Profit-Sharing, Wages, and Worker Compensation: Evidence from Mexico

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Abstract

Policies that encourage or mandate profit-sharing between firms and workers are widespread. Yet their effect on total worker compensation remains unclear when firms can offset profit-sharing benefits by adjusting wages. This paper studies firms' incentives to adopt profit-sharing and provides new evidence on how firms adjust wages and employment in response to mandatory profit-sharing in Mexico. Leveraging longitudinal establishment data and employer-employee data, we observe that many firms circumvented mandated profit-sharing through outsourcing schemes, despite having the option to offer lower real wages. We then show that a reform that enforced profit-sharing caused newly complying establishments to only partially offset the cost of profit-sharing through real wage reductions, resulting in a 2.8% increase in average total compensation (wages + profit-sharing), with no effect on employment. These findings are consistent with a model in which labor supply is less responsive to profit-sharing than to wages: on average, one additional peso in wages attracts as many workers as three pesos in profit-sharing. Risk aversion to profit-sharing explains only 17% of workers' limited responsiveness to this benefit. Instead, it is largely explained by information frictions that prevent workers from fully incorporating profit-sharing into their labor supply decisions. Our results shed light on the mechanisms shaping the incidence of profit-sharing and, more generally, of policies mandating non-wage compensation.

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1 Introduction

Policies that require or incentivize firms to share profits with their workers are widespread across the world (OECD, 1995; PEPPER V, 2024). These range from tax exemptions for worker compensation that is tied to firms' profits to profit-sharing mandates. The motivation for such policies is often redistributive, with profit-sharing arrangements viewed as a way for workers to benefit from firm rents. However, when firms can adjust real wages downward in response to profit-sharing benefits, the impact of profit-sharing policies on total worker compensation is unclear. In such cases, profit-sharing may simply transfer profit risk from firms to employees, thereby undermining the redistributive goals of the policy. Additionally, in both policy and academic literature, profit-sharing is often considered an attractive tool for firms to enhance worker compensation because it can also encourage worker effort and improve employment stability (Weitzman, 1986; Kruse et al., 2010). In practice, however, profit-sharing adoption remains limited in the absence of government support, and evidence from countries with mandatory schemes shows that firms often seek to avoid compliance.[1]

Does profit-sharing raise the value of workers' compensation when firms can adjust wages? And why do firms often lack incentives to adopt profit-sharing in the absence of government intervention? In this paper, we address these questions by studying the circumvention and subsequent enforcement of mandatory profit-sharing in Mexico. Our analysis draws on panel data on manufacturing plants and employer-employee data covering the near universe of formal workers in Mexico. We document a phenomenon wherein establishments avoided profit-sharing obligations by outsourcing their entire workforce to entities with minimal profits. Notably, these establishments were not constrained by nominal wage rigidities and could have offered lower real wages rather than undertaking the costly process of avoiding profit-sharing. Therefore, the incentives to avoid profit-sharing are not straightforward, providing an interesting setting to study the mechanisms that drive the wage–profit-sharing tradeoff.[2] A posting model of wages and profit-sharing shows that incentives to avoid profit-sharing arise when firms face a labor supply that is less responsive to profit-sharing than to wages. In the model, this limited responsiveness may reflect either workers' risk-averse preferences, which lead them to discount uncertain profit-sharing payments, or information frictions that prevent them from fully incorporating profit-sharing in their labor decisions. Leveraging a reform that enforced profit-sharing by restricting outsourcing, we use a difference-in-differences design to estimate the effects of profit-sharing enforcement on workers' base wages, total compensation (wages plus profit-sharing), and employment. Interpreting these results through our model, and combining them with novel survey data on information frictions allows us to quantify the wage–profit-sharing tradeoff and assess the relative importance of workers' risk preferences and information frictions in shaping this tradeoff.

We begin by showing that many establishments in Mexico outsourced their entire workforce, and we link this practice to the circumvention of mandatory profit-sharing. In a survey of over 8000 manufacturing establishments, we find that 20% of the sample, representing 66% of plants with positive

[1]For anecdotal evidence of non-compliance with mandatory profit-sharing in Peru and Ecuador, see SUNAFIL (2025); FLACSO Ecuador (2008). Nimier-David et al. (2025) discuss avoidance in France. For a review of profit-sharing policies in the EU, USA, and Latin America see PEPPER V (2024); Marinakis (2000).

[2]Nearly all employees of these establishments earned well above the minimum wage, and prevailing inflation rates would have allowed to offset profit-sharing without nominal wage cuts.

outsourcing, outsourced practically *all* of their workers. These establishments, referred to as *full outsourcing establishments*, had higher levels of productivity and profits than non-outsourcing plants, but no legally hired workers.[3] We provide evidence that these establishments engaged in full outsourcing to avoid mandatory profit-sharing.[4] By law, Mexican firms with annual profits above USD 15,000 must share 10% of their profits with workers, excluding managers and directors. Thus, conditional on profits, the total profit-sharing amount is independent of a firm's number of employees, provided the firm employs at least one worker. We observe that full outsourcing plants effectively did not pay any profit-sharing. By declaring zero (non-manager) employees and outsourcing their workers to firms with zero or minimal profits, typically controlled by the parent firm, they circumvented the obligation to provide this benefit.[5] Alternative reasons for outsourcing such as within-firm wage compression and volatility in labor demand are inconsistent with full outsourcing or lack empirical support. Profit-sharing avoidance was not a motivation for the plants outsourcing less than 95% of their workers, referred to as partial outsourcing establishments. These establishments are excluded from our main analysis and examined in a companion paper Colonna (2025).

While avoiding profit-sharing may seem like a straightforward strategy to reduce labor costs, this interpretation is less evident once we account for firms' ability to adjust total compensation through both profit-sharing *and* base wages. If firms seek to lower worker compensation, why would they resort to outsourcing their entire workforce to avoid profit-sharing—a practice that involves some cost for the firm—rather than offering lower real wages? Statutory wage floors are unlikely to explain this behavior, as 98% of workers in establishments circumventing profit-sharing earned more than 1.2 times the minimum wage (Nimier-David et al., 2025). Moreover, prevailing wage inflation would have allowed firms to offset profit-sharing costs without nominal wage cuts.

Motivated by this question, we develop a stylized model that formalizes firms' incentives to avoid profit-sharing and yields empirically testable predictions. In our model, firms are subject to mandatory profit-sharing payments, which they can avoid by paying an avoidance cost. Firms post a compensation bundle of wages and profit-sharing, and face a labor supply which depends on both forms of compensation. The key insight is that incentives for profit-sharing avoidance arise when the marginal effect of expected profit-sharing on labor supply is smaller than that of wages. This allows firms that avoid profit-sharing to attract workers without fully compensating them with higher wages, thereby reducing total compensation. In this setting, highly productive firms choose to bypass profit-sharing, consistent with our empirical patterns.

We propose two factors in the model that explain workers' low sensitivity to profit-sharing, which we then evaluate empirically. One contributing factor is that workers are risk averse and value the stable income of wages relatively more than profit-sharing (Nimier-David et al., 2025). A second factor is that many workers have limited awareness or understanding of profit-sharing, which is typically less salient

[3]We show in Section 4.1 that the vast majority of outsourcing establishments were either single-establishment firms or belonged to firms where all establishments were fully outsourcing. Therefore, one should think of full outsourcing establishments as mostly belonging to full outsourcing firms.

[4]We use the term 'avoid' rather than 'evade' because this practice was legal prior to the outsourcing reform.

[5]We show that the few workers that these establishments did hire in-house were likely to be managers or directors, who are not entitled to profit-sharing benefits. We also present evidence that contracting firms in this relationship had zero profits, or profits lower than the parent firm.

and more complex to evaluate than wages. Importantly, these two factors are conceptually different. Risk aversion reflects a genuine preference for predictable wages over variable pay, whereas information frictions represent constraints that prevent workers from accurately assessing profit-sharing.

The model delivers three predictions on the effects of enforcing profit-sharing: (i) Total firm employment should not decrease, as profit-sharing does not alter the marginal cost of employment at the optimum.[6] (ii) Total compensation rises, as firms only partially offset profit-sharing with wage reductions. (iii) The *risk-adjusted value* of total compensation for workers rises only if information frictions contribute to the low responsiveness to profit-sharing. In other words, if risk aversion alone explained the low responsiveness, profit-sharing would simply imply a risk transfer from firms to workers, as higher nominal pay would merely compensate workers for the added earnings risk. Together, predictions (ii) and (iii) allow for a quantification of the contribution of risk aversion versus information frictions in explaining workers' limited responsiveness to profit-sharing.

We then exploit a reform that strengthened profit-sharing enforcement in Mexico to test the model's predictions and disentangle the roles of risk aversion and information frictions in shaping workers' responsiveness to profit-sharing. In 2021, the Mexican government passed a reform prohibiting labor outsourcing of core firm activities. As outsourcing served as a mechanism for avoiding profit-sharing obligations, this reform effectively constitutes a profit-sharing enforcement shock for full outsourcing establishments. We perform a difference-in-differences design using longitudinal establishment data, exploiting variation in exposure to the reform based on whether establishments were fully outsourcing before the policy change. The reform caused most full outsourcing establishments to insource their workers in-house and start incurring profit-sharing payments. We find no statistically significant effect on total employment (outsourced + in-house workers), in line with the first model prediction. Moreover, using social security wage data, we find that treated establishments responded to the increase in profit-sharing costs through an average reduction in real wages of approximately 1.5% relative to the control group. This result is driven by lower nominal wage *growth* among treated workers.[7] However, this wage reduction did not offset the rise in profit-sharing, and average total worker compensation, i.e. wages + profit-sharing per worker, increased by around 3% post reform. Returning to our second model prediction, these results are consistent with a labor supply that is less responsive to profit-sharing than to wages. Combining the empirical results with the model, we estimate that, on average, one peso in wages attracts as many workers as about three pesos in profit-sharing.

We empirically evaluate the role of risk aversion in explaining workers' low sensitivity to profit-sharing by estimating the impact of the reform on workers' risk-adjusted *value* of total compensation, introduced in the third model prediction. This outcome reflects that each expected peso of profit-sharing is worth less to a risk-averse worker than an equivalent peso of certain wages. We find positive

[6] The result that profit-sharing does not distort labor supply decisions has been established by Weitzman (1985) and Nimier-David et al. (2025). We show that this result also holds in imperfectly competitive labor markets. Importantly, this result holds only when the number of workers exceeds one. If production with zero workers were feasible, profit-sharing could in principle create incentives for firms to operate without employees.

[7] The average nominal wage among treated workers increased approximately 12% per year in the post reform period. On average, firms would have been able to fully offset the profit-sharing increase post-reform with lower, yet positive, nominal wage growth.

effects on the risk-adjusted value of total compensation even under conservative risk-aversion assumptions, indicating that the increase in total pay exceeded what was required to offset the additional income risk. Assuming a relative risk aversion coefficient of three, a conservative value within the range reported in the literature, the average risk-adjusted value of total compensation increased by approximately 2.3%. Within the framework of our model, this implies that risk aversion can explain only about 17% of workers' limited elasticity to profit-sharing.[8] This points to information frictions as a key contributing factor in reducing labor supply elasticity to profit-sharing. Consistent with this mechanism, total compensation increased more among firms located in local labor markets where workers were less likely to be informed about profit-sharing.[9] Meanwhile, effects on total compensation are similar across high- and low-volatility sectors, reinforcing that risk aversion is not the main driver of workers' low responsiveness to profit-sharing.

Finally, we provide direct evidence on information frictions (Jäger et al., 2023) and information processing constraints stemming from the complexity of profit-sharing schemes (Enke et al., 2024; Gabaix and Graeber, 2024), based on a self-conducted survey of 600 Mexican workers in 2025. We first document widespread misinformation and show that it influences labor supply decisions. In our sample, 20% of workers are unaware of profit-sharing altogether. Among those who know of the benefit, 83% report never having considered profit-sharing when choosing their current job, primarily due to insufficient information.[10] Even among those offered profit-sharing, 66% report not having considered it and 83% say their firm gave them no information on profit-sharing during the hiring process. We then show that information-processing constraints also reduce workers' attention to profit-sharing through a hypothetical job-offers experiment. Respondents repeatedly rank job offers that vary in both wages and profit-sharing. We vary profit-sharing complexity across rankings: in the low-complexity scenario, the amount is given directly; in the high-complexity scenario, it must be calculated by the respondent. Results show that when profit-sharing is complex, individuals place less weight on it when ranking job offers. Taken together, our survey evidence shows that misinformation about profit-sharing is widespread and, along with information processing constraints, lowers workers' responsiveness to profit-sharing.

Overall, our results show that profit-sharing policies can raise the (risk-adjusted) value of workers' total compensation without distorting firm employment even when firms retain the ability to adjust wages, precisely because the complexity and low salience of this benefit prevent workers from fully internalizing its value when assessing job offers. However, these informational frictions and worker risk aversion also help explain why firms may not adopt profit-sharing without government support and careful enforcement. More broadly, our findings offer two insights for understanding the circumvention and enforcement of non-wage benefits that, while valued by workers, are less salient or harder to understand than wages, such as health insurance or pension contributions (Chetty et al., 2014; Handel and Kolstad, 2015; Ouimet and Tate, 2023). First, when enforcement of non-wage benefits is weak,

[8] As argued in Weitzman (1986), profit-sharing can *reduce* workers' income risk by lowering the likelihood of layoff. While we do not incorporate this channel in our estimation, accounting for it would imply a lower role of risk aversion in explaining workers' low responsiveness to profit-sharing.

[9] We proxy the level of misinformation in a local labor market using the share of workers receiving profit-sharing in 2018 Census data, under the assumption that exposure to profit-sharing improves knowledge about the benefit.

[10] Workers were also asked whether other factors, including profit-sharing risk, mistrust in employers, or the lump-sum annual payment discouraged them from considering the benefit. Lack of information was most frequently cited.

firms are likely to adjust total compensation disproportionately by cutting less salient benefits rather than wages. This mechanism may help explain firms' incentives to avoid such benefits, for example, by hiring workers informally.[11] Second, policies enforcing or mandating non-wage benefits can raise workers' total compensation even in settings where wage adjustments are possible, if information frictions among workers limit firms' incentives to fully offset these benefits with wage reductions.

This project contributes to two main strands of literature. First, it relates to the literature on profit-sharing arrangements. Early theoretical work by Weitzman (1985, 1986) showed that profit-sharing schemes could present an effective way to combat unemployment and stagflation. A large empirical literature documents correlations between profit-sharing or related policies such as stock options and firm or worker outcomes (Blanchflower and Oswald, 1988; Cahuc and Dormont, 1997; Blasi et al., 2008; Kruse et al., 2008; Long and Fang, 2012; Kim and Ouimet, 2014). Studies exploiting quasi-exogenous variation remain scarce. Knez and Simester (2001) exploit variation in outsourcing across airports to study a firm-wide performance-based scheme at Continental Airlines, though they do not examine worker compensation. More recently, Nimier-David et al. (2025) study mandatory profit-sharing in France. They find profit-sharing increased total worker compensation for low-skilled workers due to a binding minimum wage. We complement their findings by showing that imperfect substitution between profit-sharing and wages persists in settings without institutional constraints that prevent wage adjustments. Furthermore, to our knowledge, we provide the first evidence for the theoretical result that profit-sharing does not distort firms' employment decisions.

By examining how firms and workers tradeoff profit-sharing compensation and wages, this study also contributes to the broader literature on non-wage compensation (Mas, 2025). The theory of compensating differentials states that in competitive labor markets, firms offering greater non-wage benefits should offset them with lower wages (Rosen, 1986; Summers, 1989). Much of the work assessing this hypothesis relies on observed worker transitions across firms (Sorkin, 2018). Few studies leverage quasi-experimental variation in wages or non-wage benefits (Dube et al., 2022; Lagos, 2022; Wissmann, 2022). These studies either do not assess the factors determining the tradeoff between different forms of compensation, or focus on the role of worker preferences. A related strand of research examines how worker preferences for non-wage benefits shape labor supply decisions (Mas and Pallais, 2017; Wiswall and Zafar, 2018; Maestas et al., 2023), but largely abstracts from differences in information frictions between wages and non-wage benefits. We contribute to this literature in two ways. First, we leverage within-firm variation in a form of non-wage compensation—mandatory profit-sharing—induced by a policy change to show that firms do (partially) compensate for the increase in this benefit via lower wages. Second, we show that not only preferences but also information frictions shape individuals' responses to non-wage benefits relative to wages, and thus influence firms' provision of these benefits.[12]

A contemporaneous study by Estefan et al. (2024) studies the same Mexican outsourcing reform as this paper. The authors show that the outsourcing reform reduced markdowns and increased

[11] Theories of voluntary informality suggest that workers may prefer contracts with higher wages and no benefits (Maloney, 2004; Levy, 2008). Conversely, workers may underestimate the value of a formal contract because they are *unaware* of the non-salient benefits of formal employment.

[12] If information frictions are stronger for profit-sharing than for wages, the wage–profit-sharing mix may not be chosen optimally. This contrasts with Dube et al. (2022) and Lagos (2022), where firms optimally choose the mix of wages and amenities because differences in elasticities arise from preferences rather than frictions.

worker compensation without employment effects. Casco et al. (2024) also examine the effect of the outsourcing restriction on worker wages and employment using social security data, but they do not measure nor study profit-sharing. Our paper differs by exploiting the reform to study how firms and workers tradeoff wages and profit-sharing. Empirically, we distinguish between full and partial outsourcing practices, a distinction that is crucial for understanding firms' outsourcing motives; and we estimate effects on wages and profit-sharing separately. More broadly, our empirical and theoretical analysis examines *why* firms avoid mandatory profit-sharing and the effects of enforcing this benefit in a setting where firms can also adjust wages.

The rest of the paper is structured as follows. Section 2 describes institutional context. Section 3 presents the data and details on measurement. Section 4 presents evidence on the use of outsourcing to avoid profit-sharing. In Section 5 we present a theoretical framework. Section 6 describes the effects of the outsourcing reform that enforced profit-sharing. Section 7 presents the survey evidence on information frictions. Section 8 concludes.

2 Institutional setting

2.1 Profit-sharing in Mexico

Profit-sharing (or PTU, from its name in Spanish: Participación de los Trabajadores en las Utilidades) in Mexico has been mandated by the Mexican Constitution and regulated by the Federal Labor Law (Ley Federal del Trabajo) since 1962 (LFT, 2021). Firms with annual profits exceeding 15,000 USD (300,000 Mexican pesos) are required to distribute 10% of pre-tax profits among all permanent employees, excluding directors and managers, as well as temporary employees who have worked more than 60 days during the fiscal year. Firms above the profit threshold that are exempt from profit-sharing include newly created firms in their first year of operations,[13] newly established extractive firms during the exploration period, NGOs, and public institutions (Gobierno de México, 2023). Profit-sharing from a given fiscal year must be paid to workers by May 30 of the following year.

Within each firm, the total amount of profit-sharing to be distributed is divided into two parts: 50% is allocated equally across all eligible workers, and the remaining 50% is distributed in proportion to workers' annual wages (Gobierno de México, 2023). Thus, lower-paid workers receive smaller profit-sharing amounts in absolute terms but larger amounts relative to their base salaries. Additionally, profit-sharing income up to 15 days of the minimum wage is exempt from income tax, and in most states, it is also exempt from payroll tax (AMCPDH, 2023). The profit base used to calculate profit-sharing corresponds to the corporate tax base, with two exceptions: profit-sharing payments are not deductible (although they can be deducted from declared profits for corporate tax purposes), and losses from the previous fiscal year cannot be carried forward. Investment expenses are deductible from the profit-sharing base.[14]

[13] Up to the second year of activity for firms dedicated to the production of a new product.

[14] Corporate tax declarations for a given year must be filed by the end of March of the following year. According to the Federal Labor Law, employers must share a copy of the corporate income tax statement with workers, as it contains information on the base used to calculate profit-sharing. Workers may submit objections regarding this statement to the Ministry of Finance.

Similar mandatory profit-sharing schemes exist in France, Peru, Ecuador, and Chile, though with different eligibility rules and amounts (Nimier-David et al., 2025; Gob Peru, 2023; EcuadorLegal, 2023).[15] In addition, many countries in the European Union, as well as Brazil and Canada, among others, offer tax incentives to encourage firms to share profits with workers (OECD, 1995; Marinakis, 2000; PEPPER V, 2024).

2.2 The outsourcing reform

Outsourcing in Mexico is also regulated by the Federal Labor Law (LFT, 2021). Before 2021, establishments were permitted to outsource both specialized services and core business activities. Mexico had seen a significant rise in domestic outsourcing in the past 20 years, from 6% of the labor force in 2004 to over 15% in 2019 (Banco de Mexico, 2021). This rise coincided with growing concerns that outsourcing was being used as a means for firms to circumvent labor regulations and reduce worker benefits, including profit-sharing (López-Chávez and Velázquez-Orihuela, 2021).

The first proposal for an outsourcing reform was presented in November 2020. The final version of the reform was approved in April 2021. Firms had until July 2021 to adapt to the main changes, and some fiscal measures came into effect on September 2021. The main changes implemented were (1) The outsourcing of workers for core activities of the firm was prohibited.[16] (2) All employment agencies must register in a new registry of the Ministry of Labor (REPSE), for which they must comply with certain labor regulations. (3) Three times per year, employment agencies must send detailed information to the Ministry of Labor on all the outsourcing contracts which took place during that period (LFT, 2021). Strict penalties including large fines and prison terms of up to three years were introduced for firms not abiding by the new law.

3 Data and Measurement

This section describes the main datasets and measurement details for the empirical analysis. A key component is the measurement of outsourcing, as this was the labor arrangement firms employed to bypass mandatory profit-sharing requirements. We refer to three actors in an outsourcing relationship. The lead firm (or parent firm) is the firm that contracts out labor to a contracting firm, which is a different legal entity. The workers are supervised by and work at the premises of the lead firm, while being officially hired by the contracting firm (OECD, 2021). Figure A.1 shows a schematic graph of these three actors and the relationships between them.

[15]In France, firms with more than 50 employees must share 50% of excess profits with workers. In Peru, firms above a profit threshold and employing more than 20 workers must distribute a fraction of profits, which varies by sector. In Ecuador, all firms with positive profits must distribute 15% of profits to employees. In Chile, mandatory profit-sharing is capped at 4.75 times the minimum wage.

[16]The core activity of a firm was defined as the activities included in the company's objects clause (*objeto social*) (LFT (2021), art. 13).

3.1 Main datasets

The main datasets used in this project can be divided into two blocks. Each block allows us to measure different outcomes, and the method for identifying outsourcing differs across them. The datasets in each block are accessed through different institutions in Mexico and cannot be linked using firm or worker identifiers. We therefore complement the information available in each dataset for our analysis.

Establishment level data. The first block includes two establishment-level datasets accessed through Mexico's National Institute for Statistics and Geography (INEGI). These datasets can be linked at the establishment level.

Monthly manufacturing establishment survey (EMIM): Our main dataset to measure establishment-level outcomes over time is the monthly survey of manufacturing establishments (Encuesta Mensual de la Industria Manufacturera, or EMIM). This is a monthly plant-level panel dataset from 2017 to 2024. It covers monthly information on employment, wage bills, production, revenues, and variable costs. The same establishments are surveyed each month, forming a panel dataset. The survey design is primarily deterministic. For most sectors (NAICS 6-digits), the sampling proceeds by first ranking establishments within each 6-digit industry nationally by revenue. Establishments are then included in order until some threshold level of national revenue, from 60% to 85%, depending on the industry, is captured by the survey. For a minority of sectors, establishments are selected via a stratified random sampling approach, where establishments are stratified according to their size. Establishments from the largest stratum as selected with certainty, while the selection is random within the other strata (INEGI, 2015, 2023). Thus, in practice the survey is similar to a census of large Mexican plants.

Importantly, this survey includes information on the number of employees hired in-house and the number of employees hired through other firms (*personal suministrado por otra razón social*), allowing us to measure outsourcing at the establishment level. Additionally, establishments report monthly information on profit-sharing, wages, and payments made to contracting firms. Nominal variables are deflated using Banco de México's CPI, with 2019 as the base year.

We work with a balanced panel of 8065 establishments, as the data do not distinguish between establishments that exit the survey because they went out of business, and those that exit because they are no longer part of the sample.[17] Appendix C.2 shows that exit patterns do not change around the time of the reform.

Economic Census 2019: The Economic Census is a plant-level dataset covering the universe of business establishments in Mexico in 2018.[18] It provides more detailed establishment-level information than the manufacturing survey, including sales, value added, profits, investment, capital, firm identifiers, and other characteristics. We merge the Census with the EMIM at the establishment level to enrich the characterization of establishments included in the EMIM sample, rather than using the Census sample directly in the analysis.

Both these datasets allow us to identify and characterize parent firms in an outsourcing relationship. However, they do not provide any information on the contracting firm. More importantly, these

[17] Unfortunately, the data office in charge of the EMIM was not able to give us information on the reasons why each establishment exited the sample.

[18] The Census is published in 2019, but data collection occurred in 2018.

datasets do not contain information specifically on the wages of outsourced workers, which is a key outcome variable in our analysis (more details on this issue are provided in Section 6.1). The datasets only record the total payments made by parent firms to contracting firms, which may include items beyond wages for outsourced workers. Therefore, we complement the establishment data with social security microdata that enable us to measure worker-level wages for both outsourced and in-house employees.

Employer - employee data. The second data block consists of an administrative social security data from the Mexican Social Security Institute (Instituto Mexicano de Seguridad Social, IMSS), accessed through the EconLab at Banco de México. This is an employer-employee dataset containing information on all formal employment relationships in the private sector. For each employer-employee pair, we have information on the establishment, firm, industry and municipality of the employer, and earnings, contract type and gender of the employee.

