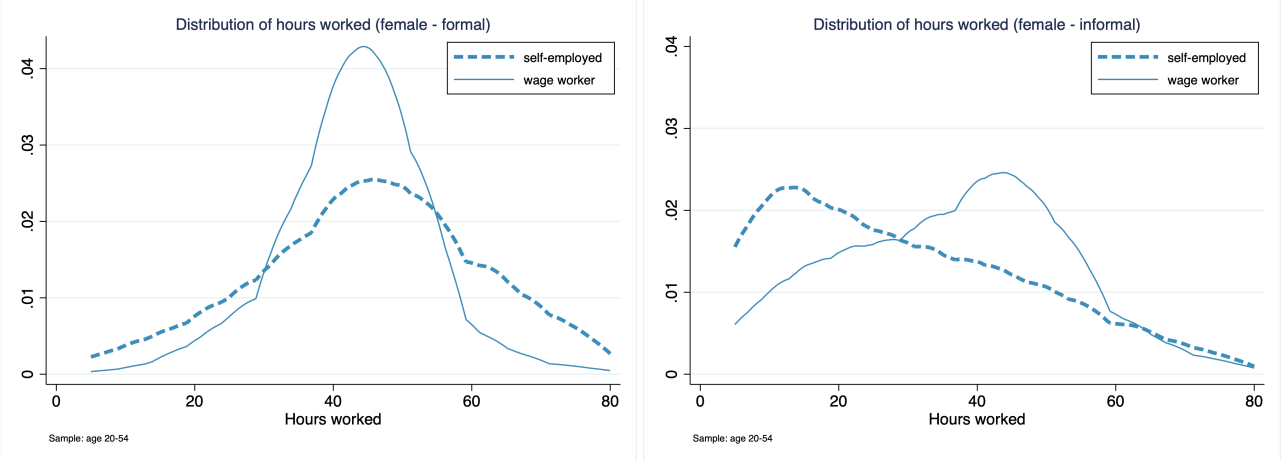


Figure A5: **Hours worked in Mexico**

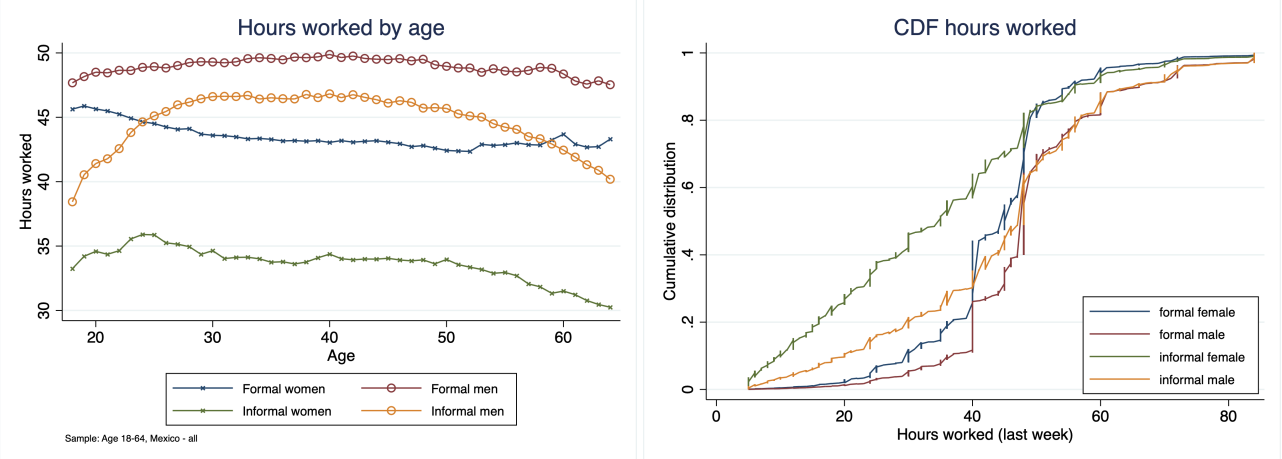
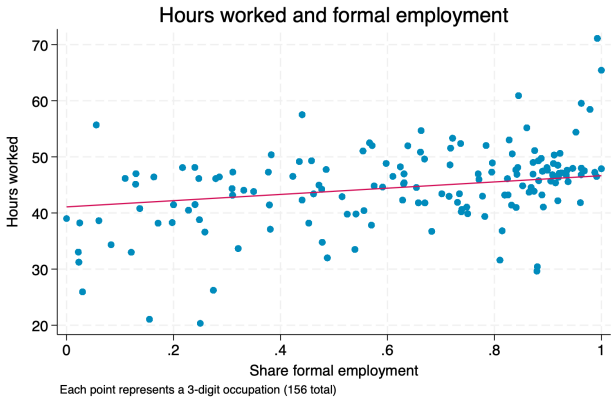


Figure A6: **Occupations and hours worked**



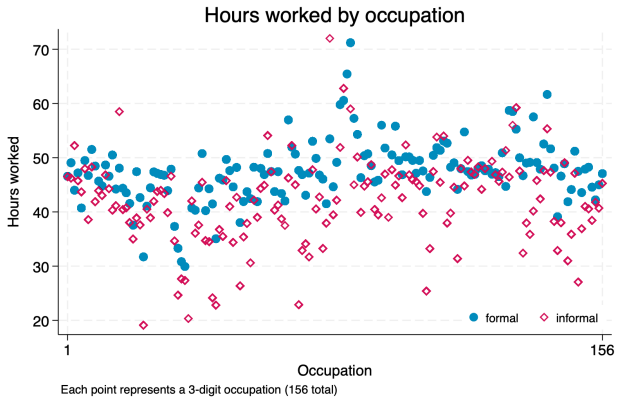


Table A1: Labor Market Descriptive Statistics for Men and Women in Mexico

	N	Male	Female	Diff.	t-stat
Employed	196283	0.869	0.572	0.297***	153.916
Formal (employed)	139907	0.546	0.515	0.031***	11.351
Self-employed	139907	0.224	0.207	0.017***	7.779
Hours of home work (last week)	196283	8.053	30.818	-22.765***	-308.773
Hours worked (last week)	133530	47.246	38.912	8.334***	96.306
Years of Education	196011	10.951	10.960	-0.009	-0.479
Age	196283	35.730	36.173	-0.443***	-9.707
Married/living with a partner	196283	0.617	0.623	-0.006**	-2.722
# of children under 18 in hhold	196283	1.210	1.368	-0.158***	-27.981
# of children under 6 in hhold	196283	0.379	0.428	-0.050***	-16.333
Observations	196283				

Notes: Reporting descriptive statistics for Mexico in 2020 Q1. The sample includes all individuals aged 20-54.

Table A2: Formal and Informal Employment in Mexico

	N	Informal	Formal	Diff.	t-stat
Hours of home work (last week)	139907	16.565	14.364	2.201***	25.959
Hours worked (last week)	133530	40.655	46.501	-5.846***	-67.186
Self-employed	139907	0.343	0.106	0.237***	112.232
Female	139907	0.437	0.407	0.030***	11.351
Years of Education	139709	9.697	12.482	-2.784***	-136.951
Age	139907	36.441	36.631	-0.191***	-3.654
Married/living with a partner	139907	0.621	0.614	0.007**	2.767
# of children under 18 in hhold	139907	1.378	1.185	0.193***	29.124
# of children under 6 in hhold	139907	0.416	0.362	0.055***	15.451
Observations	139907				

Notes: Reporting descriptive statistics for Mexico in 2020 Q1. The sample includes all individuals aged 20-54.