The information on earnings in this dataset is given by the worker's daily taxable income (*salario base de cotización*). This can include various forms of compensation such as extra hours, bonuses and commissions. It also includes the 13th salary (*aguinaldo*) and the mandatory vacation bonus (*prima vacacional*). Importantly for our analysis, it does *not* include earnings received from profit-sharing benefits.[19] Earnings are bottom coded at the minimum wage, and top coded 25 UMA's (unit of measure and update).[20] This dataset does not provide information on the number of hours or days worked per month. Nominal salaries are deflated using Banco de México's CPI, with 2019 set as the base year. Finally, in the empirical analysis we focus on workers and firms in the manufacturing sector and limit the sample to firms with more than 20 employees to align with the coverage of the EMIM data. Appendix B.1 shows that the two datasets are very similar across different observable characteristics.

In addition to the datasets described above, we incorporate three supplementary data sources to address specific aspects of our analysis. First, to investigate the role of information frictions in explaining workers' insensitivity to profit-sharing, we collected original survey data among Mexican workers. We provide more details on the survey in Section 7. Second, we use publicly available information on firm-level tax records covering 2010–2015, which contain information on declared income, costs, profits, and profit-sharing. These data are used to produce part of the descriptive evidence presented in Section 4.2.[21] Finally, to improve our understanding of our quantitative findings, we have carried out 10 structured interviews with relevant stakeholders such as experts working in the outsourcing industry in Mexico, lawyers and HR Managers from companies affected by the reform.

[19] This was clarified in July 2023 by the Social Security institute, who stated: *'employee profit-sharing (PTU) is not part of the base salary, since according to article 124 of the Federal Labor Law (LFT) it is not part of the integrated salary as stated in article 84 of the LFT'* (Diario Oficial de la Federación, 2023; Deloitte México, 2023).

[20] https://en.www.inegi.org.mx/temas/uma/

[21] This dataset has been anonimized and made publicly available by the national tax office in Mexico (Servicio de Administración tributaria) http://omawww.sat.gob.mx/cifras_sat/Paginas/inicio.html.

3.2 Measurement of outsourcing

In this section, we describe the method used to measure outsourcing relationships, which differs across data blocks. In the establishment-level surveys, establishments report both the number of in-house workers and the number of outsourced workers employed during the reference month.[22] The outsourcing question specifically refers to individuals who worked at the establishment but were contractually employed by a different firm.[23] This information allows us to measure both the number and the share of outsourced workers at the establishment level.

Identifying outsourcing relationships in the social security data poses a greater challenge. When a worker is outsourced, they appear in the social security data as employees of the contracting firm, with no indication of whether they are truly working for any other firm (i.e., the parent firm in an outsourcing arrangement). Nevertheless, the substantial flow of workers caused by the reform allows us to identify insourcing events, where a lead firm absorbed a worker from a contracting firm following the reform. The technique to measure outsourcing using insourcing events builds on the methodology introduced in the seminal paper by Goldschmidt and Schmieder (2017). While that approach identifies outsourcing events through worker movements from parent firms to contracting firms, we use worker movements in the opposite direction, from contracting firms to parent firms.

Specifically, we classify a movement of workers from establishment A to establishment B as an insourcing event if it meets the following requirements: (i) the flow occurred between June and September 2021 (when the outsourcing restriction was enforced) (ii) the flow consisted of 20 employees or more *or* establishment A lost more than 40% of its workers that month (iii) establishment A and B do not belong to the same firm. This methodology allows us to identify the workers insourced during the reform, the parent establishments insourcing these workers, and the contracting firms who were previously holding these workers. The blue line in Figure 1 shows the number of workers in the social security data satisfying conditions (ii) and (iii) in each month of 2021. The shaded area represents the worker movements classified as insourcing events with additional condition (i). The figure shows a relatively low number of worker movements that met the first two conditions outside of this time frame. About 70% of the insourced workers in the shaded area were absorbed in July 2021, the last month in which firms could adapt to the reform. Additionally, 96% of workers involved in an insourcing event were insourced in blocks of more than 20 workers.

4 Full outsourcing and profit-sharing avoidance

4.1 Evidence on full outsourcing

In this section we provide evidence on full outsourcing prior to the reform. In the EMIM sample, 30% of establishments reported having positive outsourcing in the year before the reform. Figure

[22] The original questions in Spanish are: Anote el número promedio de personas que dependieron de esta razón social durante el mes de referencia and Anote el número promedio de personas que no dependieron de esta razón social que trabajaron en este establecimiento durante el mes de referencia.

[23] The contracting firm is a distinct legal entity and does not include workers from other establishments of the same firm.

2 displays the distribution of the average share of workers outsourced among establishments with positive outsourcing. Notably, there is a mass of observations with *all* workers outsourced, while there is a smaller mass at lower levels of outsourcing. In particular, 2/3 of establishments using outsourcing were outsourcing more than 95% of their workers.[24] This group covered 89% of outsourced workers pre-reform. In the Economics Census data, covering all firms in Mexico, we observe similar patterns: 78% of establishments using outsourcing, were outsourcing over 95% of their workforce. Workers in full outsourcing arrangements represented around 6% of the labor force (formal and informal).[25]

In the social security data, we classify an establishment as full outsourcing if it insourced at least 5 workers around the reform (according to the conditions stated in Section 3.2) *and* the establishment was not previously identified in the social security data before the reform,[26] or if the firm size increased more than 20-fold following the insourcing event. 66% of the insourcing plants are classified as full outsourcing. Most of these establishments had *never* appeared in the social security data since 2004 (the earliest year where we have data). These statistics are very much in line with those found with the EMIM data. Figure B.1 in the Appendix shows that the sectoral distribution of full outsourcing establishments identified in EMIM and IMSS data look very similar across both datasets.

Given these distinctive patterns in the use of outsourcing, we divide the establishments with positive outsourcing into two groups:

- *Full outsourcing establishments:* These are establishments that outsourced more than 95% of their workers for at least one month in the year before the reform.

- *Partial outsourcing establishments:* These are establishments that had positive outsourcing for at least one month in the year before the reform, but outsourced less than 95% of their workers.

In our EMIM dataset, 1629 establishments are classified as *full outsourcing*, 855 as *partial outsourcing* and 5581 did not use outsourcing, and are classified as control. In the following sections, we present evidence that full outsourcing was a practice adopted by firms to avoid providing workers with profit-sharing, whereas this mechanism does not apply to partial outsourcing. Since this paper focuses on profit-sharing avoidance, our analysis concentrates on establishments engaging in full outsourcing. The motives behind partial outsourcing, as well as the effects of the reform on this group, are examined in detail in a companion paper Colonna (2025).

We choose the 95% cutoff, rather than 100% because there is a non-negligible mass of firms outsourcing a very high proportion (but not all) of their workers. In addition, Figure 3 shows that for establishments outsourcing between 95% and 100% of their employees , the relative wages of in-house workers vs outsourced workers are much higher than for the rest of the establishments. Therefore these establishments were hiring relatively very high wage workers in-house, which are probably the owners

[24]While Figure 2 is computed for observations between 2020 and 2021, there is considerable persistence in the outsourcing patterns across time. Table A.1 shows a transition matrix for the use of outsourcing between 2017 and 2020, where we aggregate the data at the yearly level. We can see that if an establishment was outsourcing more than 95% of it's workers in a given year, the likelihood that it was doing so in the following year was 97%.

[25]According to the Economic Census, fewer than 3% of establishments with under 50 workers are classified as full outsourcing, compared to roughly 25% among those with more than 50 workers. Thus, while the EMIM overrepresents larger establishments, it captures the group most relevant for analyzing profit-sharing avoidance.

[26]Firms with no employees obviously do not appear in the social security data because they have no workers to report.

or high-level managers of the company. As these worker are exempt from profit-sharing payments, firms holding only managers and directors can still avoid profit-sharing.[27]

We focus on establishment level outcomes in this paper because in the manufacturing survey we cannot observe outcomes at the firm level. In the social security data, we can identity multi-establishment firms, which we define as establishments which share the same tax-id (*Registro Federal de Contribuyentes, RFC*). 59% of outsourcing establishments belong to single-establishment firms. Moreover, only 6% of firms where one establishment outsourced all workers had an establishment that was not outsourcing all workers before the reform.[28] Therefore, for the vast majority (97%) of the cases, one should think of full outsourcing establishments as belonging to full outsourcing firms.

The most defining features of full outsourcing establishments are that they are large, productive, with high profits. Table 1 shows that full outsourcing establishments tend to have more workers, and are more likely to belong to foreign owned firms. On average full outsourcing establishments have higher profits and value added per worker. Figure B.1 shows the distribution of full outsourcing practices across sectors. Sectors where the practice was particularly frequent include Petroleum and coal product manufacturing, Chemical manufacturing, and Beverage and tobacco product manufacturing.

4.2 Evidence on profit-sharing avoidance

In this section, we provide evidence consistent with the fact that the main reason behind full outsourcing practices is the circumvention of mandatory profit-sharing. As outlined in Section 2.1, the Mexican Constitution and the Federal Labor Law (Ley Federal del Trabajo) (LFT, 2021) require that virtually all firms with annual profits exceeding 15,000 USD distribute 10% of their profits among nearly all employees, excluding directors and managers. Importantly, total profit-sharing costs depend directly on firm profits rather than the number of employees. Thus, conditional on profits, total profit-sharing costs are independent of a firm's number of employees, provided the firm employs at least one worker.[29] Therefore, firms can avoid this obligation by maintaining no registered employees (or only managers) and outsourcing their workforce to an entity with little or no taxable profit. This mechanism helps explain why many establishments had incentives to outsource their entire workforce. It also clarifies the pattern in Figure 3 described in the previous section, where establishments outsourcing *almost* all of their workers retained only high-wage employees in-house. These in-house workers were likely managers or executives exempt from profit-sharing benefits. Below, we present various lines of evidence indicating that establishments engaged in full outsourcing to avoid profit-sharing obligations.

Figure 4 shows average monthly profit-sharing per worker (profit-sharing / total workers) in thousands of Mexican Pesos recorded in EMIM for each group of establishments. In May of each year, the month when profit-sharing should be distributed by law, both control and partial outsourcing

[27] Slightly changing the value this cutoff does not affect our results.

[28] In 17% of these firms, the establishment not outsourcing had less than 20 employees with exceptionally high wages, likely indicating managerial roles. Among the remaining 83%, non-outsourcing establishments tended to have a notably high proportion of temporary workers (16% on average, compared to the sample average of 5%), who are not eligible for profit-sharing.

[29] For example, consider two firms with identical profits, where one outsources 50% of its workforce and the other outsources none. Both firms must distribute the same total amount of profit-sharing, but in the first case each remaining in-house worker receives a higher individual payment.

establishments feature positive profit-sharing, while full outsourcing establishments do not pay this contribution. This graph underscores the necessity for outsourcing *all* workers to circumvent profit-sharing contributions, as partial outsourcing establishments display similar profit-sharing patterns to the control group.[30]

Figure A.2 presents additional evidence using firm tax declaration data from 2010–2015. We group firms into 10 categories based on average declared profits over this period. The blue line shows the share of firms in each group that reported zero profit-sharing for *some*, but not all, years. As expected, low-profit firms are more likely to report zero profit-sharing intermittently, as they may fall below the 15.000 USD profit threshold. In contrast, the red line shows a U-shaped pattern for firms reporting zero profit-sharing *every* year: both low and high profit firms are more likely to consistently report zero profit-sharing. As shown in Figure A.3, full outsourcing is more common among high-profit firms. Thus, while outsourcing cannot be directly observed in tax data, it is likely that high-profit firms with no reported profit-sharing are full outsourcing establishments.

Demonstrating that contracting firms exhibited zero or low profits is more challenging because we lack linked firm-to-firm data to establish this directly. Nevertheless, we present evidence to support this notion. According to the 2019 Economic Census, 64% of full outsourcing establishments were outsourcing to firms that were subsidiaries of the leading establishment (albeit a different legal entity). Additionally, social security data indicates that over 50% of contracting firms in a full outsourcing relationship had all their workers insourced by a single parent firm during the reform and over 70% had their workers insourced by at most three parent firms. This evidence strongly suggests that profits of contracting firms were often determined by the parent company, which had incentives to keep them null or low. Additionally, following the implementation of outsourcing reform, 77% of contracting firms exited the social security data completely. This suggests that these contracting firms did not engage in any economic activity beyond providing workers to lead firms. Furthermore, any profits accrued by the contracting firms would be included in the payments to contracting firms reported by the full outsourcing establishments in EMIM. In Appendix C.3, we use this information to perform a bounds analysis showing that it is highly unlikely that the profits of the contracting firm were nearly as high as those of the parent firm.

Finally, this motive for outsourcing was mentioned frequently in media outlets[31] and was mentioned in all of the interviews we carried out with experts who worked in the outsourcing industry, and HR managers from firms who used outsourcing before the reform.

4.3 Alternative reasons for full outsourcing

In this section we explore alternative explanations, apart from profit-sharing avoidance, that could potentially justify full outsourcing. We provide empirical evidence and assess the incentives created by the institutional context to show that these alternative reasons are unlikely to be significant drivers behind firms' decisions to fully outsource their workforce.

[30] We confirmed with the INEGI department in charge of administering the survey that fully outsourcing establishments are asked about their profit-sharing contributions and can technically report a positive value even if all workers are outsourced.

[31] Examples of articles where this was mentioned are Infobae (2019); Comunicado STPS (2021).

Volatility. We show that our empirical evidence is not consistent with the use of full outsourcing as a mechanism to reduce adjustment costs in response to temporary shocks in labor demand. Columns 1 to 4 of Table A.2 show that full outsourcing establishments are not more likely to belong to sectors with high seasonality.[32]. Columns 5-7 present the results of a regression of establishments' within year employment volatility for the pre-reform period on a binary indicator for full outsourcing. The results show that these establishments do not exhibit higher volatility in their employment levels.[33] This outsourcing motive among partial outsourcing establishments is analyzed in detail in a companion paper Colonna (2025).

Within-firm wage compression. A potential incentive for outsourcing discussed in the literature is that it may allow firms to offer lower wages, particularly when within-firm equity concerns exist (Goldschmidt and Schmieder, 2017). However, this motivation would typically justify outsourcing only a specific segment of the workforce rather than all employees.

Specialization. We posit that full outsourcing is unlikely to be driven by an increase in firm specialization and economies of scale. While outsourcing can enable firms to focus on core tasks by delegating non-core activities to external providers, this motive assumes that firms retain direct employment of workers for their core operations which they specialize in (Abraham and Taylor, 1996). In contrast, fully outsourced firms do not hire *any* workers in-house. Thus, while specialization would justify outsourcing non-core tasks such as IT, human resources, cleaning or security, it cannot rationalize the outsourcing of an entire plant's workforce.

Avoidance of other mandatory contributions. Media and policy discussions in Mexico have suggested that outsourcing allowed firms to reduce other mandatory contributions beyond profit-sharing (STPS, 2021). One such contribution is the mandatory labor risk premium (INFOAVIT, 2022), a social security contribution based on a firm's sectoral risk classification and accident history. It was suggested that firms in high-risk sectors outsourced workers to avoid paying high premiums. For this explanation to hold, high-risk firms would need to outsource to entities with lower risk classifications. However, we do not find a consistent trend of outsourcing to lower risk classification firms among full outsourcing establishment. Specifically, 67% of full outsourcing establishments subcontracted to entities within the same risk classification, 19% to lower-risk ones, and 13% to higher-risk ones. Thus, while outsourcing to lower-risk establishments was present it does not appear to have been a predominant motive.

Additionally, outsourcing was claimed to help firms underreport wages and avoid 13th salary payments. If these were significant reasons for full outsourcing, we would expect an increase in declared earnings in social security records when workers were insourced during the reform. As detailed below, this is not in line with our evidence. Moreover, underreporting is often reflected in wage bunching

[32]To compute sector seasonality, we carry out an additive time-series decomposition using moving averages (the same decomposition used for de-trending, but at the sectoral level) and extract the seasonal component of this decomposition. The seasonality for the variable x is calculated as the average absolute value of the seasonal component, divided by the average of x for 2017-19.

[33]Employment volatility is calculated as the within-year coefficient of variation of de-trended employment. To de-trend variables we carry out an additive time-series decomposition using moving averages, where each variable is decomposed into a trend component, a seasonal component and an irregular component at the establishment level (using the *stats* package in R). De-trended variables are constructed as the original variable minus the trend component.

at regulatory thresholds (Feinmann et al., 2025). In Mexico's social security system, the relevant thresholds before 2020 were the minimum wage and 25 times Mexico's Unit of Measure and Update (UMA). Because reported wages in IMSS are capped at 25 UMA, we focus on bunching at the minimum wage. Specifically, we compare the share of workers earning exactly the minimum wage among those with earnings just above it (below 1.2 times the minimum wage) in the year prior to the reform. This share was 24% for workers outsourced by fully outsourcing establishments, compared to 35% in control firms. Thus, if anything, minimum-wage bunching among low-wage workers was lower in full outsourcing firms. Taken together, this evidence strongly suggests that wage underreporting was not a primary motive for full outsourcing.

Thus, while we cannot definitively reject all alternative explanations for full outsourcing, our evidence strongly suggests that some of the main alternative motivations for this phenomenon were not playing an important role in our setting. Furthermore, in the following section we show evidence consistent with the notion that firms carrying out full outsourcing were those which benefited the most from avoiding profit-sharing obligations.

4.4 Incentives for profit-sharing avoidance

In this section, we argue that the consequences and incentives for profit-sharing avoidance are not straightforward once we account for firms' ability to adjust total compensation through both profit-sharing and wages. While avoiding profit-sharing lowers profit-sharing benefits, it is not evident that this practice reduces total worker compensation (wages + profit-sharing). If firms fully offset profit-sharing cuts with higher wages, bypassing profit-sharing would merely change the composition of pay without affecting total expected earnings (Rosen, 1986). Moreover, even if profit-sharing avoidance did allow firms to reduce total compensation, it is unclear why they would choose this approach—which entails additional costs, including the forgone preferential tax treatment of profit-sharing income, the costs of establishing or coordinating with a contracting firm, conducting extra transactions between firms, and filing separate tax declarations (if the contracting firm is a subsidiary)—instead of simply offering lower real wages.

Firms would have an incentive to bypass profit-sharing obligations only if they cannot substitute profit-sharing costs with lower wages. One explanation for this imperfect substitution, put forward by Nimier-David et al. (2025), is a binding minimum wage, which limits how much firms can reduce total compensation via wages. However, this does not seem to be the case in our setting. Table 4 shows that full outsourcing firms paid relatively high wages: 98% of workers at these firms earned more than 1.2 times the minimum wage in 2020 (94% earned over 1.5 times the minimum wage), and in over half of full outsourcing establishments, all workers earned more than 1.2 times the minimum wage.[34]

While firms may be reluctant to cut nominal wages even absent institutional constraints, this concern mainly applies in the short run, since inflation allows real wages to adjust over time. In

[34] Only approximately 10% of formal workers in Mexico are covered by a collective bargaining agreement (in France it is around 98%) (OECD Statistics, 2022). Using data from Mexico's National Employment Survey, we find that only 11% of workers employed in manufacturing firms with at least 10 employees belong to a trade union. We see no significant correlation between trade union membership levels and the share of fully outsourced establishments across sectors. This suggests that wage floors set in CBAs are also unlikely to create significant downward wage rigidity.

Mexico, profit-sharing has been mandatory since 1962, and average manufacturing base wages have risen about 7% annually since 1998, suggesting firms had ample time to adapt via slower nominal wage growth. A back-of-the-envelope calculation illustrates this point for full outsourcing establishments: Between 2016 and 2019, average nominal wages at these establishments grew by about 6% per year, which we take as their target compensation growth. Assuming full compliance with profit-sharing obligations, this component would have likely represented approximately 5% of annual wages (after enforcement, it averaged 4%, see Table A.3). Thus, establishments could have maintained 6% total compensation growth already in the first year of compliance by moderating wage increases.[35] We provide additional evidence that nominal wage rigidity does not constrain firms' adjustment to profit-sharing when assessing the effects of the reform in Section 6.2.4.

Overall, these patterns show that downward wage rigidity is not the main source of imperfect substitution between wages and profit-sharing. In the next section, we build a theoretical framework in which imperfect substitutability arises from the labor supply function: if workers are less responsive to profit-sharing than to wages when making employment choices, profit-sharing avoidance can reduce total compensation. In Section 6 we leverage the effect of the outsourcing restriction to demonstrate that this mechanism is consistent with our empirical results.

5 Theoretical framework

In this section, we introduce a simple theoretical framework to explain the motivations behind profit-sharing avoidance. Our framework follows a static partial equilibrium posting model in the spirit of Card et al. (2018) where monopsonistic firms offer workers bundles of wages and profit-sharing and face a labor supply that depends on both forms of compensation.[36] Firms can decide to avoid mandatory profit-sharing or not, and set worker wages in each of these cases. The model is closely related to those in Weitzman (1985); Nimier-David et al. (2025), but extends them in two ways: (i) we assume that firms face an upward-sloping labor supply curve and internalize the effect of offered profit-sharing on their labor supply, and (ii) we explicitly model how labor supply depends on profit-sharing versus wages. We set up the model and solve for firms' choice to avoid profit-sharing, jointly with what wage to offer. The full solution to the model is presented in Appendix D. We derive three predictions regarding the effects of restricting outsourcing, which guide our empirical analysis of the outsourcing reform in the next section.

5.1 Model setup

We consider a firm with productivity z_j that produces a final good in a perfectly competitive product market with a linear technology function in labor n_j. Productivity is given by $z_j = \hat{z_j} + \xi_j$ where ξ_j is a random variable with $\mathbb{E}(\xi_j) = 0$ and firms are risk-neutral. Labor supply and demand decisions

[35] In later years, profit-sharing growth would need to exceed 17% annually before nominal wage cuts became necessary to sustain the same 6% compensation growth target.

[36] This assumption is supported by a growing body of literature on monopsony in labor markets (Manning, 2004), particularly in developing countries (Felix, 2023; Estefan et al., 2024).

are made before the productivity realization. Thus, expected output for firm j is:

$$\mathbb{E}(y_j) = \mathbb{E}(z_j n_j) = \hat{z}_j n_j \tag{1}$$

There exists a level of mandatory total profit sharing which is a proportion ρ of pre-profit sharing payments profits, $\tilde{\Pi}_j$.

$$mandatory\ profit\ sharing_j = \rho\tilde{\Pi}_j = \rho(z_j n_j - w_j n_j) \tag{2}$$

Firms can pay a fixed cost k and a variable cost c to avoid mandatory profit-sharing. In our empirical setting, this includes the cost involved in outsourcing their workers to a separate entity.[37] Total worker compensation is composed of wages and profit sharing per worker, $w_j + ps_j$, where $ps_j = \rho(z_j - w_j)$ when the firm complies with mandatory profit sharing, and $ps_j = 0$ when it avoids it. We assume that the firm determines worker wages in both the compliance and avoidance scenarios.[38] For simplicity, we abstract from wage uncertainty and assume wages are set at the beginning of the period, before the realization of ξ_j, while ps_j is set after ξ_j is realized. Therefore, when hiring workers (before ξ_j is realized), firms offer a bundle of wages and expected profit sharing per worker. Firms face a labor supply which is increasing in both forms of compensation:[39]

$$n_j^s = (w_j + \mu \cdot \alpha \cdot \mathbb{E}[ps_j])^\theta \tag{3}$$

We micro-found this labor supply function in Section D.1. $\theta > 0$ defines the absolute elasticity faced by the firm with respect to the value of the expression inside parenthesis. $\alpha \leq 1$ and $\mu \leq 1$ determine the *relative* elasticity of workers with respect to wages vs profit sharing offered by the firm.[40] Specifically, $\frac{\alpha}{\mu}$ represents the relative marginal effect of expected profit-sharing versus wages on labor supply. The parameter α represents the discount workers apply to profit-sharing due to risk aversion, as profit-sharing is more uncertain than wages (Nimier-David et al., 2025). In Section D.1 we show that α can be expressed as $\frac{CE_{ps}}{\mathbb{E}[ps_j]}$ where CE_{ps} is the certainty equivalent of profit sharing. The parameter μ captures the reduced responsiveness of workers to profit-sharing as a result of information frictions and constraints.[41] In Section 7, we present evidence that both lack of awareness and attention to profit-sharing, and information-processing constraints related to understanding profit-sharing, reduce worker

[37] These include the costs of finding or setting up a contracting firm, performing an extra firm-to-firm transaction, extra administrative costs of filing an extra tax declaration if the contracting firm is set up by the parent firm, etc. c and k can also include the foregone benefits from avoiding profit-sharing, for example, due to the preferential tax treatment of profit-sharing income or the potential positive effects of this benefit on worker productivity. Once this practice is prohibited, it includes the costs of non-compliance.

[38] This assumption is supported by empirical evidence indicating that contracting firms in full outsourcing relationships were often fully or largely controlled by their parent firms. Therefore it is very likely that full-outsourcing firms typically set the wages of their outsourced workers.

[39] Section D.7 shows that the results hold when assuming perfectly competitive labor markets.

[40] $\eta_{n,w} = \frac{\theta w_j}{(w_j + \mu \cdot \alpha \cdot ps_j)}$ and $\eta_{n,ps} = \frac{\mu \cdot \alpha \cdot \theta ps_j}{(w_j + \mu \cdot \alpha \cdot ps_j)}$. Thus $\frac{\eta_w}{\eta_{ps}} = \frac{w_j}{\mu \cdot \alpha \cdot ps_j}$.

[41] In our main specification, we assume a homogeneous μ for simplicity. In Section D.3, we show that the results hold if we assume heterogeneous μ across workers, as long as the firm is not able to perfectly wage discriminate across workers with different levels of misinformation. A low μ can be interpreted as either lack of information on profit-sharing, or low salience or limited attention to profit-sharing. The latter is conceptually similar to the parameter m in Section 2 of Gabaix (2019), which captures attenuated responses to stimuli.

responsiveness to this benefit when making labor supply decisions. We assume that the information frictions reflected in μ are not related to workers' preferences for profit-sharing but rather to constraints that prevent them from valuing it properly when comparing job offers (Enke et al., 2024; Handel and Kolstad, 2015). Conceptually, this differentiates μ from α. The former affects worker choices but not *necessarily* worker welfare once the labor supply decision has been made, while the latter does influence worker welfare once labor supply decisions have been made due to the uncertainty of profit-sharing income.

When firms comply with mandatory profit-sharing, they post wages to maximize expected post-profit-sharing profits:

$$\mathbb{E}\left(\Pi_j^{comply\ ps}\right) = \max_{w_j} \left\{(1-\rho)(\hat{z}_j - w_j)n_j\right\} \tag{4}$$

subject to

$$\mathbb{E}[ps_j] = \rho(\hat{z}_j - w_j) \qquad \text{and} \qquad n_j = (w_j + \mu \cdot \alpha \cdot \mathbb{E}[ps_j])^\theta$$

When firms avoid the mandatory level of profit-sharing, they pay the cost of avoidance and maximize:

$$\mathbb{E}\left(\Pi_j^{avoid\ ps}\right) = \max_{w_j}\{(z_j - w_j - c)n_j - k\} \tag{5}$$

subject to

$$n_j = (w_j + \mu \cdot \alpha \cdot \mathbb{E}[ps_j])^\theta$$

Firms will avoid profit-sharing if $\mathbb{E}\left(\Pi_j^{avoid\ ps}\right) > \mathbb{E}\left(\Pi_j^{comply\ ps}\right)$. In the following subsection we show how this decision depends on model parameters. We then derive three predictions on the effects of restricting outsourcing. The full model solution is provided in Appendix D.

5.2 The decision to avoid profit-sharing

In Appendix D we show that a firm will avoid profit-sharing if the following condition is met:

$$k \leq \theta^\theta \left(\frac{\hat{z}_j}{\theta+1}\right)^{\theta+1} \left[\left(1 - \frac{c}{\hat{z}_j}\right)^{1+\theta} - \left(\frac{1-\rho}{1-\alpha\mu\rho}\right)\right] \tag{6}$$

If $\alpha \cdot \mu = 1$, the expression collapses to $k \leq D$ with $D \leq 0$. When labor supply is equally responsive to wages and profit sharing, workers would have to be perfectly compensated by the absence of profit sharing with higher wages. In this case, profit-sharing avoidance would only occur if there are no costs associated with this practice.

The second point to note is that the right-hand side of Equation 6 is increasing in $\hat{z}_j$, as the cost per worker of profit sharing is increasing in $\hat{z}_j$, while the cost per worker to avoid it is decreasing in z. Therefore, if $\mu \cdot \alpha < 1$ (risk aversion and/or information frictions are present), more productive firms find it optimal to avoid mandatory profit sharing. This prediction aligns with Figure A.3, which presents bin scatter plots showing that larger, more productive establishments are more likely to fully outsource to avoid profit-sharing.

5.3 The impact of enforcing profit-sharing

In this section, we examine the effects of an increase in k, interpreted as stricter profit-sharing enforcement or a reduction in profit-sharing avoidance. A higher k raises the left-hand side of the inequality in Equation 6, thereby reducing the number of firms that evade profit-sharing obligations. We derive three predictions regarding the outcomes for firms that become newly compliant with profit-sharing requirements. In our empirical context, firms used full outsourcing arrangements to circumvent profit-sharing obligations. Thus, our empirical counterpart to an increase in k corresponds to the outsourcing restriction, which enforced profit-sharing by limiting the practice used for its avoidance. In Section 6 we exploit the outsourcing reform to test the predictions derived below.

Prediction 1. *The effect of profit-sharing enforcement on total firm employment is increasing in c. When $c = 0$, profit-sharing enforcement has no employment effects.*

This result implies that if avoiding involves only a fixed cost ($c = 0$), enforcing profit sharing does not create a distortion in employment levels. This result follows from the fact that *profit-sharing does not affect the marginal cost of employment at the optimum*—i.e., where marginal profit is zero. The intuition is that profit sharing affects the marginal cost of labor, relative to a setting with no profit sharing, through two offsetting forces: For the marginal worker, the firm can offer a wage that is $\alpha\mu \cdot ps_j$ lower (reducing marginal costs), but also requires raising wages for existing workers to offset the decline in their profit-sharing allocation as employment rises (raising marginal cost). When profits are maximized ($\Pi' = 0$), any profit-sharing given to a new worker is exactly offset by the total reductions in profit-sharing for existing workers, making the net effect on marginal cost zero. Thus, profit sharing does not distort the firm's optimal employment decision. Appendix D.6 provides a detailed derivation and explanation of this result.[42]

The prediction that profit-sharing has no effect on employment was put forward by Weitzman (1985) and more recently by Nimier-David et al. (2025). A distinctive aspect of our result is that it continues to hold when firms internalize both how the offered wage affects profit-sharing and how profit-sharing affects firm-specific labor supply.

Prediction 2. *When $\mu \cdot \alpha < 1$, profit-sharing enforcement leads to an increase in expected total compensation $w_j + \mathbb{E}[ps_j]$. The effect is decreasing in μ and α.*

In Appendix D.6.2 we show that the change in expected total compensation can be expressed as:

$$\Delta\, \mathbb{E}[\textit{total compensation}] = \frac{\hat{z}_j \rho}{1+\theta}\left(\frac{1-\mu\alpha}{1-\rho\mu\alpha}\right) + c\frac{\theta}{\theta+1} \tag{7}$$

The effect is positive if $\mu \cdot \alpha < 1$, and depends negatively on this term. The intuition is that when workers are more reactive to a wage decrease than to a profit sharing increase ($\mu \cdot \alpha$ is low), offsetting increases in ps_j via lower wages is relatively costly for the firm, as it has a relatively large negative

[42] This result holds for a general class of production functions $f(n_j, k_j)$, provided the costs of the additional production factors k_j are included in the profit base to calculate profit-sharing; and for firm-specific labor supply functions of the form $n^s(w_j, ps_j) = f(A_1 w_j + A_2 ps_j)$. Two caveats apply to this result. First, if firms can produce with zero workers or only managers exempt from profit-sharing, profit-sharing enforcement can incentivize firms to produce with no workers. Second, the result abstracts from firm entry and exit.

effect on its labor supply. This dampens firms' incentives to reduce w_j to offset increases in profit sharing, leading to an overall rise in total compensation. By comparing Equation (7) with Equation (53), which captures the change in wages, we obtain that if $c = 0$:

$$\frac{\Delta\,\mathbb{E}[\text{total compensation}]}{\Delta\text{wage}} = -\left[\frac{1}{\mu\alpha} - 1\right] \tag{8}$$

This expression allows to empirically estimate $\mu\alpha$ by comparing the impact of profit-sharing enforcement on wages and total compensation.

Prediction 3. *When $\mu < 1$ profit-sharing enforcement leads to an increase in the expected risk-adjusted value of total compensation $w_j + \alpha\,\mathbb{E}[ps_j]$. The effect is decreasing in μ and increasing in α.*

We define the risk-adjusted value of total compensation as w_j plus the amount of profit sharing workers would accept to avoid uncertainty, i.e. the certainty equivalent of profit-sharing CE^{ps}. In Section D.2 we show that this can be expressed as $w_j + \alpha\,\mathbb{E}[ps_j]$, where $\alpha = \frac{CE^{ps}}{E[ps_j]}$ is the value workers assign to each peso of uncertain profit-sharing relative to a guaranteed peso. In Appendix D.6.3, we demonstrate that:

$$\Delta\,\mathbb{E}[\text{risk-adj value total comp.}] = \frac{\hat{z}_j\rho\alpha}{1+\theta}\left(1 - \frac{1-\alpha\rho}{\frac{1}{\mu} - \alpha\rho}\right) + c\frac{\theta}{\theta+1} \tag{9}$$

This result implies that if the low responsiveness of labor to profit-sharing is solely attributed to risk aversion ($\mu = 1$), the value of total compensation for workers may not increase even if total compensation increases, as an increase in total compensation would solely compensate workers for higher risk. Conversely if information frictions regarding profit-sharing partly explain low responsiveness, the value of total compensation for workers should increase.

When $c = 0$ comparing the change in the risk-adjusted value of total compensation with the change in total compensation yields:

$$1 - \frac{\Delta\,\mathbb{E}[\text{risk-adj value total comp.}]}{\Delta\,\mathbb{E}[\text{total compensation}]} = \frac{1-\alpha}{1-\mu\alpha} \tag{10}$$

The left hand side of this expression represents the portion of the increase in compensation that merely compensates workers for the added income risk due to profit-sharing. The right-hand side captures the portion of reduced labor-supply elasticity to profit-sharing explained solely by risk aversion.

Importantly, we estimating α empirically, we use actual profit-sharing realizations. Thus, if workers overestimate the uncertainty of profit-sharing due to limited information, this is absorbed in μ. However, as shown in Section 7, evidence from our worker survey indicates that information frictions stem primarily from limited knowledge and attention to profit-sharing, rather than from workers' perceived risk.

In the following section we study the effect of the outsourcing restriction, focusing on four outcomes that emerge from these predictions: compliance with profit sharing, total employment, total worker compensation, and the risk-adjusted value of total compensation. In Section 7 we present empirical evidence on the role of information frictions in explaining workers' low responsiveness to profit-sharing.

6 The causal impact of profit-sharing enforcement

As detailed in Section 4.2, full outsourcing firms relied on outsourcing arrangements to avoid profit-sharing. Consequently, the 2021 outsourcing reform can be interpreted as a profit-sharing enforcement shock for fully outsourced establishments. In this section, we exploit the reform to estimate the causal effects of profit-sharing enforcement (induced by the outsourcing restriction) on employment, wages, total compensation, and the risk-adjusted value of total compensation.

6.1 Econometric framework

In this section we describe the methodology used to estimate the reform's impact across different datasets. As discussed in Section 3, the outcomes observed and the way outsourcing is measured differ between the establishment survey and the social security data. Therefore, the empirical strategy used to estimate the effect of the reform on each outcome depends on the information available in each dataset. Specifically, we use the establishment survey data (EMIM) to measure the effects of the reform on outsourcing, total employment, and profit-sharing. Estimating the reform's impact on total labor costs with this dataset, however, poses challenges. In EMIM, establishments that outsource workers do not report outsourced workers' wages, but rather the total amount paid to the contracting establishment providing these workers. Because these payments to the contracting firm likely encompass expenses beyond wages, it is challenging to precisely estimate average worker wages before the reform for establishments utilizing outsourcing.[43] Acknowledging these limitations in measuring the reform's impact on wages using EMIM data, we turn to the comprehensive information on wages in social security data (IMSS) to estimate the reform's effects on wages. Subsequently, we combine the wage information from IMSS with profit-sharing data from EMIM to estimate the overall impact on total compensation.

6.1.1 Methodology with establishment level data

In order to evaluate the effects of the reform with establishment survey data, we rely on heterogeneous exposure to reform across different plants. The main assumption behind this identification is that, conditional on controls, the outcome variables of establishments using outsourcing and those not using outsourcing would have followed similar trends in the absence of the reform (Saez et al., 2019; Carry, 2022). We perform the following dynamic difference in differences regression:

[43] Additional costs potentially included in this figure are expenses related to worker training (mandated by law in Mexico), worker uniforms or equipment, and workers' travel expenses. It is also possible that the contracting firm providing workers earned a minor profit (albeit lower than the parent firm's profit to reduce profit-sharing contributions, see Section C.3), which would also be incorporated into this sum. Unfortunately, the EMIM dataset does not offer precise information on these costs, making it impossible to control for these components post-reform.

$$Y_{jsft} = \sum_{k=Q12018}^{Q12023} \beta_k \mathbb{1}_{t \in k} O_j + \lambda_j + \gamma_{st} + \eta_{ft} + \phi_g t + \xi_{jsft} \tag{11}$$

Where Y_{jsft} is the outcome of establishment j, in sector s, state f, at time (month-year) t. The treatment variable is O_j, and consists of an indicator equal to 1 if the establishment was fully outsourcing in any month in the year prior to the reform. $\mathbb{1}_{t \in k}$ is a variable equal to one if month t falls into quarter k. λ_j denote establishment fixed effects. We include size-group specific linear trends $\phi_g t$ (establishments are divided into 6 groups according to their size pre-reform), as large firms are more likely to outsource, and also present a higher growth rate. 3 digit NAICS sector-time fixed effects and state-time fixed effects are included to account for sector and state specific seasonality patterns and idiosyncratic shocks. The coefficient for the last quarter of 2020 is normalized to zero. The control group includes establishments which had not used outsourcing in the year prior to the reform. Partial outsourcing establishments are excluded from the sample. Standard errors are clustered at the establishment level (Rambachan and Roth, 2022).

6.1.2 Methodology with social security data

The social security data impose certain constraints that prevent us from estimating the reform's effects using the same approach as the establishment-level analysis. Specifically, in the social security data, establishments using outsourcing and their outsourced workers are identified through insourcing events occurring at the time of the reform. These insourcing events reveal that some contracting establishments had workers insourced by multiple parent establishments. In such cases, we can link workers to their parent establishments via the insourcing events, but this link cannot be made for workers who were not insourced during the reform. Consequently, it is not possible to identify *all* workers that had been outsourced by each parent establishment, only those involved in an insourcing event. We therefore assess the reform's impact in the social security data using two complementary approaches: a worker-level specification and an establishment-level specification, restricting the latter to cases where each contracting establishment is linked to exactly one parent firm.

Worker-level regression. We estimate the effect of the reform at the worker level through the following specification.

$$Y_{isft} = \sum_{k=2018}^{2024} \theta_k \mathbb{1}_{t=k} Insourced_i + \lambda_i + \gamma_{st} + \eta_{ft} + \phi_g t + \xi_{jsft} \tag{12}$$

Where Y_{isft} denotes the outcome of worker i in sector s, state f, at year t. $Insourced_i$ is an indicator variable that takes a value of 1 if the worker was insourced between April and September 2021. We normalize the coefficient of the pre-reform year (2020) to zero. λ_i denote worker fixed effects. Analogous to the establishment-level regressions, we include 3-digit NAICS sector-by-year fixed effects, state-by-year fixed effects, and firm-size group-specific linear trends $\phi_g t$.[44] Standard

[44]Four firm size groups are defined according to the size of the worker's firm in September 2021, once the insourcing events have taken place.

errors are clustered at the establishment level.[45]

The control group includes workers who were not insourced during the reform and were working for firms with no insourcing events during the reform.[46] We estimate this regression on a balanced sample of 103 703 workers. This sample is composed of workers who remained with the same employer in the 2 years prior to the reform and throughout the post-insourcing period.[47] Panel A of Table 4 presents summary statistics on the estimation sample. Average daily wage is approximately 500 pesos, while average firm size is 1220 workers. Average daily wages are approximately 24% higher for treated workers than control workers. We show below that the results are robust to carefully controlling for these salary differences and to limiting the sample of control workers to a matched sample based on worker characteristics (including pre-reform wages).

Establishment-level regression. We complement the worker-level analysis with an establishment-level specification using the social security data. This allows us to estimate relevant changes in the within-firm wage distribution that cannot be captured in the previous specification, such as between incumbent workers and new hires. We focus on cases where the parent establishment maintained a one-to-one relationship with the contracting establishment. In other words, where all insourcing events involving a given parent establishment occurred with a single contracting establishment, and vice versa. In such cases, we can reconstruct the identity of the 'true' establishment both before and after the reform using social security data: the pre-reform firm corresponds to the contracting establishment's identifier, and the post-reform firm corresponds to that of the parent establishment. This restriction yields a sample of 1,019 out of 2,851 full outsourcing establishments in the manufacturing sector identified in the social security data. Panel B of Table 4 reports 2018 summary statistics for the balanced panel of establishments in this sample. Average size of full outsourcing establishments is 237 workers, while the average daily wage at these establishments is 230 pesos. Based on these establishments, we estimate the following regression:

$$Y_{jsft} = \sum_{k=2018}^{2024} \delta_k 1_{t=k} O_j + \lambda_j + \gamma_{st} + \eta_{ft} + \phi_g t + \xi_{jsft} \tag{13}$$

Where, Y_{jsft} denotes the outcome of establishment j in sector s, state f, at year t. The treatment variable $O_j = 1$ if the parent establishment was classified as a full outsourcing establishment (see Section 3.2). The control group includes manufacturing establishments that were not involved in any insourcing event. We restrict the sample to establishments in the manufacturing sector with over 20 workers. As in the other specifications, we include firm fixed effects, 3-digit NAICS sector-by-year

[45] As workers are considered treated if they were insourced by a full outsourcing establishment, treatment is assigned at the establishment level. We follow Rambachan and Roth (2022) and cluster at the level at which treatment is determined in our quasi-experimental setting.

[46] We exclude workers that were not insourced, but were working for firms that insourced other workers, as these workers were indirectly affected by the reform due to an increase in the number of workers among which profit-sharing was distributed. This group may have also been affected by the reform due to other forms of within-firm rent sharing (Deibler, 2021).

[47] This post-reform tenure restriction is necessary to identify how treated firms adjusted wages in response to the profit-sharing increase. As we show in Section 6.2.3, we find no effects of the reform on total employment of treated establishments, suggesting that this post-reform tenure restriction should equally affect the control and treatment group. We do not impose this sample restriction in the IMSS establishment-level specification described below.

fixed effects, state-by-year fixed effects, and establishment-size group-specific linear trends We focus on a balanced panel of establishments.

In contrast to the establishment survey data, in the social security data we cannot identify all workers that had been outsourced (nor all firms that had been outsourcing), but rather only those that were involved in insourcing events during the reform. Thus, these estimates capture the reform's effect on treated workers and firms that complied with the reform. As shown in Figure A.4, compliers constitute the vast majority of the treated group: 90 percent of full-outsourcing firms ceased full-outsourcing during the reform. Due to the inclusion of the different fixed effects, our identification is valid so long as insourced workers or firms were not subject to differential, within-industry or within-state time-varying shocks relative to the control group. Although compliance with the reform is an endogenous firm decision, the *timing* of insourcing events is exogenously determined by the policy. This mitigates concerns that firm-level insourcing events were driven by contemporaneous shocks, lending credibility to our identification assumption.

6.1.3 Methodology with combined social security and establishment data

In this section we describe the methodology to estimate the effect of the reform on total worker compensation, composed of wages plus profit-sharing income. As mentioned in Section 3.1, social security data does not contain information on profit-sharing income for workers. While the establishment survey data contains information on profit-sharing, information on wages of outsourced workers pre-reform is inaccurate, as explained at the beginning of this section. To circumvent these data limitations, we combine information on profit-sharing reported in the establishment survey data with wage information from the social security data to build a measure of total compensation (wages + profit-sharing). Because the two datasets cannot be linked at the firm level, we classify establishments and workers in both datasets into strata defined by sector $\times$ state $\times$ firm size $\times$ treatment status. We then impute profit-sharing for each observation in the social security data using the average profit-sharing observed in their stratum, and we assign treated workers pre-reform a profit-sharing income equal to zero (our main specification assumes that treated workers were not receiving profit-sharing payments pre-reform). Details of this procedure are provided in Section B.2.[48] While we can measure wages for each individual worker, imputed profit-sharing is only measured at the stratum x year level. Therefore, we can estimate how average total compensation in treated strata changed over time relative to control strata, but not for each individual worker. In other words, we can leverage within-stratum variation, rather than within-worker variation, across time to capture the effect of the reform on total compensation. These two approaches are closely related, though not identical, since workers may switch strata if they change firms or if their firm changes size category. We estimate the effects of the reform on total compensation using the following regression:

[48]For this procedure to be valid, it is important that the sample in the social security data is similar to the sample covered in the establishment data. Appendix B.1 shows that the composition of the social security and establishment samples is closely aligned, and that average wages across sectors and regions are highly comparable across the two datasets.

$$Y_{i\omega t} = \sum_{k=2018}^{2024} \alpha_k \mathbb{1}_{t=k} Insourced_i + \lambda_\omega + \gamma_{st} + \eta_{ft} + \phi_g t + \xi_{i\omega t} \tag{14}$$

Where $Y_{i\omega t}$ is the outcome of worker i belonging to (sector $\times$ state $\times$ firm size $\times$ treatment status) stratum ω. $Insourced_i$ is an indicator variable that takes a value of 1 if the worker was insourced between April and September 2021. λ_ω are stratum fixed-effects, which account for permanent differences between treated and control strata. γ_{st} and η_{ft} are state by time and sector by time fixed effects, and $\phi_g t$ are firm-size group linear trends.[49] Therefore, Equation (14) is the same as specification (12) but replaces worker fixed effects by stratum fixed effects and slightly changes the definition of firm-size groups. Under the assumption that, conditional on the fixed effects, the average outcome of treated and control strata would have followed the same trend absent the reform, the coefficients from Equation (14) provide an unbiased estimate of the average effect of the reform on workers in treated strata relative to workers in control strata. This can be interpreted as a worker-weighted average of stratum-level effects. Indeed, when the outcome $Y_{i\omega t}$ is in levels, the coefficients from regression (14) are numerically identical to those from estimating a stratum-level regression:

$$Y_{\omega t} = \sum_{k=2018}^{2024} \alpha_k \mathbb{1}_{t=k} T_\omega + \lambda_\omega + \gamma_{st} + \eta_{ft} + \phi_g t + \xi_{\omega t} \tag{15}$$

where $Y_{\omega t}$ is the average total compensation in stratum ω in year t, T_ω is an indicator variable equal to one of the stratum corresponds to full outsourcing establishments, and each stratum $\times$ time cell is weighted by the number of workers. In the following section we show that the estimates from Equation (12) and Equation (15) are indeed identical.

6.2 Results

6.2.1 Effect on outsourcing use

Figure 5 shows the estimated θ_k from Equation 11 for the share of outsourced workers and the number of in-house workers. It is apparent that the reform caused full outsourcing establishments to strongly decrease their share of outsourced workers and increase in the number of in-house workers. Figure A.4 shows that these effects are also visible when plotting the raw share of establishments using outsourcing and outsourcing over 95% of workers. Nearly 90% of full outsourcing establishments stopped outsourcing over 95% of their workforce post reform, and 80% stopped outsourcing altogether.

In the social security data, we find that 77% of contracting establishments—the entities holding the workers of full outsourcing establishments pre-reform—exited within one year after the reform.[50] Those that did not exit experienced a strong decrease in size, and remained very small (Figure A.5), possibly because they continued to employ workers which were not part of the parent firms' core activities, and thus were still allowed to be outsourced. This evidence suggests that these contracting

[49] We divide observations into 4 firm size groups depending on the average firm size of their stratum before the reform.
[50] We classify an establishment as a contracting establishment if at least 5 of its workers were involved in an insourcing event from that establishment (to another one).

firms did not engage in any economic activity beyond holding the workers of full outsourcing firms.

6.2.2 Effect on profit-sharing

In this section, we show that the outsourcing restriction led full outsourcing establishments to start paying profit-sharing benefits. Panel (a) of Figure 6 displays monthly profit-sharing contributions per worker for control and full outsourcing establishments from 2018 to 2024. After the reform, full outsourcing establishments clearly start reporting positive profit-sharing payments, with the peaks in the figure corresponding to May of each year. The positive effect of the reform on profit-sharing compliance is also evident in Panel (b) of Figure 6, which presents results from estimating Equation 11 at the yearly level on annual profit-sharing per worker. Corresponding estimates are reported in Table 2. The first year in which treated establishments paid profit-sharing contributions was 2022, not 2021, despite the insourcing events taking place in 2021. This timing reflects the fact that profit-sharing contributions for a given fiscal year are distributed in May of the following year, while the insourcing events occurred in July 2021.[51]

Table A.3 shows the average total profit-sharing, profit-sharing per worker, and profit-sharing per worker as a share of the monthly wage paid by full outsourcing and control establishments for 2022-2024. Full outsourcing establishments have higher total profit-sharing contributions than the control group in both absolute and per worker terms. On average, profit-sharing per worker amounts to approximately half of the monthly wage for full outsourcing establishments, with slightly lower values for the control group. At the 75th percentile, profit-sharing per worker represents approximately one monthly wage for treated establishments.

6.2.3 Effect on employment

We evaluate Prediction 1 of the model by estimating the effect on total firm employment (the sum of outsourced and in-house workers). Figure 7 presents the estimated θ_k from Equation 11 for the natural logarithm of total employment in full outsourcing establishments. The coefficients prior to the reform are not statistically different from zero and do not exhibit pre-trends. The post-reform coefficients indicate that we cannot reject the hypothesis the reform had no significant effect on total employment in full outsourcing establishments.[52] The estimated coefficient is approximately 0.01, and the 95% confidence interval rules out effects smaller than 0.5% and larger than 2.5%. Table 3 reports the average treatment effect for the post-reform period, null effects for total workers, log total workers, and log average hours worked. These results indicate that, on average, full outsourcing establishments insourced all workers after the reform and did not alter their growth rate in the post-reform period. Interpreted through the lens of Prediction 1 in the model, the absence of significant employment effects

[51] Figure A.11 shows no significant effects on either investment levels or value added per worker following the reform. This suggests that the increase in profit-sharing neither discouraged investment nor improved firm productivity, consistent with the findings of Nimier-David et al. (2025).

[52] It can be noted that standard errors get smaller for coefficients closer to the left-out time period. This is because our outcome variable is measured at the quarterly level and exhibits high serial correlation within establishments. As the coefficients are expressed in *relative* terms with respect to period -1, the residual variation in the outcome variable is smaller for periods close to -1, resulting in lower standard errors.

is consistent with a low marginal cost of outsourcing ($c \approx 0$).

Figure A.6 demonstrates that the results are robust across a range of alternative specifications of Equation 11. Specifically, the estimates are robust to restricting the treated group to establishments that complied with the reform, limiting the sample to single-establishment firms, constructing the treatment variable using a two-year pre-reform window instead of one, and estimating the regression on an unbalanced panel of establishments.

6.2.4 Effect on wages

In this section we evaluate the impact of the reform on worker wages, without including profit-sharing income. The red lines in Figure 8 plot the estimated θ_k from worker-level Equation (12) where the outcome variable is the annual average of workers' daily wages. The estimates are displayed in column 1 of Table 5. We do not find evidence of significant pre-trends before the reform. Starting in 2022, which is the first full year post-reform and coincides with the initial disbursement of profit-sharing to treated workers, we observe a decrease in the real wages of treated workers relative to the control group. Treated workers' average daily real wages decreased by an average of approximately 9 Mexican pesos between 2022 and 2024 relative to control workers. This represents approximately 1.5% of the average real daily wage of treated workers in the year prior to the reform. The observed negative effect is driven by a slower rate of wage growth, rather than nominal wage reductions. Average nominal wages among treated workers increased approximately 12% per year in the post reform period.[53]

Figure 9 presents the effects of the reform on establishment-level wage measures estimated from Equation (13), with corresponding post-reform coefficients reported in Table A.5. We find negative wage effects for both mean and median wages, but no effect at the 99th percentile of the within-establishment distribution, likely because high earners are not eligible for profit-sharing. We see a reduction in the 25/75 percentile ratio, indicating that downward wage adjustments were stronger at the lower end of the wage distribution. These results are consistent with firms adjusting wages in proportion to the expected share of profit-sharing in each worker's compensation: lower-wage workers, who receive higher profit-sharing relative to base pay, experienced larger downward adjustments. Finally, we find no effect on the relative wages of new hires compared to incumbents. Since it is typically easier for firms to adjust the wages of new hires downward, this null result provides additional evidence that wage rigidity is not a binding constraint on wage adjustments at these firms.

Columns 1–3 of Table A.4 demonstrate that the results are robust to alternative worker-level samples. Column 1 includes workers with only one year of tenure and workers who did not remain at the same firm after 2021. Column 2 broadens the control group to include non-insourced workers employed in firms that insourced other workers. Column 3 shows that results remain robust when excluding workers earning below 1.5 times the average minimum wage before the reform. This restriction helps isolate potential biases from Mexico's sharp minimum wage increases between 2019 and 2024, which may have differentially affected treated and control workers. The results in Columns 4 and 5 show that the negative wage effects are very unlikely to be driven by differences in pre-reform wage levels

[53] 2022 and 2023 witnessed relatively high average nominal wage growth driven by elevated inflation rates and substantial increases in the minimum wage.

between treated and control workers. Column 4 shows that the results remain robust when comparing workers within the same pre-reform wage decile, by controlling for pre-reform wage-decile-by-time fixed effects. Column 5 further strengthens this argument by comparing workers within very fine groups, incorporating pre-reform wage decile × 3-digit sector × state × year fixed effects.[54] The results are also very similar in this specification. Column 6 shows that the results hold when including 2-digit sector × time fixed effects (instead of 3-digits). Section C.4 shows that results remain consistent when the control group is restricted using a matching procedure that balances treated and control workers on observable characteristics, including pre-reform wages. Finally, column 4 of Table 5 shows that the negative wage effects persist when leveraging within-stratum variation using Equation (14). Column 6 confirms that the coefficients are identical when the regression is estimated on data aggregated to the stratum level, as discussed in Section 6.1.3.

Thus, our results show that treated firms adjusted wage growth in response to the new profit-sharing obligations they had to meet. These findings suggest that firms actively consider the tradeoff between wages and profit-sharing when determining total compensation.[55]

6.2.5 Effect on total worker compensation

We now evaluate Prediction 2 by estimating the effect of the reform on total compensation, which encompasses both wages and profit-sharing income. Prediction 2 states that an increase in total compensation would be consistent with firms facing a labor supply that is less responsive to profit-sharing than to wages. Given that after the reform profit-sharing increased, but wages decreased for treated workers, the implications for total compensation are a priori ambiguous.

Figure 8 presents the estimated effect on total compensation from worker-level Equation (14). Despite the negative effect on wages, total compensation for treated workers increased once firms began complying with profit-sharing, and the effect remains positive and significant four years after the reform. Between 2022 and 2024, average daily total compensation for treated workers rose by 17 pesos, representing a 3% increase relative to the treated group's pre-reform compensation. The plotted results are shown in column 5 of Table 5, while column 7 confirms that we obtain numerically identical coefficients when estimating the regression at the stratum level using Equation (15), as discussed in Section 6.1.3. Overall, the results show that the wage reductions documented in the previous section were more than offset by the gains from profit-sharing.[56]

Columns 6 and 7 of Table A.4 show that the results are robust to alternative fixed effects and to an alternative way of measuring profit-sharing per worker.[57] Furthermore, as mentioned in Section

[54]This specification is highly demanding, encompassing roughly 3,300 wage decile × sector × state combinations, and is conceptually similar to matching treated and control workers within these narrow cells.

[55]Wage measures in social security data encompass additional income components, such as commissions and performance-based bonuses. Therefore, it is possible that firms made adjustments through these aspects of compensation, rather than altering fixed monthly wages (El Economista, 2022).

[56]While Prediction 2 refers to the effect on *expected* total compensation, our estimates rely on *realized* total compensation. This would be a concern if realized profit-sharing in the post-reform period were higher than firms had anticipated, leading to incomplete wage adjustments. For the control group, however, we observe that post-reform profit-sharing as a share of wages is on average 1.5% lower than in the pre-reform period. Hence, the post-reform years are likely representative of an average year for the treated group.

[57]We compute the weighted average of total profit-sharing in each cell from EMIM (instead of profit-sharing per

4.2, it is unlikely that contracting firms provided workers with profit-sharing contributions before the reform, justifying our assumption of zero profit-sharing payments for treated workers pre-reform. Nonetheless, in Figure A.7, we show that the results are robust to less stringent assumptions, namely that treated workers' profit-sharing income pre-reform was a fraction p of their post reform profit-sharing. Additionally, the average positive effect is not only driven by high profit firms. Figure A.10 presents the estimated effects on wages and total compensation across quintiles of profit-sharing per worker in 2022. While workers with higher profit-sharing levels experienced larger increases in total compensation, the coefficient on total compensation is positive in all quintiles and statistically significant at the 10% level in all but the third quintile. Interestingly, workers in the lowest quintile experienced a larger increase than those in the second and third quintiles.

Figure A.8 shows a similar positive effect on total compensation (2.6% of the pre-reform mean) from estimating establishment-level Equation (13).[58] Corresponding estimates are in columns 1 and 5 of Table A.6. The dynamics differ somewhat from the worker-level results, possibly due to sample composition or to the inclusion of both incumbent and newly hired workers in the establishment-level estimates. In contrast, the worker-level analysis follows tenured workers who may gradually learn about profit-sharing, allowing firms to adjust wages more. We present suggestive evidence of such learning in Section 7.

Referring back to Prediction 2, these findings align with the presence of risk aversion and/or information frictions that make workers less sensitive to profit-sharing than to wages. As a consequence, firms affected by the reform did not fully offset the rise in profit-sharing payments through lower wage growth. We can compare the estimated effects of the reform on wages (– 9 pesos) and total compensation (+ 17 pesos), in combination with Equation 8, to obtain an estimated value $\mu \cdot \alpha \approx 0.35$. In other words, each additional peso in wages attracts as many new workers as 2.8 pesos in profit-sharing.

As a first assessment of the risk-aversion channel, we compare wage and compensation effects across sectors with high and low profit-sharing volatility. If risk aversion were an important determinant of inelasticity to profit-sharing, total compensation should rise more in high-volatility sectors. Figure A.9 shows little evidence of differential impacts: the reform's effects on wages and total compensation are very similar across both types of sectors, with slightly larger increases in low-volatility sectors. This pattern suggests that risk aversion is unlikely to be the main factor behind workers' weak responsiveness to profit-sharing. We assess the role of risk aversion more precisely in the following subsection.

6.2.6 Effect on risk-adjusted value of worker compensation

While the previous section shows that the reform increased the monetary value of worker compensation, it also altered its composition, reducing the share of stable wages and increasing that of volatile profit-sharing. Hence, the impact on the ex-ante *value* of compensation, once accounting for the discount from the higher risk from profit-sharing, is unclear. Prediction 3 states that if risk aversion alone explains low responsiveness to profit-sharing, the effect of the reform on the value of total compensation,

worker). We then calculate average profit-sharing per worker for each cell as the average total profit-sharing (from EMIM) divided by the average firm size measured with IMSS data.

[58]When estimating the effect on total compensation, establishment fixed effects are replaced with stratum fixed effects as in Equation (14).

once accounting for risk, would be significantly lower, or zero in the case of a null marginal cost of outsourcing c.[59] We evaluate Prediction 3 and estimate the impact of the reform on the risk-adjusted value of worker compensation, defined as:

$$w_j + \alpha\, \mathbb{E}[ps_j] \tag{16}$$

where w_j is the wage, $\mathbb{E}[ps_j]$ is expected profit-sharing, and α is the value workers assign to each expected peso of uncertain profit-sharing relative to a guaranteed peso. A lower α reflects stronger risk discounting. In particular, α can be expressed as (see Section D.2):

$$\alpha = \frac{CE^{ps}}{\mathbb{E}[ps]}$$

where CE^{ps} is the certainty equivalent of profit-sharing. Therefore, the risk-adjusted value of compensation represents the amount of certain compensation workers would be willing to accept to avoid the uncertainty in profit-sharing.

The value of α depends on the volatility of wages and profit-sharing and on workers' risk aversion. Therefore, to calculate the effect on the risk-adjusted value of total compensation, we empirically estimate α under different risk aversion assumptions and plug this empirical estimate into the expression in (16). Specifically, we proceed in three steps, detailed in Appendix C.1 and summarized here.[60] First, we estimate the certainty equivalent of profit-sharing $\widehat{CE_i^{ps}}$ for each worker in the control group, under a CRRA utility function, using annual data on wages and profit-sharing from 2018 to 2024. This procedure is repeated for different levels of relative risk aversion, $\gamma \in [1:5]$, a range consistent with empirical estimates (Elminejad et al., 2025). This provides us with five measures of $\widehat{CE_i^{ps}}$ for each worker in the control group, one for each risk aversion parameter. Second, we compute the ratio of the certainty equivalent to the average amount of profit-sharing received by each worker $\hat{\alpha}_i = \frac{\widehat{CE_i^{ps}}}{\overline{ps_i}}$ for each risk aversion parameter. We then take the average $\hat{\alpha}_i$ across workers to compute $\hat{\alpha}$ for each level of risk aversion. Therefore, $\hat{\alpha}$ denotes the average estimated value of one peso of profit-sharing expressed in terms of a certain peso across workers in our sample. Third, we use the estimated $\hat{\alpha}$ to construct the risk-adjusted value of total compensation for each worker, for each risk aversion parameter:

$$\text{risk-adjusted value of total compensation}_{it} = w_{it} + \hat{\alpha} \cdot ps_{it}$$

The empirical estimates for $\hat{\alpha}$ can be seen in row 1 of Table C.1. For a risk aversion of 3, one peso of profit-sharing is worth approximately 89 cents to workers on average. The higher the level of risk aversion, the lower the value of a peso of profit-sharing, as risk becomes more costly. Figure 10 plots the estimated effects of the reform on the risk-adjusted value of total compensation from the

[59] As indicated in section 6.2.3 the null effect on employment is suggestive of $c \approx 0$.

[60] Since $\hat{\alpha}$ is calculated using the sample of control workers, this approach may underestimate the risk-discount if profits of fully outsourcing firms were significantly more volatile than those of control firms. We observe that full outsourcing establishments were significantly *less* likely to experience changes of more than 5%, 10%, or 20% from one year to the next in the pre-reform period. Thus, if anything, fully outsourcing establishments exhibited lower profit volatility compared to the control.

worker-level specification in Equation (14), under the assumption of relative risk aversion parameters $\gamma \in \{1, 3, 5\}$. We can see that the reform had a positive impact on the risk-adjusted value of total compensation, which is robust to empirically plausible conservative measures of risk aversion. For the post-reform effect on the risk-adjusted value of total compensation to be non-statistically different from zero, $\hat{\alpha}$ would need to fall to at least 0.45 (see Table A.7). This corresponds to a relative risk aversion coefficient of approximately 14, which is implausibly high.[61] These results imply that the increase in total compensation exceeded what would be required to offset the added income risk from profit-sharing.

What do these estimates imply for the role of risk aversion in workers' inelastic response to profit-sharing? According to Prediction 3, the positive estimated effect on the risk-adjusted value of total compensation indicates that risk aversion cannot fully explain this low elasticity and that information frictions play a role. To quantify the contribution of risk aversion, we set $\gamma = 3$, near the median of existing empirical estimates.[62] For this risk aversion, the average risk-adjusted value of daily compensation post-reform increased by approximately 2.3% relative to the pre-reform mean. Comparing this estimate to the 2.8% increase in total compensation show in Section 6.2.5, we conclude that approximately 17% of the increase in total earnings post reform reflects compensation for the higher income risk associated with profit-sharing. Using expression (10) in Section 5, this result implies that, through the lens of our model, risk aversion can explain only around 17% of workers' limited responsiveness to profit-sharing. Finally, substituting this result and the estimated value of $\hat{\alpha} = 0.89$ into Equation (10) yields an approximate value of the discount due to information frictions $\hat{\mu} = 0.4$. We discuss this estimated $\hat{\mu}$ further in Section 6.3.

6.2.7 Heterogeneous effects by levels of misinformation

In this section we provide evidence consistent with the role of information frictions in driving down profit-sharing elasticity. As shown in Prediction 2, the increase in total compensation post-reform should be higher when μ is lower, i.e. when workers are more poorly informed about profit-sharing. This is because information frictions make workers less responsive to profit-sharing, and thus reduce firms' incentives to lower wages in response to the profit-sharing increase post-reform.

We provide suggestive evidence for this prediction by comparing changes in total compensation across plants whose workforces are likely to be more or less informed about profit-sharing. We proxy this measure by comparing plants in local labor markets where many workers receive profit-sharing, with those where few workers receive profit-sharing. Specifically, we use the 2018 Economic Census to compute the share of workers employed at establishments not paying profit-sharing in each local labor market, defined as municipality $\times$ 3-digit NAICS sector,[63] and merge this measure to the social

[61] We estimate the level of risk aversion required for $\alpha = 0.45$ using a second order degree approximation of α from Equation 21. This expression implies that $\frac{1-\alpha(\gamma=\gamma^*)}{1-\alpha(\gamma=x)} \approx \frac{\gamma^*}{x}$. Replacing γ^* by 5 and $\alpha(\gamma = x)$ by 0.45 and using the values in Table C.1 we obtain $x \approx 14$.

[62] In a meta-analysis, Elminejad et al. (2025) report a median of 1.26 across 58 economics studies. Brown et al. (2019), using nationally representative Mexican Family Life Survey data, estimate a median between 1.5 and 3.7. Thus $\gamma = 3$ remains a conservative choice.

[63] This share is computed excluding the workers in full outsourcing firms, as these workers did receive profit-sharing post-reform. As explained in Section 2, firms with very low profits, new firms, or firms carrying out certain types of

security data. We then estimate the reform's effect on wages and total compensation separately for plants located in local labor markets with above and below median shares of workers not receiving profit-sharing. The underlying assumption is that workers who do not receive profit-sharing are less informed about this benefit.[64] Therefore, firms in local labor markets where few workers receive profit-sharing are exposed to a labor supply that is less informed about profit-sharing.[65]

Figure 11 shows the effect of the reform on establishment-level wages and total compensation for establishments located in labor markets with high and low exposure to profit-sharing. Coefficients are plotted relative to the pre-reform mean for the treated group to facilitate comparison. The results indicate that establishments operating in markets with a low share of workers receiving profit-sharing adjust wages by less (panel a) and therefore experience a larger increase in total compensation (panel b) compared to establishments in markets with higher profit-sharing levels. Interpreted through the lens of Prediction 2, these findings are consistent with the notion that when workers are less informed about profit-sharing, their labor supply is less responsive to this benefit.

6.3 Discussion

The main findings of this section can be summarized in four main takeaways. First, consistent with the theory, profit-enforcement does not distort employment decisions. Second, firms respond to profit-sharing increases by reducing base wages, indicating that they consider both components jointly when determining total compensation. Third, consistent with workers being less responsive to a marginal peso of profit-sharing than to wages, firms only partially offset the profit-sharing increase, leading to higher total compensation on average. Fourth, this limited responsiveness cannot be fully explained by risk aversion to uncertain profit-sharing, as the average increase in total compensation was more than sufficient to compensate for the additional risk. Within the framework of our model, the remaining unexplained gap is driven by information frictions that dampen workers' sensitivity to profit-sharing. This result is supported by our heterogeneity analysis.

What do our empirical results imply about the relative importance of risk aversion and information frictions in shaping worker responsiveness to profit-sharing? The estimated effects of the reform on wages and total compensation shows that on average one peso of wages attracts as many workers as 2.8 pesos of profit-sharing. Using the empirical estimates of the risk discount ($\hat{\alpha} = 0.89$) and the information-friction discount ($\hat{\mu} = 0.4$) derived in Section 6.2.6, these 2.8 pesos can be decomposed into 1.12 pesos required to compensate workers for risk times 2.5 pesos required to compensate for information frictions. In other words, if only risk aversion were present, only 1.12 pesos of profit-sharing would be required to attract as many workers as one peso in wages; if only information frictions were present, this value would be 2.5 pesos. These comparisons suggest that information frictions play a stronger role than risk aversion in limiting responsiveness to profit-sharing. Importantly, while in our model μ represents a discount associated with information frictions, other frictions and biases, such as workers' distrust of their employers or present bias, may also contribute to dampening workers'

activities are not subject to profit-sharing obligations.

[64] We provide evidence in line with this assumption in self-collected survey data described in Section 7, where we find that individuals that have not received profit-sharing in the past are significantly less informed about it.

[65] On average, annual new hires represent about 23% of the total workforce across establishments in our sample.

responsiveness to profit-sharing. Empirically, $\hat{\mu}$ is estimated as a residual; therefore, these other factors may also contribute to its low value of 0.4. The evidence presented in the following section indicates that at least part, and plausibly most, of this discount can be explained by information frictions.

Finally, we discuss the implications of our results for whether affected workers gained from the reform. While we do not conduct a formal welfare analysis, we focus on how the reform affected the value of total earnings for workers, recognizing that each additional peso in profit-sharing may not be valued in the same way as a peso in base wages. As shown in Sections 6.2.5 and 6.2.6, on average, treated workers experienced not only higher monetary compensation after the reform but also an increase in ex-ante expected *value* of total compensation, accounting for the increase risk. This measure, however, does not account for the distortions in perceived compensation due to information frictions and constraints. Assuming that such frictions and constraints do not reflect workers' true preferences (Handel and Kolstad, 2015; Oprea, 2024), but rather limitations and mistakes that prevent them from fully perceiving their expected profit-sharing income, we can conclude that the reform increased the average value of compensation for workers.[66]

7 Evidence on information frictions

As discussed in Section 6.2.6 and Section 6.2.7, our empirical results are consistent with information frictions dampening worker responsiveness to profit-sharing. In this section, we present direct evidence of such information frictions. While the theoretical framework refers to information frictions in general terms, empirically we distinguish between two types of frictions and show that both reduce workers' responsiveness to profit-sharing incentives. The first type involves limited awareness and knowledge of profit-sharing. The second reflects information-processing constraints arising from the complexity involved in estimating and understanding profit-sharing. We then assess whether these frictions are sizable enough to account for a meaningful portion of workers' limited responsiveness to profit-sharing, as estimated in Section 6.3.

The analysis draws on a self-administered survey conducted through the online platform Prolific in August 2025. The survey contains several questions designed to identify information frictions related to profit-sharing and to measure how these frictions correlate with job decisions. The sample consists of 638 individuals in Mexico who are either employed or unemployed but actively seeking work. Table A.8 reports descriptive statistics for this survey and compares them with a nationally representative sample from Mexico's National Employment Survey (ENOE) for the third quarter of 2024. Relative to ENOE, our survey sample is somewhat younger, includes a higher share of women, and overrepresents formal workers as well as those employed in large firms. Workers in our sample are also more likely to report receiving profit-sharing from their current employer. Therefore, if anything, the evidence presented in this section is likely to understate the extent of information frictions regarding profit-sharing in the broader Mexican labor force.

[66] This value does not account for the costs of acquiring information on expected profit-sharing for workers, nor information-processing costs.

7.1 Limited awareness and attention to profit-sharing

Previous research has shown that misinformation and inattention can weaken individuals' responses to economic incentives, distorting decisions such as employer switching (Robinson, 1933; Jäger et al., 2023), health insurance plan selection (Handel and Kolstad, 2015), and savings behavior (Chetty et al., 2014). In this section, we show that similar frictions arise from low awareness and salience of profit-sharing, which significantly workers' responsiveness to profit-sharing.

We first show that misinformation about profit-sharing is widespread. Table 6 shows that nearly 20% of respondents reported not knowing what profit-sharing is. The remaining rows of the table restrict the analysis to individuals who are aware of the existence of profit-sharing. Almost 40% of respondents do not know how profit-sharing is distributed within the firm. Among those employed by firms paying profit-sharing, over 80% indicated that their employer either did not mention profit-sharing at all or did not indicate how much this benefit could be during the hiring process. Panel B shows that workers were more likely to answer incorrectly when asked about profit-sharing regulations than when asked about the rules for the minimum wage, vacation, or the 13th-month salary (aguinaldo).[67] All of these measures of misinformation are stronger among lower income workers.

Furthermore, our evidence shows that limited information on profit-sharing plays a role in workers' assessment of job offers. Panel C of Table 6 reports the share of workers selecting different job attributes when asked what job characteristics they considered when choosing their current job. Profit-sharing was selected by only 17% of respondents. Even among respondents who are offered profit-sharing in their current job, only 34% indicated that this benefit factored into their evaluation of the job offer. Among those not considering profit-sharing, almost 40% attributed this to lack of information or understanding of the benefit, and 17% indicated that they had simply forgotten about it. Only 20% indicated that they discounted profit-sharing because of its volatility, suggesting that μ does *not* primarily reflect an overestimation of profit-sharing risk by workers. Fewer than 5% pointed to the fact that it is paid as a lump sum in May. Lack of trust in employers was a relevant reason for 13% of respondents.[68] Figure A.14 shows that workers with longer tenure at profit-sharing firms are better informed about the benefit. No such pattern appears among workers at firms that do not pay profit-sharing. This suggests that learning may occur over time as workers gain experience with receiving profit-sharing payments from their employer.[69]

To further examine the link between misinformation and low sensitivity to profit-sharing, we estimate regressions where the outcome is an indicator equal to one if the worker reported accounting for profit-sharing when accepting their job (Panel C of Table 6) and explanatory variables are binary indicators of high misinformation. Figure A.13 shows that misinformation is consistently associated with a lower likelihood of considering profit-sharing. By contrast, analogous regressions for wages and vacation days show no such pattern.

[67] The survey asked workers about: the size of the aguinaldo, the number of mandatory vacation days, the minimum wage in Mexico, the proportion of firm profits distributed as profit-sharing, and which firms are required to distribute profit-sharing.

[68] Respondents could select more than one option in both the question on job attributes considered and in the question referring to why they did not consider profit-sharing.

[69] While we do not explicitly model learning, the underprovision of complex non-wage benefits with learning is formally analyzed in Sulka (2025).

Overall, the evidence indicates that insufficient information or attention to profit-sharing can reduce its weight in workers' labor supply decisions. A natural question that arises is why workers in Mexico are often misinformed about profit-sharing. One likely explanation is that only a minority of workers in Mexico are employed at firms that pay this benefit, reflecting the prevalence of small, low-profit firms and widespread informality. According to data from the Economic Census, in 2018, 69% of workers in Mexico were employed at firms that did not provide profit-sharing.

7.2 Information processing constraints

The previous section showed that misinformation about profit-sharing can reduce the attention workers give to this benefit when making labor market decisions. This section shows that an additional source of low attention are information-processing constraints arising from the complexity of calculating and understanding profit-sharing. This mechanism is motivated by recent evidence in behavioral economics (Enke et al., 2024; Oprea, 2024), showing that individuals' decisions become less responsive to relevant parameters when those decisions involve higher levels of complexity.

To test the role of complexity, we implemented a hypothetical job-offer experiment with a subsample of 304 participants.[70] We presented participants with four different job offers, each specifying wages and profit-sharing amounts. Workers were asked to rank these job offers from the best to the worst offer. Before the ranking, we explained how profit-sharing is calculated and instructed workers to consider it when performing this ranking. Each individual completed the ranking exercise more than once, with the same four job offers presented under different complexity conditions. In the high-complexity condition, we provided information on firm profits, the number of workers, and wages, requiring respondents to calculate their profit-sharing income and add it to wages. In the low-complexity condition, we directly stated both wages and profit-sharing amounts.[71]

We compare how individuals' ranking changes across the high- and low-complexity scenarios. Column (1) of Table 7 reports the results of a regression of the ranking points assigned to a job offer (4 if ranked first, 3 if second, and so on) on the offer's wage, profit-sharing, and their interactions with an indicator if the ranking corresponds to the high-complexity scenario. The coefficients on wages and profit-sharing show that, in the absence of complexity, an additional peso of either component increases the expected ranking points. The interaction term for wages x complexity is small and statistically insignificant, whereas the interaction for profit-sharing x complexity is negative and significant. This result implies that under high complexity, each additional peso of profit-sharing has a smaller effect on raising a job offer's ranking. Similar patterns emerge when examining the likelihood of an offer being ranked first (column 2) or last (column 3). Columns 4 to 6 show that dampening effect of complexity on the importance of profit-sharing is slightly stronger among individuals who previously reported not considering profit-sharing when evaluating their real-world jobs. Overall, this evidence suggests that, even when individuals have the information to calculate profit-sharing, information-processing frictions associated with the complexity of profit-sharing reduce the weight individuals place on this

[70] The experiment was pre-registered in the AEA RCT Registry (AEARCTR-0015228).

[71] Workers were asked to assume no uncertainty in firm profits and that all workers were eligible for profit-sharing. We performed this exercise for two different sets of four job offers. Workers were assigned randomly to one of these sets. Results for the two sets of job offers are aggregated in the analysis.

benefit when assessing job offers.

We use the results in the first part of this section to provide an illustrative back-of-the-envelope calculation of the potential magnitude of the effect of information frictions on responsiveness to profit-sharing. About 44% of respondents in our sample reported either not knowing about profit-sharing or considering it irrelevant when choosing their job. Assigning $\mu = 0$ to this group and $\mu = 1$ to the remainder yields an average $\mu = 0.56$, which is relatively close to the estimated $\mu = 0.4$ in Section 6.3. Although this exercise is purely illustrative, it suggests that it is plausible that the estimated value of $\mu = 0.4$ may largely reflect workers' limited awareness and attention to profit-sharing.

8 Conclusion

This paper studies firms' incentives to adopt profit-sharing schemes and the effects of profit-sharing policies, explicitly accounting for the wage–profit-sharing tradeoff. Using rich establishment survey and social security data, we document that many firms avoided mandatory profit-sharing by outsourcing all workers to entities with minimal profits. We then show that a reform which enforced profit-sharing by imposing strict restrictions on outsourcing caused establishments to partially offset profit-sharing increases by lowering worker wages relative to a control group. However, this compensation was not complete, and total labor compensation, i.e. wages + profit-sharing per worker increased by around 3% post reform with no effects on total employment.

Our results are consistent with a labor market in which workers and firms tradeoff profit-sharing and wages, and these two forms of compensation are not substituted one-for-one. This imperfect substitution arises because, due to risk aversion and information frictions, workers are less responsive to profit-sharing than to wages when making labor supply decisions. This differential responsiveness explains *both* why some firms found it optimal to avoid profit-sharing rather than lower wages, and why the reform raised total worker compensation.

Risk aversion can only explain 17% of workers' limited responsiveness to profit-sharing, as the observed increase in total compensation exceeded what would be required to offset the additional earnings risk. This implies that the (risk-adjusted) *value* of total compensation for workers increased post-reform. Drawing on self-collected survey evidence, we show that a key factor behind this limited responsiveness are information frictions. Misinformation about profit-sharing is widespread, and, together with information-processing constraints stemming from the complexity of profit-sharing, reduces workers' ability to value and it respond to profit-sharing incentives.

Overall, our findings indicate that profit-sharing policies can serve as an effective tool for redistributing income toward workers without generating employment distortions, even when firms retain flexibility to adjust wages. This occurs because the low salience and complexity of profit-sharing prevent workers from fully internalizing its value, thereby limiting firms' wage adjustments to profit-sharing increases. At the same time, these informational frictions, combined with risk aversion, help explain why firms have weak incentives to adopt profit-sharing.

More broadly, the mechanisms we focus on in this study can shed light on how workers and firms tradeoff wages and non-wage forms of compensation that are less salient than wages. Policy discussions increasingly highlight that non-wage benefits, including health insurance and pension contributions, are avoided by firms through labor arrangements like independent contracting or informal labor. These benefits may be complex to understand and insufficiently salient to workers, suggesting that information frictions may incentivize benefit avoidance over wage adjustments. Additionally, our results show that policies that strengthen enforcement of non-wage benefits can raise workers' effective compensation, even where wage flexibility exists, precisely because information frictions prevent firms from fully neutralizing the value of these benefits through lower wages. Understanding how information frictions influence firms' avoidance behavior and shape the impact of enforcement policies remains an important direction for future research.

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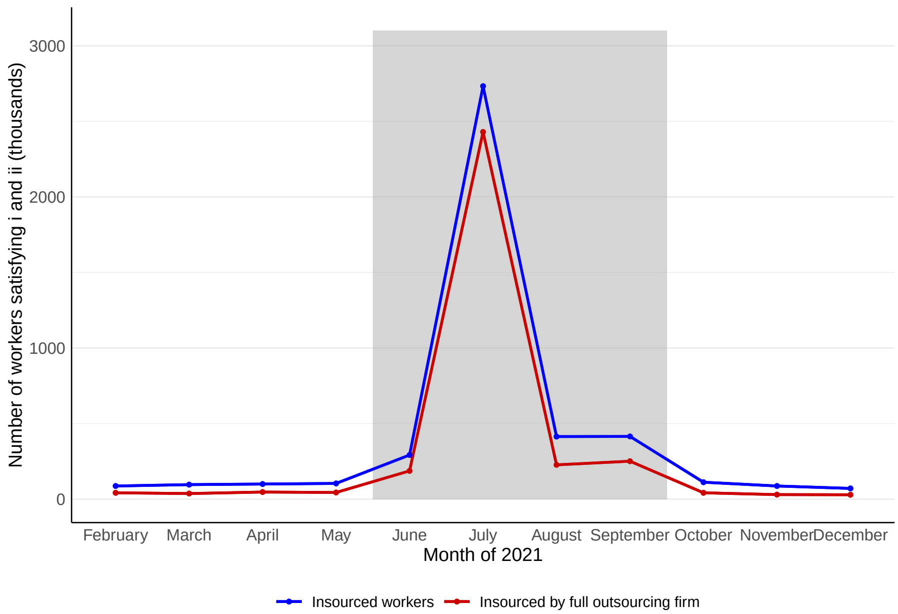
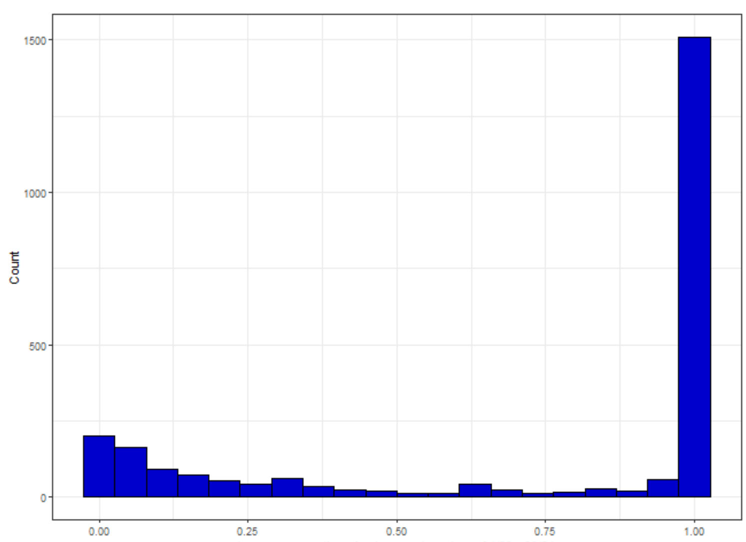
Figures

Figure 1: Number of workers in an insourcing event (thousands)



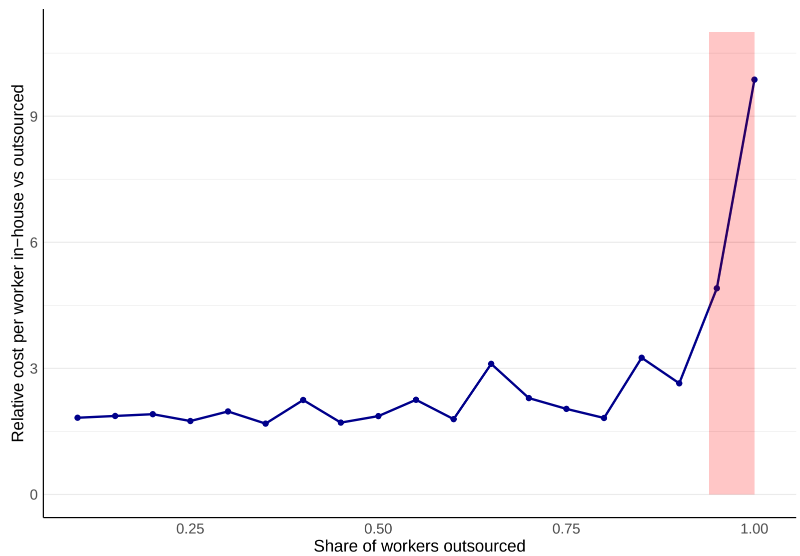
Notes: This figure shows the number of workers amongst all workers in IMSS involved in a movement between establishments (A and B) where the flow consisted of 20 employees or more *or* establishment A lost more than 40% of it's workers that month (condition (ii) in Section 3.2), and establishment A and B do not belong to the same firm (condition (iii) in Section 3.2) on each month between February and December 2021. The shaded area are the worker movements classified as insourcing events with the additional condition that the flow occured between June and September (condition (i) in Section 3.2).

Figure 2: Distribution in the proportion of outsourced workers pre-reform



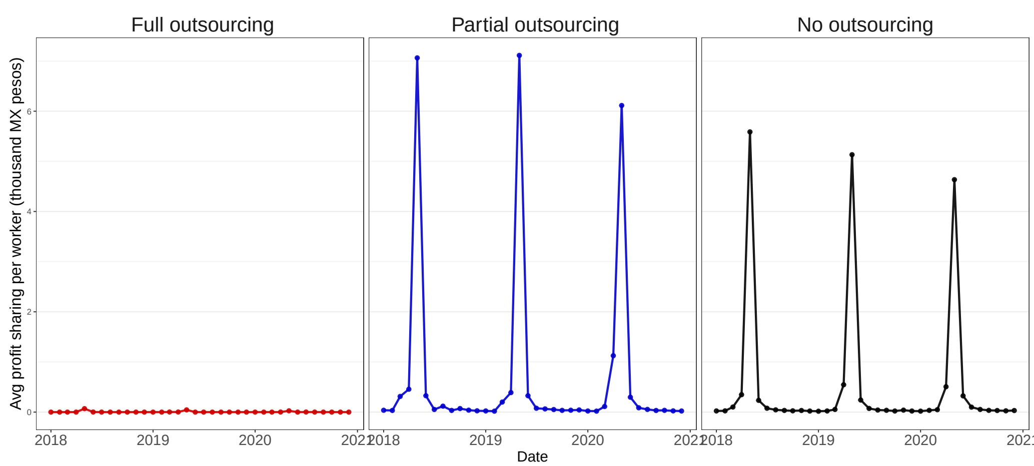
Notes: This figure plots a histogram with the average share of workers outsourced between April 2020 and March 2021 (the 12 months before the outsourcing reform was approved) by each establishment in our EMIM dataset which has positive outsourcing in at least one month on the year prior to the reform. [Back to Section 4.1]

Figure 3: Cost per in-house worker over cost per outsourced worker, by share outsourced



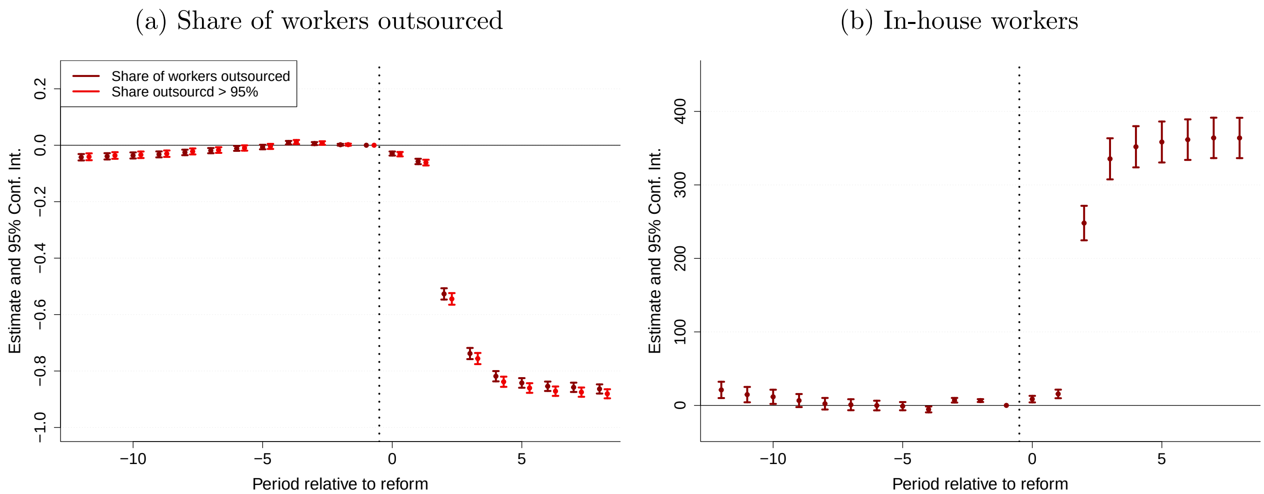
Notes: This figure plots the relationship between the cost average of in-house workers relative to the average cost of outsource workers, and outsourcing share. For each establishment, we compute the ratio of the average cost per in-house worker over the average cost per outsourced worker, in the pre-2020 period. We plot the average of this ratio against the proportion of workers outsourced in each establishment, rounded to the nearest 0.05. The shaded red area corresponds to establishments outsourcing over 95% of their workers. [Back to Section 4.1]

Figure 4: Monthly profit sharing per worker pre reform



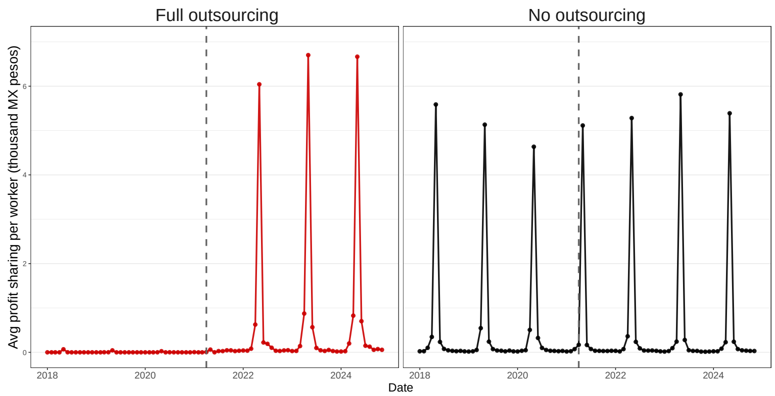
Notes: This figure plots the average monthly profit sharing per worker in thousands of Mexican Pesos for each group of establishments. The peaks in each year correspond to May, which is when profit sharing is disbursed in Mexico. The series is built with balanced establishment-level panel dataset from EMIM. No outsourcing establishments are those that did not outsource employees in the year prior to the reform, partial outsourcing establishments have positive outsourcing but less than 95% of their workforce. Full outsourcing are establishments outsourcing more than 95% of their workforce pre reform. [Back to Section 4.2]

Figure 5: Effect of the reform on outsourcing

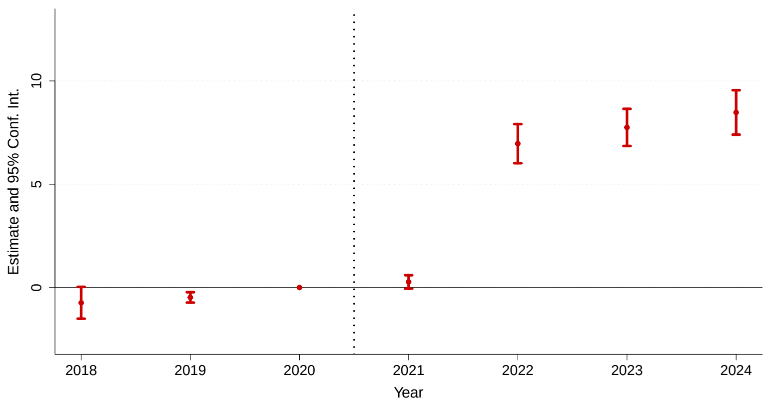


Notes: This figure plots the β_k from Equation 11 and 95% confidence intervals. The estimation is carried out on a balanced panel of establishments from EMIM between 2018 and 2023. Treatment group includes establishments outsourcing over 95% of workers before the reform (full outsourcing). Control group includes establishments with no outsourcing before the reform Establishments with positive outsourcing before the reform, but lower than 95% (partial outsourcing) are excluded from the estimation. The outcome variables in panel a are the share of workers outsourced by the establishment, and a binary variable equal to one if the establishment was outsourcing more than 95% of workers. The outcome variable in panel b is the number of inhouse workers of the establishment. β_{Q42020} is normalized to 0. Standard errors are clustered at the establishment level. [Back to Section 6.2.1]

Figure 6: Effect of the reform on profit sharing



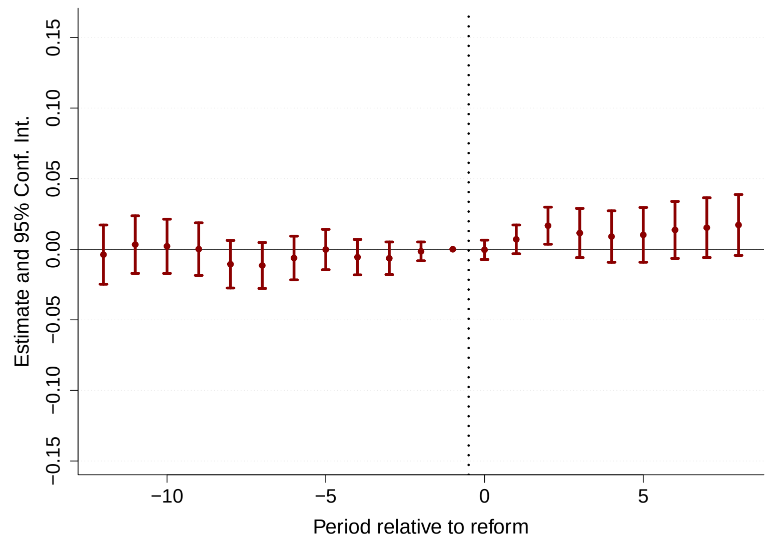
(a) Monthly profit sharing per worker



(b) Diff in diff coeff. - Yearly profit sharing per worker

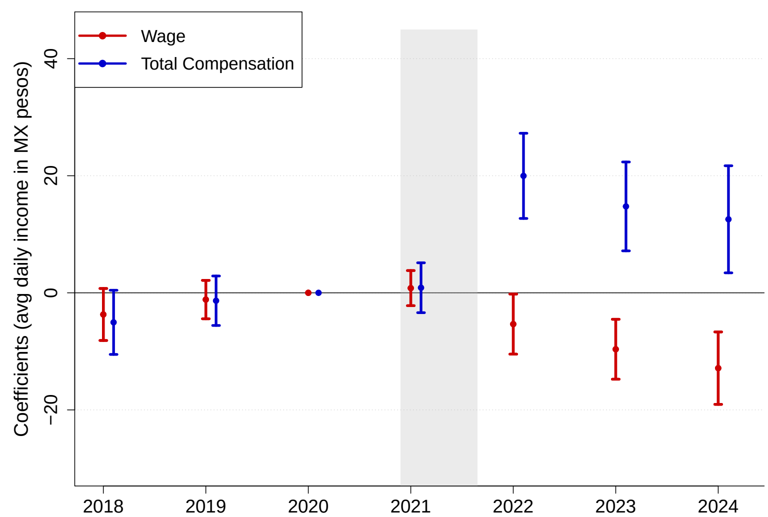
Notes: Panel (a) shows average real monthly profit sharing per worker in thousands of Mexican pesos for control establishments and full outsourcing establishments. The series is constructed using a balanced sample of establishments from EMIM. The peaks in each year correspond to may, when profit sharing is typically disbursed. Panel (b) shows the difference in differences coefficients and 95% confidence intervals from estimating Equation 11 aggregating establishment data at the yearly level. The treatment group includes establishments outsourcing more than 95% of their workers pre-reform. The control group are establishments not using outsourcing pre-reform. The outcome variable is real yearly profit sharing per worker in thousands of mexican pesos. Standard errors are clustered at the establishment level. Partial outsourcing establishment, i.e. those with positive outsourcing $< 95\%$ pre-reform are excluded from the sample in both figures. [Back to Section 6.2.2]

Figure 7: Effect on total number of workers



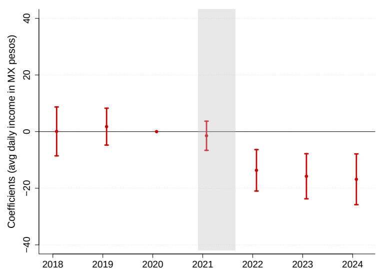
Notes: This figure plots the β_k from Equation 11 and 95% confidence intervals. The estimation is carried out on a balanced panel of establishments from EMIM between 2018 and 2023. Treatment group includes establishments outsourcing over 95% of workers before the reform (full outsourcing). Control group includes establishments with no outsourcing before the reform Establishments with positive outsourcing before the reform, but lower than 95% (partial outsourcing) are excluded from the estimation. The outcome variable is the log of the total number of workers (outsourced + in-house). β_{Q42020} is normalized to 0. Standard errors are clustered at the establishment level. [Back to Section 6.2.3]

Figure 8: Effect of the reform on yearly wage and total compensation - Worker level

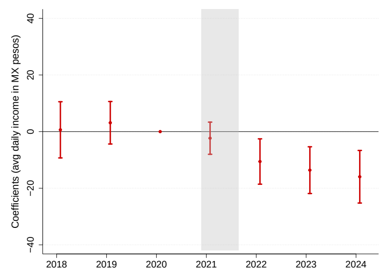


Notes: This figure shows the estimated θ_k and 95% confidence intervals from estimating Equation 12 on the yearly average of worker daily wages (red), and the estimated α_k and 95% CI from Equation 14 on daily total compensation (blue). The shaded grey area represents the year in which the outsourcing reform was approved. Regressions are estimated on a balanced sample of workers from IMSS described in Section 6.1.2. Standard errors are clustered at the establishment level. [Back to Section 6.2.4]

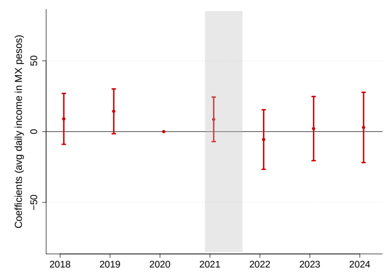
Figure 9: Effect on the within establishment wage distribution



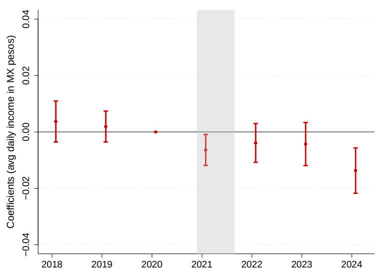
(a) Average wage



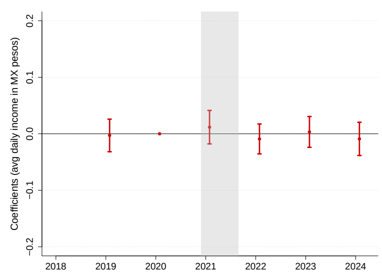
(b) Median wage



(c) Wage P99



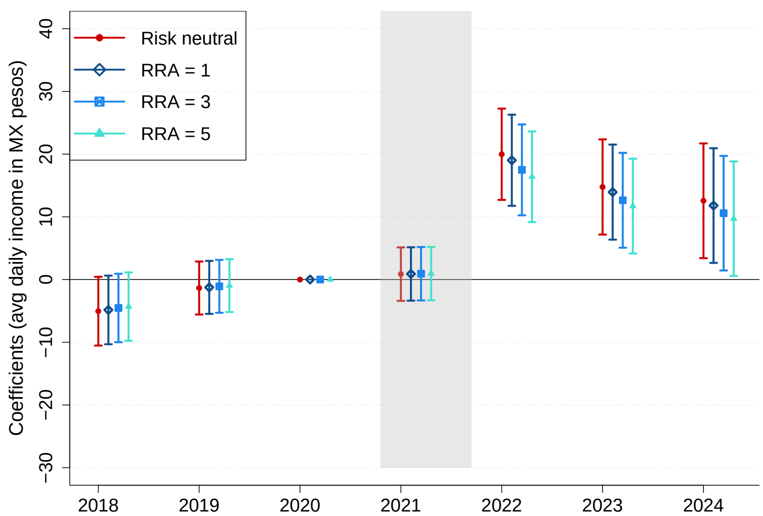
(d) $\frac{wage_{p25}}{wage_{p75}}$



(e) $\frac{\text{Avg wage new hires}}{\text{Avg wage incumbents}}$

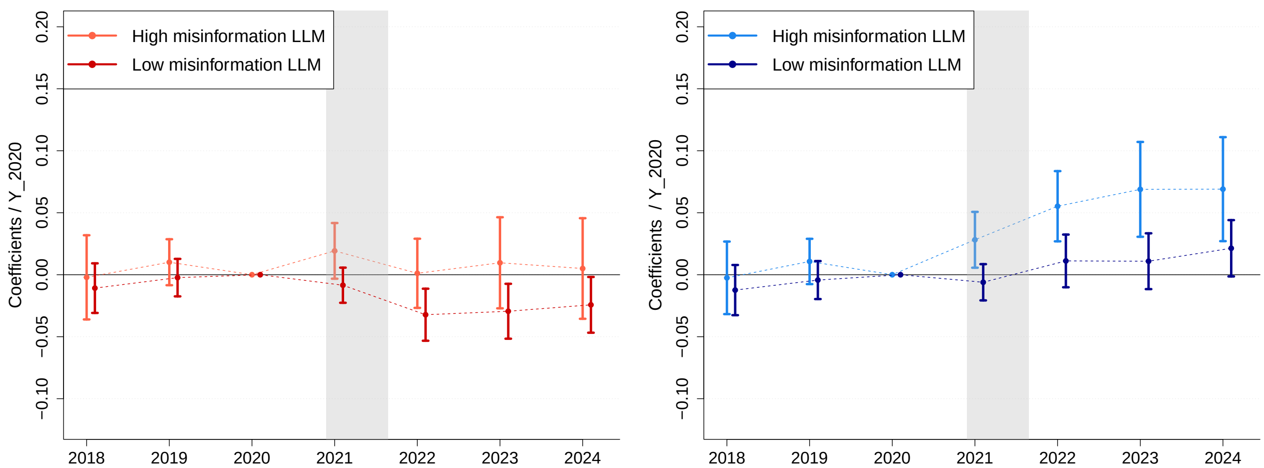
Notes: This figure shows the estimated effects of the outsourcing reform on several measures of the within-firm wage distribution. Regressions are based on Equation 13. Outcomes are measured annually and include: (1) average firm wage; (2) median firm wage; (3) 99th percentile of the firm wage distribution; (4) the ratio of the 25^{th} to the 75^{th} percentile of the firm wage distribution; and (5) the ratio of the mean wage of new hires in a given year to the mean wage of incumbents employed since 2018. Regressions are estimated on the balanced IMSS establishment sample described in Section 6.1.2. Standard errors are clustered at the establishment level. [Back to Section 6.2.4]

Figure 10: Effect on value of total compensation under different risk aversion values



Notes: This figure shows the estimates α_k and their 95% confidence intervals from estimating Equation 14 on the yearly average of the risk-adjusted value of worker daily total compensation, which is defined as $wage + \hat{\alpha} * profit\ sharing\ income$. The coefficients in red correspond to $\alpha = 1$. The series shown in different shades of blue construct the outcome using alternative values of $\hat{\alpha}$ implied by distinct relative risk-aversion parameters γ (see Table C.1, row 1). The shaded grey area represents the year in which the outsourcing reform was approved. Regressions are estimated on a balanced sample of workers from IMSS described in Section 6.1.2. Standard errors are clustered at the establishment level. [Back to Section 6.2.6]

Figure 11: Effect on wage and total compensation - Heterogeneity by misinformation levels



(a) Wages

(b) Total compensation

Notes: This figure shows the estimates δ_k and their 95% confidence intervals from estimating Equation 13 on the yearly average daily wages (panel a) and daily total compensation (panel b). The coefficients and standard errors are expressed relative to the average compensation of treated workers in 2020. The shaded grey area represents the year in which the outsourcing reform was approved. Regressions are estimated on a balanced sample of establishments from IMSS described in Section 6.1.2. Establishments are divided into two groups based on the level of misinformation in the local labor market (LLM). Misinformation in a LLM is proxied with the share of workers receiving profit-sharing in the LLM in 2018. 'High misinformation LLM' ('Less misinformation LLM') corresponds to establishments in LLM with above-median (below-median) share of workers not receiving profit-sharing in 2018. Standard errors are clustered at the establishment level. [Back to Section 6.2.7]

Tables

Table 1: Summary Statistics on EMIM establishments by outsourcing use - 2018

Variable	Full Outsourcing	Partial Outsourcing	Control	All
N	1629	855	5581	8065
Total workers at establishment	410	547	399	417
Prop workers outsourced	0.96	0.23	0.01	0.23
Estab. outsourcing > 95%	0.97	0.03	0.01	0.21
Profits	407 607	309 614	150 265	216 727
Value added per worker	1808	861	816	1021
Investment per worker	65	41	23	34
Foreign	0.42	0.48	0.31	0.35
Prop. women	0.28	0.33	0.34	0.32
Prop white collar	0.27	0.24	0.21	0.23
Profit sharing	46	3855	3036	2519
Registered in IMSS	0.27	0.93	0.9	0.78

Notes: This table displays the average value of different variables across the three different outsourcing groups and for all establishments in EMIM. Figures are computed using 2018 data from EMIM and the Economic Census. Nominal variables are in thousands of Mexican Pesos (2018 value). Full outsourcing establishments are those outsourcing more than 95% of their workers in the year pre-reform (2020). Partial outsourcing establishments are those with positive outsourcing but less than 95% of their workers in the year pre-reform. Control establishments are those not outsourcing in the year pre-reform. [Back to Section 4.1]

Table 2: Difference in Differences estimates - Profit sharing

	(1) Profit sharing	(2) Profit sharing / L
Pre-reform years		
2018	-98.25	-0.74*
	(60.84)	(0.3927)
2019	-164.3***	-0.48***
	(47.45)	(0.1284)
Post-reform years		
2021	32.60	0.27
	(63.68)	(0.1662)
2022	2,846.3***	6.96***
	(207.2)	(0.4826)
2023	3,107.9***	7.75***
	(219.6)	(0.4587)
2024	3,295.4***	8.47***
	(225.7)	(0.5490)
Observations	47,096	47,093

Notes: This table shows the estimated β_k from Equation 11. Estimation on the balanced sample of establishments in EMIM from 2018 to 2024, where we aggregate the data at the yearly level for each establishment. The treatment group includes establishments outsourcing more than 95% of their workers pre-reform. The control group are establishments not using outsourcing pre-reform. The outcome variable is yearly profit sharing in column (1), and yearly profit sharing over total workers in column (2). Both variables are in thousands of mexican pesos. Both specifications include establishment fixed effects and year fixed effects. Standard errors clustered at the establishment level are in parenthesis. Signif. Codes: ***: 0.01, **: 0.05, *: 0.1 [Back to Section 6.2.2]

Table 3: Difference in Differences estimates - Employment

	(1)	(2)	(3)	(4)
Panel A: First Stage				
	Share outsourced	Any outsource	Outsource > 95%	Number outsourced
Post Reform * Full-outsourcing	-0.5895***	-0.5382***	-0.6063***	-210.0***
	(0.0072)	(0.0082)	(0.0072)	(5.937)
Observations	454,132	454,132	454,132	454,230
Panel B: Employment outcomes				
	In-house workers	Log(Total workers)	Total workers	Log(Avg hs worked)
Post Reform * Full-outsourcing	256.2***	0.0161*	4.066	0.0016
	(9.869)	(0.0091)	(4.278)	(0.0030)
Observations	454,230	454,132	454,230	450,887

Notes: This table reports the outsourcing reform's treatment effects. Post reform is an indicator equal to 1 from 2021 onwards. Estimation on the balanced sample of establishments in EMIM from 2018 to 2023. Treatment group includes establishments outsourcing over 95% of workers pre-reform. Control group includes establishments with no outsourcing in the year pre-reform. In Panel A the outcomes are (1) share of workers outsourced, (2) a binary variable = 1 if the establishment outsourced (3) is a binary = 1 if the establishment outsourced over 95% of employees (4) The number of workers outsourced. In Panel B the outcomes are (1) number of in-house workers (2) is log of total workers (outsourced + in-house) (3) total workers (4) average hours worked at the establishment. All specifications include establishment fixed effects, 3-digits NAICS sector x date fixed effects, state x data fixed effects and six size-group specific time trends. Standard errors clustered at the establishment level are in parenthesis. Signif. Codes: ***: 0.01, **: 0.05, *: 0.1 [Back to Section 6.2.3]

Table 4: Summary statistics on worker and establishment samples - IMSS 2018

	(1)	(2)	(3)	(4)
Panel A: Worker sample				
	Insourced by full outsourcing		Not insourced and firm not outsourcing	
	All	Reg. Sample	All	Reg. Sample
Daily wage	517	588	381	474
Age	35	37	37	38
Share women	0.3	0.27	0.36	0.35
Firm size	1328	1443	928	1145
Firm size post-reform	1487	1580	-	-
Observations	58 566	26 639	205 353	77 064
Panel B: Establishment regression sample				
		Full outsourcing		No outsourcing
Estab. size	-	237	-	171
Avg daily wage	-	536	-	311
P25 daily wage	-	316	-	197
P75 daily wage	-	639	-	346
Observations	-	788	-	14828

Notes: This table shows the mean of different variables across the worker and establishment level samples from the social security data (IMSS) from 2018. The statistics in Panel A are based on a 10% random sample of workers in the manufacturing sector in 2021. Columns (2) and (4) restrict this sample to workers remaining at the same firm between 2018-24, and working for a firm with at least 20 workers, which is the sample used to estimate 12. The Colums 1-2 represent workers who were insourced by a full outsourcing establishment during the reform. The Columns 3-4 represent workers who were not insourced and were working for firms that were not using outsourcing (control group). The statistics in Panel B are based on a balanced sample of establishments from 2018-24 where full outsourcing establishments are restricted to those that had a 1-to-1 relation with contracting establishments, which is the sample used to estimate 13. Column 2 represents establishments that outsourced over 95% of their workers pre reform. Column 4 represents establishments that did not outsource pre-reform. Nominal variables are in Mexican pesos (2019 value). [Back to Section 6.1.2]

Table 5: Worker level difference in differences: wage and total compensation

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Worker - level regressions					Cell - level regressions	
Outcome variable:	Wage	Ln Wage	$\frac{Wage}{Wage_{2020}}$	Wage	Total Compensation	Wage	Total Compensation
Treat x Year = 2018	-3.702	0.0025	-0.0011	-1.776	-5.044*	-1.776	-5.044
	(2.266)	(0.0039)	(0.0035)	(2.666)	(2.797)	(2.983)	(3.397)
Treat x Year = 2019	-1.154	0.0014	-0.0010	0.6946	-1.352	0.6946	-1.352
	(1.674)	(0.0029)	(0.0028)	(2.060)	(2.156)	(2.333)	(2.699)
Treat x Year = 2021	0.8023	-0.0007	-0.0022	1.540	0.8680	1.540	0.8680
	(1.530)	(0.0024)	(0.0027)	(2.141)	(2.174)	(2.649)	(2.867)
Treat x Year = 2022	-5.346**	-0.0172***	-0.0175***	-3.584	19.98***	-3.584	19.98***
	(2.618)	(0.0043)	(0.0054)	(3.170)	(3.713)	(4.233)	(4.473)
Treat x Year = 2023	-9.641***	-0.0331***	-0.0399***	-8.908***	14.76***	-8.908**	14.76***
	(2.611)	(0.0044)	(0.0058)	(3.403)	(3.873)	(4.439)	(4.588)
Treat x Year = 2024	-12.87***	-0.0450***	-0.0602***	-11.99***	12.56***	-11.99**	12.56**
	(3.157)	(0.0054)	(0.0076)	(4.039)	(4.667)	(4.856)	(5.514)
$\theta_{2022-24}$	-9.3	-0.03	-0.04	-8.2	17.1	-8.2	17.1
$\theta_{2022-24}$ as prop. of mean outcome treated 2020	-1.5%	-	-	-1.4%	2.8%	-1.4%	2.8%
Worker FE	Yes	Yes	Yes	No	No	No	No
Stratum FE	No	No	No	Yes	Yes	Yes	Yes
Observations	725,921	725,921	725,921	725,921	647,867	14,629	13,030

Notes: This table shows the effects of the reform on worker wages and total compensation using worker level regressions. Columns (1) to (3) show the estimates from Equation 12. In Column (1) the outcome is the average real daily wage in year t (in MX pesos). In Column (2) the outcome is the natural logarithm of $wage_t$. In Column (3) the outcome is the wage as a proportion of the wage in 2020. Columns (4) and (5) show the estimates from Equation 14 on wages and total compensation ($wage_t + profit\ sharing_t$). Columns (6) to (7) estimate Equation 12 using data aggregated at the state x sector x size group x year level and weighting observations by the number of workers in the cell. In Column (6) the outcome is $wage_t$. In Column (7) the outcome is ($wage_t + profit\ sharing_t$) and the sample is restricted to the cells that could be merged with profit sharing data from INEGI. $\theta_{2022-24}$ is estimated based on Equation 10, replacing $1_{t=k}$ with an indicator equal to 1 from 2022 onwards. All specifications include sector x year FE, state x year FE and pre-reform firm size specific linear trends. Estimation is based on worker sample from social security data explained in Section 6.1.2. Standard errors for columns (1) to (5) are clustered at the establishment level and at the stratum level for Columns (6) and (7). Signif. Codes: ***: 0.01, **: 0.05, *: 0.1 [Back to Section 6.2.4]

Table 6: Descriptive results survey on information frictions by monthly salary

	Share of respondents		
	Below 10k	Above 10k	All
Panel A: Questions on profit-sharing awareness			
Does **not** know what profit sharing is	0.29	0.13	0.19
Does **not** know how profit-sharing is distributed*	0.39	0.37	0.38
Firm gave no info on profit-sharing but then paid it***	0.87	0.84	0.83
*Panel B: Responded correctly to question on:**			
Total profit sharing as % of profits	0.35	0.38	0.38
Firms subject to profit-sharing	0.16	0.17	0.16
Minimum wage	0.76	0.71	0.72
Mandatory vacation days	0.49	0.7	0.63
Aguinaldo	0.63	0.88	0.79
*Panel C: When choosing where to work considered:**			
Salary	0.61	0.81	0.74
Vacation days	0.2	0.36	0.31
Pension benefits	0.09	0.13	0.11
Training opportunities	0.31	0.36	0.34
Profit sharing	0.1	0.21	0.17
Profit sharing (among those receiving profit-sharing)***	0.28	0.36	0.34
*Panel D: Did not consider profit-sharing because:***			
Lack of information or does not understand	0.43	0.35	0.37
They forgot	0.24	0.15	0.17
Does not trust employer	0.12	0.13	0.13
It is volatile	0.14	0.24	0.21
It is paid lump-sum in May	0.05	0.04	0.04
*Panel E: If changed job, do you think the offered (..) would be same / higher / lower / don't know**			
Does not know (wage)	0.05	0.04	0.05
Does not know (profit sharing)	0.31	0.2	0.23
Panel F:			
Prefers profit-sharing **not** to be paid lump-sum in May*	0.27	0.16	0.19
Observations	188	417	638

Notes: This table provide summary statistics on the share of workers providing specific answers to questions by monthly wage group (above and below 10,000 MXN), and was constructed with data from a self-conducted survey on Mexican workers (N = 638) in August 2025. (*) indicates that the sample is restricted to workers who know what profit-sharing is. (**) indicates that the sample is restricted to workers who know what profit-sharing is but did not take it into account when evaluating their job offer. (***) indicates that the sample is restricted to workers whose employer provides profit-sharing. Panel A refers to question on profit-sharing awareness. Panel B shows the share of workers who provided the correct answer to questions regarding different work benefits in Mexico. Panel C reports the share of workers choosing different benefits when asked: *'When you chose to accept your current job, which of the benefits below did you take into account to evaluate whether the company's offer was good or not? Please check all that apply.'* Panel D reports the share of workers selecting each reason in response to the question *'If in (question from Panel C) you did not select profit-sharing payments, please indicate the reasons why you did not take this benefit into account when choosing a job. Please check all that apply.'*. Panel E reports the share of people answering 'I don't know' to the questions: *'Imagine you are forced to leave your current job and have three months to find employment in the same occupation with another employer. Do you think you would obtain a job with [profit-sharing / wage] payments that are higher, the same, or lower?'*. Panel F shows the share of people indicating they would prefer it if profit-sharing were not paid lump-sum in May. [Back to Section 7]

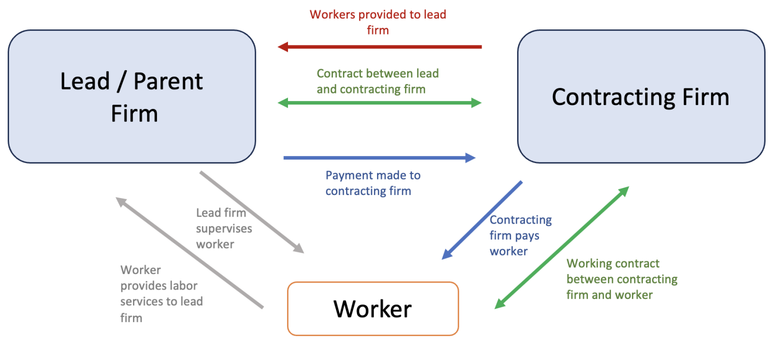
Table 7: Job offers ranking

	(1)	(2)	(3)	(4)	(5)	(6)
	All			Did not consider PTU when choosing current job		
	Ranking points	Ranked 1^{st}	Ranked last	Ranking points	Ranked 1^{st}	Ranked last
Wage	2.13***	0.954***	-0.662***	2.17***	1.01***	-0.637***
	(0.129)	(0.053)	(0.060)	(0.158)	(0.064)	(0.074)
Profit-sharing	2.59***	0.996***	-0.767***	2.63***	1.05***	-0.747***
	(0.112)	(0.048)	(0.052)	(0.138)	(0.058)	(0.064)
Wage × Complex	-0.039	-0.010	0.014	-0.045	-0.013	0.014
	(0.037)	(0.016)	(0.016)	(0.046)	(0.020)	(0.019)
Profit-sharing × Complex	-0.249***	-0.053**	0.075***	-0.310***	-0.073**	0.088***
	(0.055)	(0.025)	(0.022)	(0.068)	(0.031)	(0.028)
Observations	2,960	2,960	2,960	1,976	1,976	1,976

Notes: This table is based on respondents' rankings from a hypothetical job-offer exercise using a sub-sample of 370 individuals from the Prolific survey. Each observation corresponds to an individual–job-offer–complexity scenario. The table reports estimates from regressions of the ranking assigned to a job offer on the offer's wage, profit-sharing, and their interactions with an indicator for the high-complexity setting. The outcome variables are: the ranking points assigned to the job offer (1–4), where higher values indicate a higher ranking; a binary indicator equal to 1 if the offer was ranked first; and a binary indicator equal to 1 if the offer was ranked last. Columns 4-6 limit the sample to individuals who stated that they did not consider profit-sharing when choosing their current (real life) job. All specifications include individual and complexity-level fixed effects. Significance levels: $***p < 0.01, **p < 0.05, *p < 0.1$. [Back to Section 7]

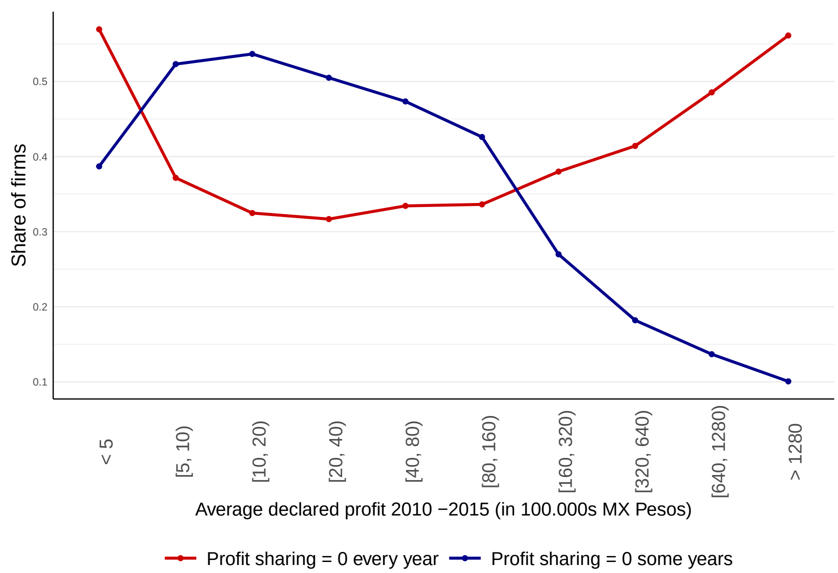
A Appendix A: Additional Tables and Figures

Figure A.1: Schematic graph illustrating outsourcing relationship



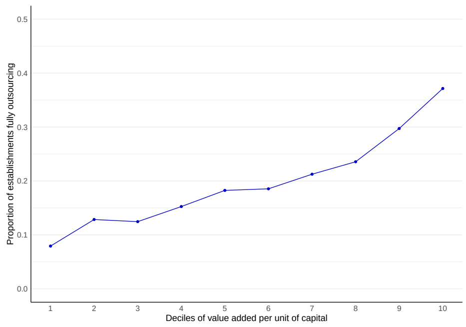
Notes: This figure shows a schematic graph of the actors in an outsourcing relationship. Blue lines indicate a payment from one actor to the other. Green lines indicate the existence of a contract between the two actors.

Figure A.2: Share of firms with no declared profit sharing by profit size groups

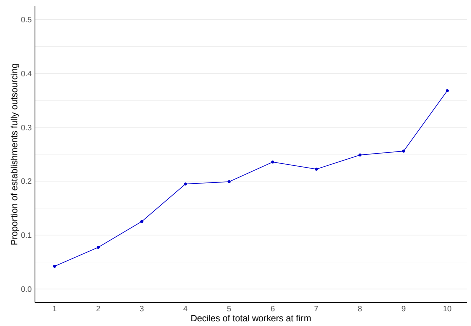


Notes: This figure plots the proportion of firms that declared zero profit sharing on *every* year from 2010 to 2015 (red line), and the proportion of firms that declared zero profit sharing on *some* year, but not every year (blue line), against average declared profit between 2010 and 2015. The series is constructed with data from official corporate tax declarations from the national tax registry (Servicio de Administracion Tributaria). [Back to Section 4.2]

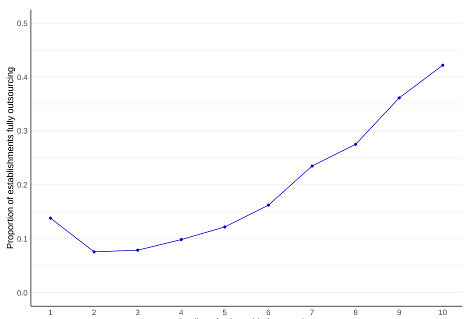
Figure A.3: Full outsourcing and productivity measures



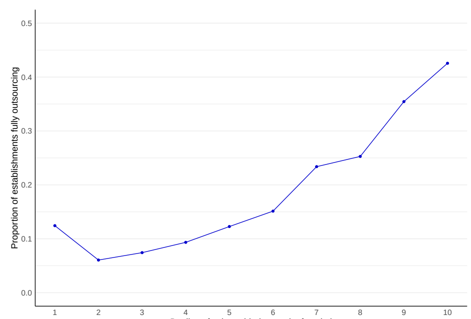
(a) Value added



(b) Firm size



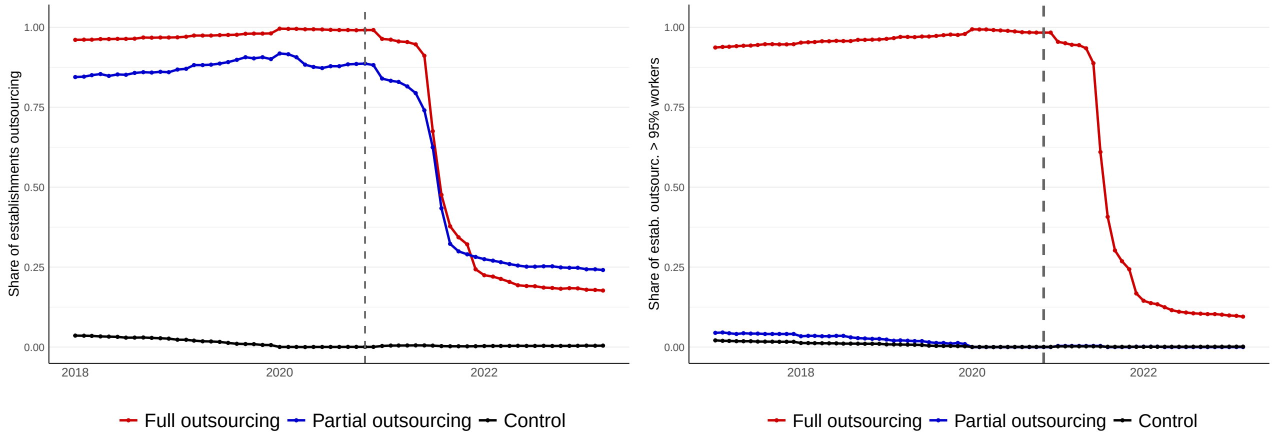
(c) VA per worker



(d) VA per capital

Notes: These figures plot the share of full outsourcing establishments across the deciles of different variables for 2018. They are built using the sample of establishments from EMIM, merged with information from the 2018 Economic Census. The value of the y axis in each graph is the proportion of full outsourcing establishments in a particular decile of the distribution of that variable. Panel (a) plots deciles of value added Panel (b) plots the deciles of firm size, computed as number of workers at the firm (c) plots value added divided by total workers (d) plots value added divided by total machines. [Back to Section 4.2]

Figure A.4: Effect of the reform on outsourcing

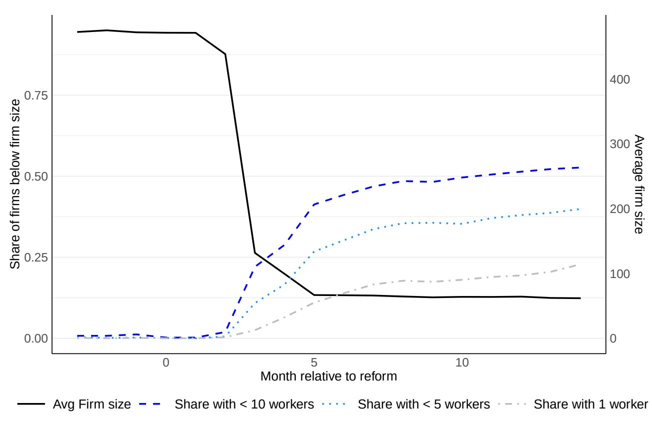


(a) Any outsourcing

(b) Outsourcing more than 95% of workers

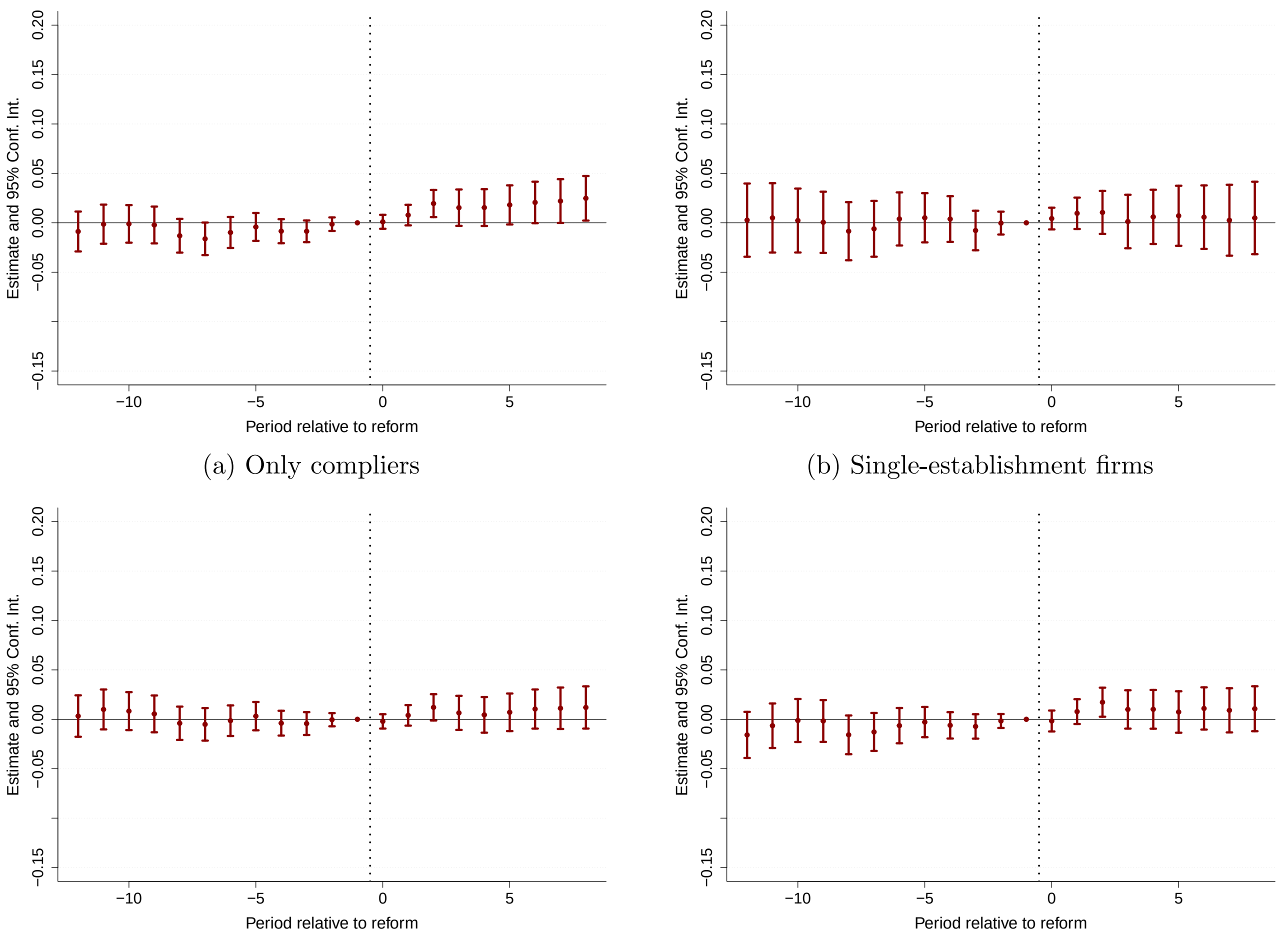
Notes: This Figure shows the share of establishments with positive outsourcing on each month from January 2017 to November 2022 in each group. Results are constructed using a balanced sample of establishments from EMIM. Full outsourcing establishments are those outsourcing over 95% of workers in at least one month on the year prior to the outsourcing reform, partial outsourcing establishments are those positive outsourcing, but lower than 95%, in at least one month on the year prior to the outsourcing reform. Control group includes establishments not outsourcing before the reform. The dashed line corresponds to November 2020, when the reform was first presented.

Figure A.5: Evolution of firm size of surviving contracting firms post-reform



Notes:The figure shows the evolution of contracting firms after the reform, among the contracting firms that survived post-reform. The black line represents the average firm size over time. The figure is constructed using data from social security (IMSS). The dotted lines show the share of surviving contracting firms with less than 10 employees (red), less than 5 employees (blue), and with 1 employee (green). Time is measured relative to the reform date.

Figure A.6: Effect on total employment - robustness



(a) Only compliers

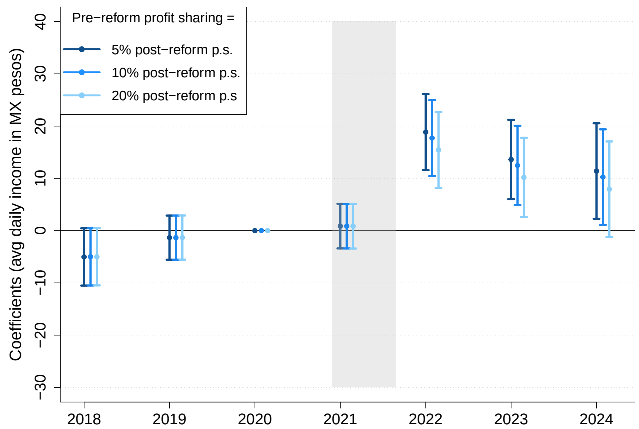
(b) Single-establishment firms

(c) Treatment defined 2y pre-reform

(d) Unbalanced panel

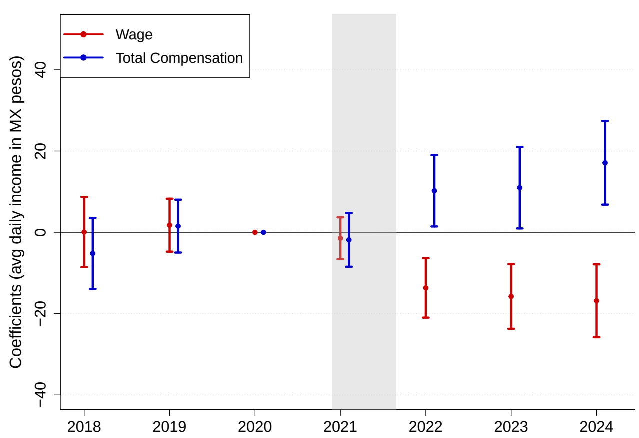
Notes: This figure plots the β_k from Equation 11 and 95% confidence intervals. The estimation is carried out on different sub-samples of establishments from EMIM between 2018 and 2023. Outcome for all columns is the natural logarithm of total workers (outsourced + in-house). Treatment group includes establishments outsourcing over 95% of workers pre-reform. Control group includes establishments with no outsourcing in the year pre-reform. In Panel (a) the treatment group is restricted to the compliers defined as the establishments that were not full outsourcing two years post-reform. Panel (b) includes only establishments belonging to single-establishment firms. In panel (c) the treatment group is defined as establishments outsourcing over 95% of workers in the two years pre-reform (instead of 1 year in the original specification). Panel (d) estimates the regression on an unbalanced panel of establishments. Standard errors are clustered at the establishment level. [Back to Section 6.2.3]

Figure A.7: Effect of the reform on yearly compensation - different assumptions on profit-sharing pre-reform



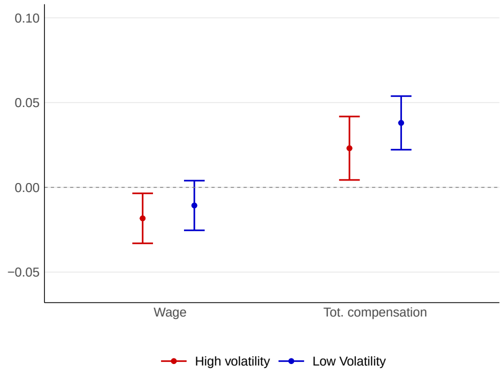
Notes: This figure shows the estimates θ_k and their 95% confidence intervals from estimating Equation (14) on daily total compensation (wage + profit-sharing income). The shaded grey area represents the year in which the outsourcing reform was approved. We plot the results on total compensation under the assumption that for treated workers their profit-sharing income pre-reform was a proportion p of profit-sharing post reform, for $p \in \{0.05, 0.1, 0.2\}$. Regressions are estimated on a balanced 10% random sample of workers from IMSS. Standard errors are clustered at the establishment level. [Back to Section 6.2.5]

Figure A.8: Effect of the reform on yearly wage and total compensation - Establishment level

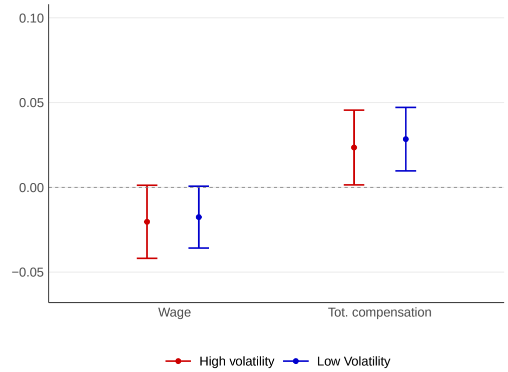


Notes: This figure shows the estimates δ_k and their 95% confidence intervals from estimating Equation 13 on the yearly average daily wages (red) and daily total compensation (wage + profit sharing) (blue). The shaded grey area represents the year in which the outsourcing reform was approved. Regressions are estimated on a balanced sample of establishments from IMSS described in Section 6.1.2. Standard errors are clustered at the establishment level. [Back to Section 6.2.4]

Figure A.9: Effect of the reform on wage and total compensation - Heterogeneity by volatility levels



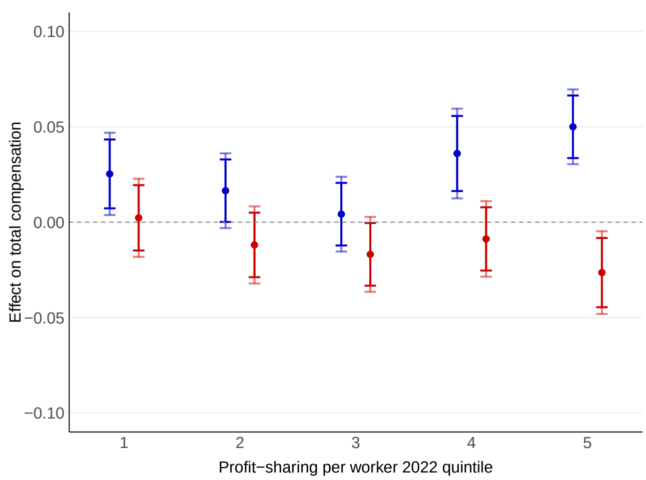
(a) Worker-level regression



(b) Establishment-level regressions

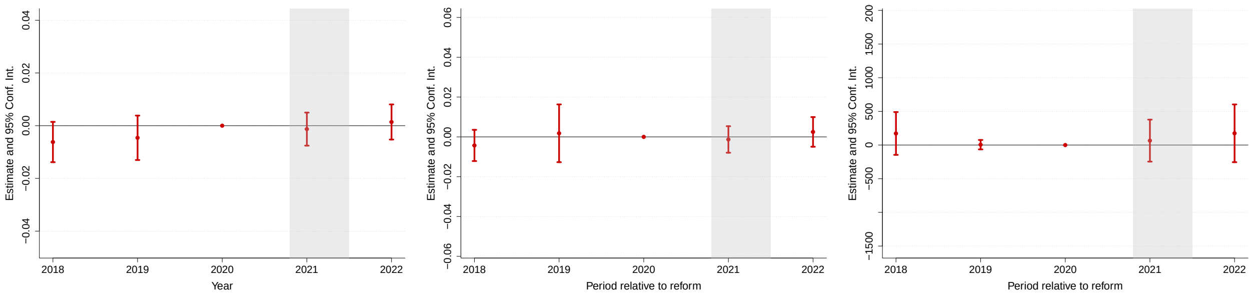
Notes: This Figure shows estimates θ_{post} and 90% and 95% confidence intervals from estimating the effect of the reform at the worker level (Equation 12) and firm level (Equation 13), where we replace $1_{t=k}$ by an indicator variable equal to one in the post reform period, after 2021. In both figures we split the sample into firms / workers in sectors above and below median volatility in profit-sharing. The outcomes are wages daily total compensation (wage + profit-sharing income). Coefficients and standard errors are expressed in terms of the average wage of treated group in the pre-reform year. When the outcome is total compensation we replace worker and establishment fixed effects by stratum fixed effects, as described in Section 6.1.3. Standard errors are clustered at the establishment level. [Back to Section 6.2.5]

Figure A.10: Effect on wage and total compensation - Heterogeneity by profit-sharing levels 2022



Notes: This Figure shows estimates θ_{post} and their 95% confidence intervals from estimating the effect of the reform at the worker level on daily wages (red coefficients) using Equation 12 and daily total compensation (blue coefficients) using Equation 14, where we replace $1_{t=k}$ by an indicator variable equal to one after 2021. We split the worker sample into five quintiles according to their average profit-sharing per worker in 2022. Each coefficient corresponds to the effect of the reform on wages or total compensation for a specific quintile. Coefficients and standard errors are expressed in terms of the average wage of treated group in the pre-reform year. Standard errors are clustered at the establishment level. [Back to Section 6.2.5]

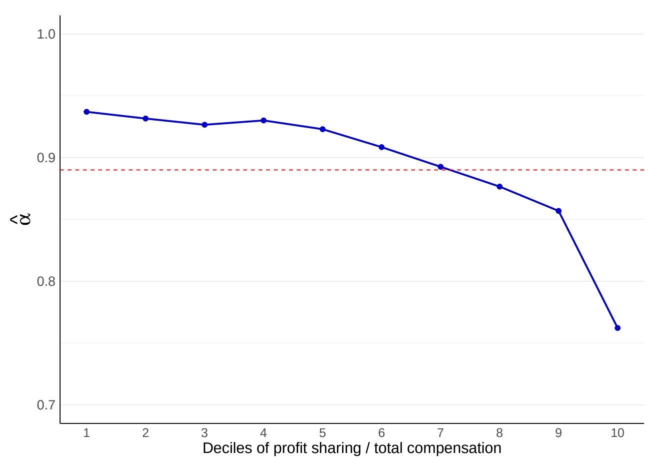
Figure A.11: Effects of reform on investment and value added per worker



(a) Gross investment rate (b) Net investment rate (c) Value added per worker

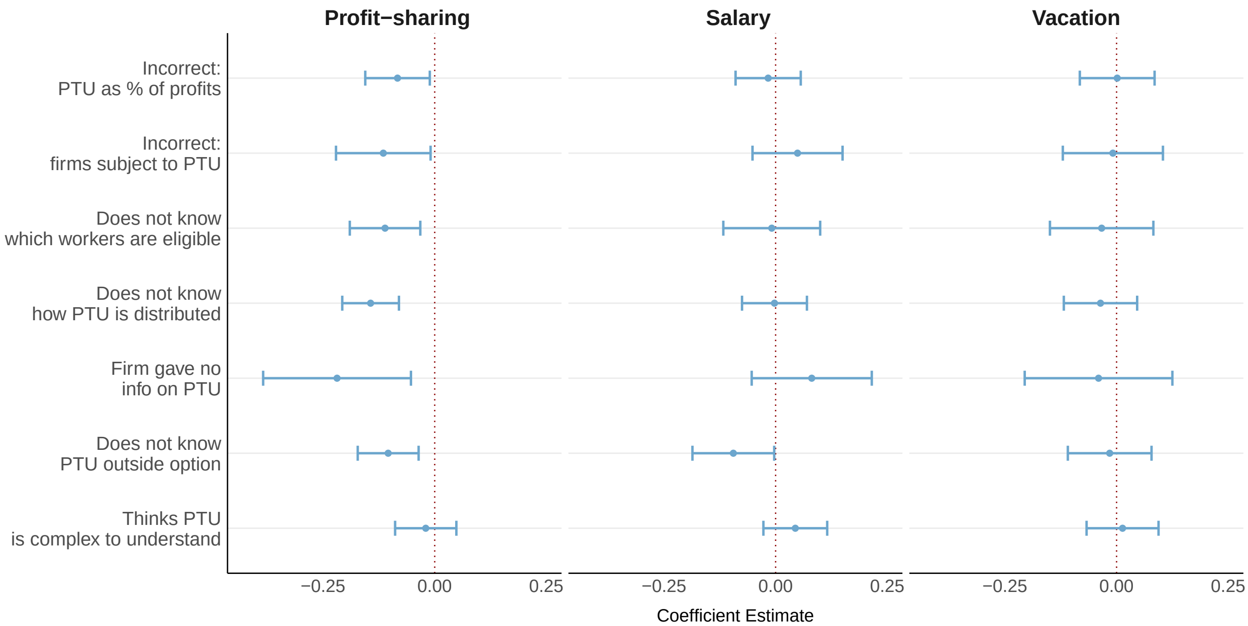
Notes: This figure shows the difference in differences coefficients and 95% confidence intervals from estimating Equation 11 at the yearly level using the annual manufacturing establishment survey. The treatment group includes establishments outsourcing more than 95% of their workers pre-reform. The control group are establishments not using outsourcing pre-reform. The outcome in panel (a) is gross investment rate, measured as expenditure in tangible assets divided by the value of tangible assets. The outcome in panel (b) is net investment rate, measured as expenditure in tangible assets minus depreciation of tangible assets, divided by the value of tangible assets. The outcome in panel (c) value added over total workers. Standard errors are clustered at the establishment level. Partial outsourcing establishments, i.e. those with positive outsourcing < 95% pre-reform are excluded from the sample.

Figure A.12: $\hat{\alpha}$ as a function of $\frac{\text{profit sharing}}{\text{total compensation}}$ deciles



Notes: This figure plots the average estimated $\hat{\alpha}_i$ for a relative risk aversion of 3, using the the procedure described in Section C.1 across the deciles of the distribution of average profit-sharing as a share of average total compensation between 2017 and 2024. The dashed red line corresponds to the average value of $\hat{\alpha} = 0.89$. The figure was built using the sample of workers in the control group in IMSS from 2017 to 2024. [Back to Section C.1]

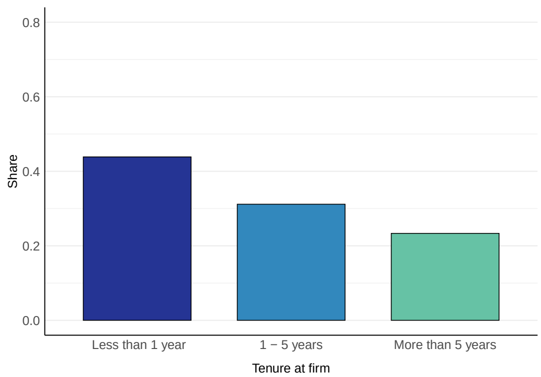
Figure A.13: Correlation between profit-sharing misinformation and relevant job characteristics



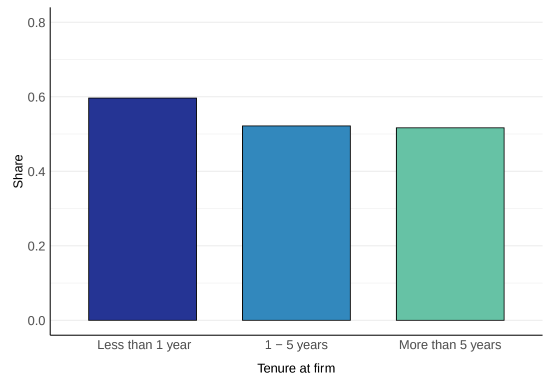
Notes: This figure uses data from a self-administered survey of Mexican workers conducted in August 2025 (N = 638). Each panel reports coefficients from separate regressions where the outcome variable equals 1 if the worker selected a given benefit, profit-sharing (PTU), salary, vacation, as a response to the question: *'When you chose to accept your current job, which of the benefits below did you take into account to evaluate whether the company's offer was good or not? Please check all that apply.'* The explanatory variables capture different forms of misinformation or lack of knowledge about profit-sharing: giving incorrect answers about the legal formula (PTU as a share of profits or which firms are subject), not knowing which workers are eligible, not knowing how PTU is distributed, reporting that the firm provided no information, not knowing how much PTU they could receive if they changed jobs, or believing that PTU is complex to understand. All regressions include fixed effects for eight salary categories. [Back to Section 7]

Figure A.14: Misinformation on profit-sharing (PTU) by tenure

Sample: workers at firms paying PTU

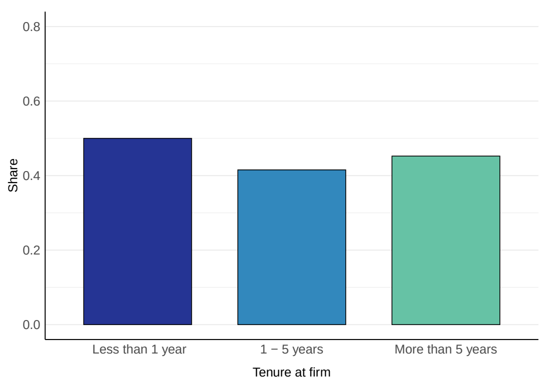


(a) Does **not** know how PTU is distributed

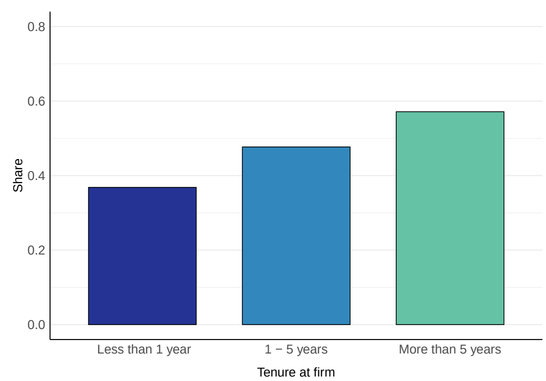


(b) Thinks PTU is complex to understand

Sample: workers at firms **not** paying PTU



(c) Does **not** know how PTU is distributed



(d) Thinks PTU is complex to understand

Notes: The figure uses data from a self-administered survey of Mexican workers conducted in August 2025. In all panels, the x-axis indicates workers' tenure at their current firm. The top panels restrict the sample to workers employed at firms that pay profit-sharing, while the bottom panels restrict to workers at firms that do not. In Panels (a) and (c), the y-axis shows the share of workers reporting that they do not know how profit-sharing is distributed within the firm. In Panels (b) and (d), the y-axis shows the share of workers reporting that they find profit-sharing complex to understand. Workers who reported not knowing what profit-sharing is are excluded from the analysis. [Back to Section 7]

Table A.1: Transition Matrix by establishment type

	Full outsourcing	Partial outsourcing	No outsourcing
Full outsourcing	0.969	0.022	0.009
Partial outsourcing	0.025	0.853	0.122
No outsourcing	0.002	0.014	0.984

Notes: This table displays the yearly transition matrix across establishment types. Full outsourcing are establishments outsourcing more than 95% of workers on average in the year. Partial outsourcing are establishments with positive outsourcing in the year, but less than 95% of their workers on average. No outsourcing are establishment with zero outsourced workers in the year. The number in each cell in row r column c corresponds to the proportion of establishments that were classified as r in a certain year that were classified as c in the following year. The table is built using a balanced sample of establishments in EMIM from 2017 to 2020.

Table A.2: Outsourcing, Seasonality, and Employment Volatility

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Unit of Analysis	Sector level				Establishment level		
Dep. Var.	Seasonality Total workers	Seasonality Revenue	Seasonality Blue collar	Seasonality White collar	Volatility Total workers	Volatility Total workers	Volatility Blue collar
Full Outsourcing	-0.010	-0.020	-0.010	-0.007	-0.008^{***}	-0.003	-0.003
	(0.009)	(0.030)	(0.010)	(0.006)	(0.0019)	(0.0017)	(0.002)
Partial outsourcing	0.070^{*}	0.120^{*}	0.110^{*}	-0.007	0.0069^{**}	0.007^{**}	0.009^{***}
	(0.040)	(0.070)	(0.060)	(0.020)	(0.003)	(0.003)	(0.003)
Sector FE	No	No	No	No	No	Yes	Yes
Observations	86	86	86	86	290,340	290,340	288,408

Notes: Columns 1–4 present sector-level regressions of seasonal variation in different sector-level outcomes on the share of establishments classified as full or partial outsourcing. Sector seasonality for variable x is computed as the average absolute value of the seasonal component from an additive moving-average decomposition of x, divided by the average of x over the period. All specifications control for establishment size. Columns 5–7 show establishment-level regressions of employment volatility on a binary variable equal to 1 if the establishment is classified as full outsourcing and another equal to 1 if the establishment belongs to the partial outsourcing group. Volatility is measured as the within-establishment yearly coefficient of variation of the de-trended employment from 2017 to 2020. Employment is de-trended using an additive time-series decomposition, where we subtract the trend component from the original variable. All specifications control for establishment size. Robust (Col 1-4) or clustered 4-digit NAICS (Col 5-7) standard errors in parentheses. The results are constructed using establishment data from EMIM for the period 2017-2019. Significance levels: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. [Back to Section 4.3]

Table A.3: Summary Statistics on profit sharing 2022-2024

	Full outsourcing			Control		
	2022	2023	2024	2022	2023	2024
Total profit-sharing	3151	3693	3846	2326	2606	2571
	(6689)	(7052)	(7376)	(5805)	(6206)	(6308)
Profit-sharing / L	7.48	8.62	8.92	6.26	6.62	6.19
	(15.15)	(13.996)	(17.14)	(22.82)	(19.67)	(16.54)
Profit-sharing p.w. / monthly wage	0.45	0.49	0.52	0.43	0.43	0.42
	(0.68)	(0.65)	(0.97)	(1.36)	(1.04)	(0.89)

Notes: This table presents the mean and standard deviation of profit-sharing statistics for full outsourcing establishments and control establishments, using 2022-2024 data from EMIM. Full outsourcing establishments are those that were outsourcing more than 95% of workers pre-reform. Control are establishments not outsourcing pre-reform. The first two rows display the average total profit-sharing costs and profit-sharing per worker, both measured in thousands of Mexican Pesos (deflated with 2019 base year), for each group of establishments. The last row shows the average yearly profit-sharing income per worker divided by the average monthly wage. [Back to Section 6.2.2]

Table A.5: Effect of reform on within-firm wage distribution

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Mean wage	Log mean wage	$wage_{p25}$	median wage	$wage_{p75}$	$wage_{p99}$	$\frac{wage_{p25}}{wage_{p75}}$	$\frac{\text{Avg wage new hires}}{\text{Avg wage incumbents}}$
Post Reform * Full-outsourcing	-15.51***	-0.0635***	-12.43***	-13.71***	-19.73***	-8.173	-0.0070**	-0.0080
	(3.723)	(0.0071)	(2.877)	(3.890)	(5.957)	(9.709)	(0.0033)	(0.0078)
Observations	109,312	109,312	109,312	109,312	109,312	109,312	109,312	90,598
Full-outs. pre reform mean	543	-	323	430	646	1715	-	-
δ_{post} as % of pre-reform mean	-2.8%	-	-3.8%	-3.2%	3%	0.4%	-	-
		-						

Notes: This table reports the estimated effects of the outsourcing reform on several measures of the within-firm wage distribution. Regressions are based on Equation 13, replacing $1_{t=k}$ with an indicator equal to 1 from 2022 onwards (Post-reform). Outcomes are measured annually and include: (1) average firm wage; (2) ln(average firm wage); (3) 25th percentile of within firm wage distribution (4) median firm wage; (6) 75th percentile of the firm wage distribution; (6) 99th percentile of the firm wage distribution; (7) the ratio of the 25^{th} to the 75^{th} percentile of the firm wage distribution; and (8) the ratio of the mean wage of new hires in a given year to the mean wage of incumbents employed since 2018. Regressions are estimated on the balanced IMSS establishment sample described in Section 6.1.2. Standard errors are clustered at the establishment level. [Back to Section 6.2.4]

Table A.4: Worker level difference in differences: wage and total compensation - robustness

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Outcome variable:	Wage						Total compensation	
Specification:	Extended Sample I	Extended control grp	Excluding very low wage	Pre-period w decile FE	Narrow Cell FE	2-digit Sector FE	2-digit Sector FE	Alternative P.S, Measure
Treat x Year = 2018	-5.129**	-4.424*	-2.978	0.3087	0.8622	-3.077	-5.589*	-4.544
	(2.165)	(2.300)	(2.313)	(2.257)	(2.177)	(2.768)	(2.995)	(2.793)
Treat x Year = 2019	-1.923	-1.960	-1.302	-0.9241	-0.9769	-0.0520	-2.473	-1.201
	(1.583)	(1.731)	(1.710)	(1.694)	(1.622)	(2.159)	(2.364)	(2.162)
Treat x Year = 2021	1.114	0.6901	0.6228	0.8435	0.2257	1.484	1.252	0.6112
	(1.449)	(1.581)	(1.565)	(1.547)	(1.504)	(2.108)	(2.119)	(2.178)
Treat x Year = 2022	-5.126**	-4.571	-5.514**	-3.496	-3.955*	-4.267	18.95***	20.49***
	(2.490)	(2.800)	(2.649)	(2.682)	(2.355)	(3.395)	(3.558)	(3.738)
Treat x Year = 2023	-9.180***	-7.060**	-10.03***	-9.702***	-9.337***	-9.289***	14.88***	15.00***
	(2.525)	(3.188)	(2.638)	(2.620)	(2.478)	(3.447)	(3.725)	(3.896)
Treat x Year = 2024	-12.12***	-8.374**	-13.29***	-12.89***	-13.70***	-12.07***	14.21***	12.77***
	(3.039)	(4.049)	(3.202)	(3.199)	(3.210)	(4.028)	(4.540)	(4.691)
Year x NAICS sector FE	3-digit	3-digit	3-digit	3-digit	-	2-digit	2-digit	3-digit
Year x State FE	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes
Year x pre-reform wage decile FE	No	No	No	Yes	No	No	No	No
Year x [pre-reform wage decile x state x 3-digit sector] FE	No	No	No	No	Yes	No	No	No
Firm-size linear trends	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes
Worker FE	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Stratum FE	No	No	No	No	No	No	Yes	Yes
Observations	802,599	895,685	693,504	725,921	725,921	725,921	616,638	647,867

Notes: This table shows the results of estimating Equation 12 using different specifications. Column (1) and extends the original sample to workers that changed firm before 2020, or after 2022. Column (2) extends the the control group to include both the original control group and workers who were not outsourced but worked in firms that did do outsourcing pre-reform. Column (3) excludes workers which were earning less than 1.5 times the average minimum wage in the pre-reform period. Column (4) replaces the firm size linear trends by pre-reform wage decile x time FE. Column (5) includes pre-reform wage decile x 3-digit sector x state x year fixed effects. Column (6) and (7) replace 3d NAICS sector FE by 2-digit NAICS sector FE. Columns (8) uses a different methodology to calculate average profit sharing per worker. We compute the weighted average of total profit-sharing in each cell from EMIM (instead of profit-sharing per worker). We then calculate average profit-sharing per worker for each cell as the average total profit-sharing (from EMIM) divided by the average firm size measured with IMSS data. All specifications include year x state fixed effects. Standard errors are clustered at the firm level. Signif. Codes: ***: 0.01, **: 0.05, *: 0.1 [Back to Section 6.2.4]

Table A.6: Establishment level difference in differences: wage and total compensation

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Establishment level regressions					Cell - level regressions	
Outcome variable:	Wage	Ln Wage	$\frac{Wage}{Wage_{2020}}$	Wage	Total Compensation	Wage	Total Compensation
Treat x Year =2018	0.077	0.021***	0.019*	-4.544	-5.193	-4.544	-5.193
	(4.406)	(0.007)	(0.01)	(4.555)	(4.453)	(5.620)	(5.666)
Treat x Year =2019	1.762	0.016***	0.018**	2.436	1.525	2.436	1.525
	(3.322)	(0.005)	(0.009)	(3.272)	(3.315)	(4.220)	(4.386)
Treat x Year =2021	-1.459	-0.0003	0.002	-3.808	-1.866	-3.808	-1.866
	(2.627)	(0.005)	(0.005)	(3.294)	(3.365)	(4.552)	(4.706)
Treat x Year =2022	-13.67***	-0.034***	-0.03***	-14.72***	10.22**	-14.72***	10.22*
	(3.73)	(0.007)	(0.009)	(4.382)	(4.475)	(5.134)	(5.318)
Treat x Year =2023	-15.77***	-0.056***	-0.058***	-13.51***	10.97**	-13.51**	10.97*
	(4.063)	(0.007)	(0.01)	(4.963)	(5.105)	(5.853)	(6.081)
Treat x Year =2024	-16.84***	-0.074***	-0.082***	-10.24**	17.10***	-10.24	17.10**
	(4.576)	(0.009)	(0.012)	(5.123)	(5.244)	(6.318)	(6.662)
$\overline{\delta}_{2022-24}$	-15.5	-0.06	-0.07	-11.3	14.1	-11.3	14.1
$\overline{\delta}_{2022-24}$ as prop. of mean outcome treated 2020	-2.8%	-	-	-2.1%	2.6%	-2.1%	2.6%
Establishment FE	Yes	Yes	Yes	No	No	No	No
Stratum FE	No	No	No	Yes	Yes	Yes	Yes
Observations	109,312	109,312	109,312	109,225	107,006	13,265	12,254

Notes: This table shows the results of estimating Equation 13 using data on wages from Mexican Social Security (IMSS) and data on profit sharing from the monthly manufacturing survey (EMIM). Treated establishments are those classified as full outsourcing. Columns (1) to (5) estimate the regression using establishment level data. In Column (1) the outcome is the average real daily wage of the establishment in year t in MX pesos. In Column (2) the outcome is the natural logarithm of $wage_t$. In Column (3) the outcome is the wage as a proportion of the wage in 2020. Columns (4) is the same regression as (1), replacing establishment FE by stratum (sector x firms size category x state x treatment status) FE. Column (5) the outcome is the establishment average total compensation ($wage_t + profit\ sharing_t$) and includes stratum FE. Columns (6) to (7) estimate Equation 13 using data aggregated at the state x sector x size group x year level and weighting observations by the number of establishment in the cell. In Column (6) the outcome is $wage_t$. In Column (7) the outcome is ($wage_t + profit\ sharing_t$) and the sample is restricted to the cells that could be merged with profit sharing data from INEGI. All specifications include sector x year FE, state x year FE and pre-reform establishment size specific linear trends. Standard errors for columns (1) to (5) are clustered at the establishment level and at the stratum level for Columns (6) and (7). Signif. Codes: ***: 0.01, **: 0.05, *: 0.1 [Back to Section 6.2.4]

Table A.7: Effect on the value of total compensation by risk discount factor

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Relative risk aversion coefficient						
	1	2	3	4	5	10	$\hat{\alpha} = 0.45$
Treat x Post	16.24***	15.44***	14.76***	14.19***	13.70***	12.20***	4.736
	(3.46)	(3.45)	(3.45)	(3.44)	(3.44)	(3.43)	(3.39)
Observations	647,867	647,867	647,867	647,867	647,867	647,867	647,867

Notes: This table reports the estimated effects of the outsourcing reform on the yearly average of the risk-adjusted value of worker daily total compensation, which is defined as $wage + \hat{\alpha} * profit\ sharing\ income$. Regressions are based on Equation 12, replacing $1_{t=k}$ with an indicator equal to 1 from 2022 onwards. 1-6 $\hat{\alpha}$ is the average estimated α under the assumption of CRRA utility and a specific value of relative risk aversion γ. Details on the estimation in Section C.1. The values for $\hat{\alpha}$ can be seen in Table C.1 row 1. In last column $\hat{\alpha}$ is set at 0.45. Regressions are estimated on a balanced sample of workers from IMSS described in Section 6.1.2. Standard errors are clustered at the establishment level. Signif. Codes: ***: 0.01, **: 0.05, *: 0.1 [Back to Section 6.2.6]

Table A.8: Comparison between prolific sample and national employment survey (ENOE) sample

	Prolific	ENOE
Average age	30	39
Share female	53%	43%
Share unemployed and job seeking	7%	3%
Share informal (among employed)	20%	48%
Share receiving profit-sharing (among formal)	57%	42%
Employer size:		
$\leq$ 10 workers	19%	43%
11 - 50 workers	21%	21%
51 - 250 workers	18%	13%
> 250 workers	42%	23%
Observations	638	181,167

Notes: This table reports summary statistics for two samples of Mexican workers. The first is a self-administered survey collected through Prolific in August 2025 (N = 638). The second is a nationally representative sample of individuals in the labor force (*población económicamente activa*), aged 18–65, from the National Employment Survey (ENOE) in the third quarter of 2024 (N = 181,167). [Back to Section 7]

B Appendix B: Data appendix

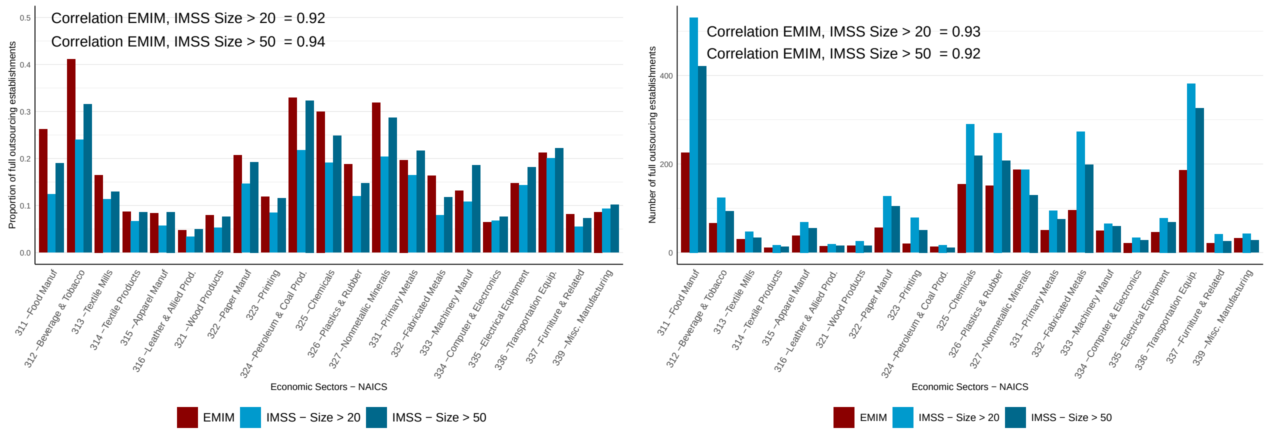
B.1 Comparing sample in IMSS data and EMIM data

For our results to be valid, it is crucial that the composition of our sample from establishment-level data closely aligns with that of the social security data sample. In other words, it is important that we are observing the same firms and workers in each sample. In this section, we provide evidence supporting the similarity of our samples in each dataset.

We first examine the proportion of full outsourcing establishments in each dataset. The relevant comparison group in EMIM are the full outsourcing establishments that insourced their workers (i.e. the compliers), as we are only able to identify full outsourcing establishments in the social security data if they insourced their workers during the reform. By January 2022, 17.2% of all establishments in EMIM fell into this category. When we restrict the IMSS dataset to establishments with over 20 employees, this proportion is 12%, and it stands at 16.8% when we further narrow the sample to establishments with more than 50 employees (we restrict the IMSS sample to align with EMIM, which strongly overrepresents large establishments in Mexico).

Figure B.1 visually demonstrates the correlation in the distribution of full outsourcing establishments across sectors in the various datasets. Barplots in Panel A depict the proportion, while Panel B illustrates the number of full outsourcing establishments in each 3-digit NAICS economic sector. We calculate these proportions using EMIM data, IMSS data with a sample restriction to establishments with over 20 employees, and IMSS data with a sample restriction to establishments with more than 50 employees. We can see that the distribution of full outsourcing establishments looks very simimlar in both datasets.

Figure B.1: Distribution full outsourcing establishments by economic sector. EMIM and IMSS data



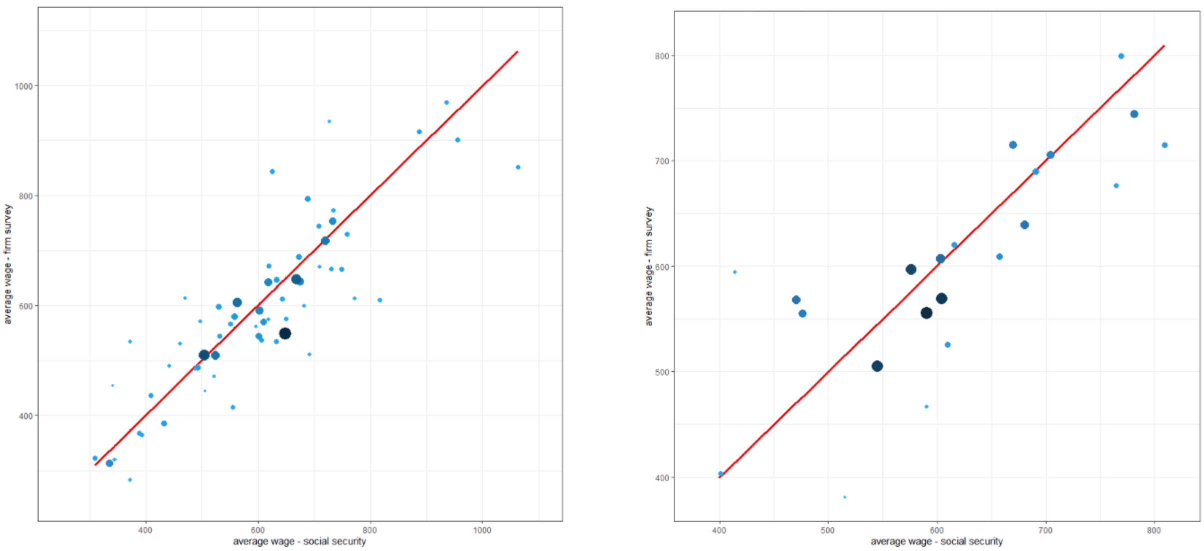
(a) Proportion of full outsourcing estab. per sector

(b) Number of full outsourcing estab. per sector

Notes: This figure shows the distribution of full outsourcing establishments across 3-digit NAICS sectors. Panel (a) plots the share of all establishments in the sector that are classified as full outsourcing. Panel (b) plots the number of establishments in the sector that are classified as full outsourcing. These statistics are computed using different datasets for comparison. The dark red bars use EMIM data. The light blue bars use data from IMSS, restricting establishments to those with over 20 employees on 10/2021, and belonging to the manufacturing sector. The light dark bars use data from IMSS, restricting establishments to those with over 50 employees on 10/2021, and belonging to the manufacturing sector.

Second, we compare measurements on average wage paid by establishments in each dataset. We divide each dataset into groups and we calculate the average wage paid by establishments using both IMSS and EMIM data. Figure B.2 shows the relationship between the average wage measured in IMSS and in EMIM when we group establishments by outsourcing use (full outsourcing, partial outsourcing and no outsourcing) and sector (Panel a), and by outsourcing use and region (Panel b). In each graph, every dot represents a group, with the dot size reflecting the number of workers included in each group. For easy reference, we include the 45-degree line in each graph. Notably, the average wages measured in each dataset are remarkably similar, with a correlation of 0.76 for sector groups and 0.75 for region groups. This underscores the consistency in the measurement of average wages between IMSS and EMIM datasets.

Figure B.2: Average wage by establishment groups - EMIM and IMSS



(a) Groups by sector and outsourcing use

(b) Groups by region and outsourcing use

Notes: This figure plots the relationship between the measured 2022 average daily wage using social security data (IMSS) and firm survey data (EMIM). The values in the X and Y axis correspond to the average daily wage for all workers corresponding to a particular group calculated using either IMSS (x-axis) or EMIM (y-axis). In panel (a) each point corresponds to a NAICS 3-digit sector x outsourcing status (employed by firm that had been full outsourcing pre-reform, and employed by a firm that had not been outsourcing) group. In panel (a) each point corresponds to a region x outsourcing status groups. Average daily wage for workers in each group using IMSS is calculated as the average base salary across all workers in the group. Average daily wage for workers in each group in EMIM is calculated as the weighted average of the average wage across establishments, with weights equal to number of in-house workers in the establishment. The size and color intensity of each point vary based on the number of workers in each group. The red lines in each graph correspond to the 45-degree line.

B.2 Measurement of total worker compensation

This section provides an explanation of the matching procedure introduced in Section 6.1.3, which is carried out to compute total worker compensation using wage information from social security data (IMSS) and profit-sharing information from establishment level data (EMIM). As mentioned in Section 3.1, social security data does not contain information on profit-sharing income for workers.[72] While the establishment survey data contains information on profit-sharing, information on wages of outsourced workers pre-reform is inaccurate. To circumvent these data limitations, we combine information on profit-sharing reported in the establishment survey data with wage information from the social security data to build a measure of total compensation (wages + profit-sharing). Because we cannot match these two datasets at the firm level, we do not have a measure of profit-sharing income for each worker, nor for each firm in the social security data. Thus, we combine these two datasets on broader outsourcing status x sector x state x firm size cells. More specifically, we proceed in four steps.

[72]This is because profit-sharing does not form part of the base salary (*salario base de cotización)* (Diario Oficial de la Federación, 2023; Deloitte México, 2023).

1. First, we categorize establishments from EMIM into strata based on their size (divided into four size categories), economic sector (using NAICS 3-digit codes), state (across 32 states), and their utilization of outsourcing (full outsourcing, and no outsourcing). We exclude partial outsourcing establishments. Subsequently, using information from the establishment survey, we compute average profit-sharing income for workers in each stratum ω for each year t: $\overline{profit\ sharing\ per\ worker^{emim}}_{\omega t}$.[73]

2. Second, we categorize workers in the social security data into strata based on the same variables (firm size, economic sector, state, and treatment status). We construct a dataset aggregated at the strata x year level which includes a measure of the average wage across workers in each stratum ω at year t: $\overline{wage^{imss}}_{\omega t}$.

3. Third, we merge the worker-level (non-aggregated) social security data with the stratum-level EMIM dataset defined in step 1 at the stratum x year level. For each worker, we construct a measure of total compensation as the sum of their individual wage and the average profit-sharing per worker in the stratum to which they belong:

$$total\ compensation_{it} = wage_{it}^{imss} + \overline{profit\ sharing\ per\ worker^{emim}}_{\omega t}$$

4. Fourth, we merge both these aggregated datasets by stratum x year, obtaining a dataset with information on average wages and profit-sharing in each stratum in each year. We then construct a measure of total compensation in a particular cell c corresponding to stratum ω at time t by adding the average wage in cell measured in step 2. plus the average profit-sharing per worker, using the measurement described in in step 1:

$$total\ compensation_{\omega t} = \overline{wage^{imss}}_{\omega t} + \overline{profit\ sharing\ per\ worker^{emim}}_{\omega t}$$

For this procedure to be valid, it is important that the sample in the social security data is similar to the sample covered in the establishment data. In Appendix B.1, we demonstrate that the composition of the samples in both datasets are closely aligned. Additionally, we show that the measured average wages across sectors and regions in both datasets align closely, adding validity to our procedure.

This procedure delivers measures of both wages and total compensation at the worker-by-year level and at the stratum-by-year level. Since profit-sharing is only measured at the stratum x year level, we can estimate the effect on total worker compensation only up to that level of aggregation. However, when the dependent variable is expressed in levels, Equation (12) exhibits a useful property: it yields identical coefficients whether estimated using worker-level data or data aggregated at the stratum x year level, provided that (i) each stratum x year cell is weighted by the number of workers it contains, and (ii) the regression includes stratum fixed effects (rather than worker fixed effects). Therefore, the coefficients from the stratum-level regressions (15) with outcomes $wage_{\omega t}$ and $total\ compensation_{\omega t}$ (defined in point 4 above) can be interpreted in the same way as those from the worker-level regressions

[73]Specifically, we use the weighted average of profit-sharing per worker for establishments in EMIM in stratum ω in year t, where each firm is weighted by the number of workers it hires in that period.

(14) with outcomes $wage_{it}$ and $total\ compensation_{it}$ (defined in point 3 above), respectively. The comparison can be seen in Columns 4 and 6, and 5 and 7 of Table 5 where we see that the coefficients are indeed identical.

We apply an analogous four-step procedure to construct a measure of total compensation in the IMSS establishment-level dataset, using the establishment's average wage from IMSS and the average profit-sharing per worker in the establishment stratum, measured in EMIM.[74] As shown in Columns 4–6 and 5–7 of Table A.6, the coefficients from the stratum-level regressions, weighted by the number of *establishments* in each stratum-year cell in this case, are identical to those from the establishment-level regressions.

C Appendix C: Additional empirical results

C.1 Estimation of certainty equivalent and risk-adjusted value of total compensation

The risk-adjusted value of total compensation, defined in 5, is composed of the wage plus profit-sharing, where profit-sharing is discounted by a factor α due to worker risk aversion: $wage + \alpha \cdot profit\ sharing$. As noted in Section D.1, α, can be expressed as the ratio of the certainty equivalent of profit-sharing to its expected value: $\frac{CE^{ps}}{\mathbb{E}[ps]}$. In this section, we outline the methodology used to compute three key variables that allow us to obtain an estimate of the effect of the reform on the risk-adjusted value of total compensation: (i) the certainty equivalent of mandated profit-sharing in the sample, (ii) the parameter α, and (iii) the risk-adjusted value of total compensation. Our approach closely follows that detailed in Nimier-David et al. (2025).

Our procedure follows three steps. First, we calculate the certainty equivalent of profit-sharing for each worker in the control group under alternative levels of risk aversion. Second, we compare this certainty equivalent to the average profit-sharing actually received by the worker. This provides us with an estimate of the average value of each uncertain peso of profit sharing, in terms of a certain peso (α_i). We then average α_i across workers to obtain a single estimate of the risk-adjusted value of profit-sharing, $\hat{\alpha}$. We then use the estimated $\hat{\alpha}$ to assess the effect of the reform on the risk-discounted value of total compensation: $wage + \alpha \cdot profit\ sharing$. The remainder of this section describes each step of the estimation in detail.

Step 1: Estimation of certainty equivalent of profit-sharing. The certainty equivalent of profit sharing for worker i is defined as:

$$\mathbb{E}[u(w_i + CE_i^{ps})] = \mathbb{E}[u(w_i + ps_i)]$$

Where w_i is the yearly wage, ps_i is the yearly amount of profit sharing the worker receives and

[74] The only difference between the procedure followed for the worker level and establishment level IMSS datasets is that for the establishment level dataset, the average profit-sharing income in each stratum ω in year t, $\overline{profit\ sharing\ per\ worker^{emim}}_{\omega t}$, is the *unweighted* average of profit-sharing per worker for establishments in EMIM in that stratum.

CE_i^{ps} is the certainty equivalent of profit sharing. As in the micro-foundation of the labor supply function in Section D.1, we assume CRRA utility with relative risk aversion parameter γ:

$$\mathbb{E}\left(\frac{(w_i + CE_i^{ps})^{1-\gamma}}{1-\gamma}\right) = \mathbb{E}\left(\frac{(w_i + ps_i)^{1-\gamma}}{1-\gamma}\right) \tag{17}$$

Given the absence of a closed-form expression for CE_i^{ps}, we solve numerically for CE_i^{ps} for each worker. We focus on the sample of workers in the control group (i.e. working for firms not doing any outsourcing), because for this group we have a longer time period with positive profit-sharing income (7 years), while treated workers only have three years with positive profit-sharing. For each worker, we compute $u(w_i + ps_i)$ for each year between 2018 and 2024.[75] We then average these values of the utility function over 2018-2024 for each worker to approximate the expected utility over this period, i.e. the expression on the right hand side of Equation 17. Subsequently, we numerically solve for CE_i^{ps} using the equality in Equation 17 for each worker, plugging in the estimated expected utility on the right-hand size, and using information on worker wages from 2018 to 2024 on the left hand side:[76]

$$\frac{1}{7}\sum_{t=2018}^{2024}\frac{(w_{it} + \widehat{CE_i^{ps}})^{1-\gamma}}{1-\gamma} = \frac{1}{7}\sum_{t=2018}^{2024}\frac{(w_{it} + ps_{it})^{1-\gamma}}{1-\gamma} \tag{18}$$

Intuitively, we search for the guaranteed amount of profit sharing (CE_i^{ps}) that makes the worker indifferent to the risky stream they actually face. This process is repeated for different values of the relative risk aversion coefficient $\gamma \in \{1, 2, 3, 4, 5\}$. For $\gamma = 1$, the utility function corresponds to log utility. This provides us with an estimated value $\widehat{CE}_i^{ps}$ for each worker, for each risk aversion parameter.

Step 2: Estimation of $\hat{\alpha}$. We then compare the certainty equivalent to the average value of profit sharing for the 2018-2024 period. We define the relative risk premium:

$$\pi_i^R = 1 - \frac{CE_i^{ps}}{\mathbb{E}(ps_i)}$$

which indicates how much workers are willing to pay to avoid risk for each peso of expected profit sharing. Conversely, $\frac{CE_i^{ps}}{\mathbb{E}(ps_i)}$ represents the value workers place on each peso of uncertain profit sharing in terms of a certain peso. Note that this is the expression for α in the risk discounted value of total compensation defined in Prediction 3 of Section 5:

[75] As mentioned in Section 6.2.5, we do not have information on profit-sharing income at the firm level. We have this information aggregated at the stratum x year level, where each stratum is defined by sector x state x size group x outsourcing use group level. If we were to assign each worker a value of ps_t equal to the average profit sharing per worker in their stratum, we would likely underestimate the variance in ps_t across time for each worker. Thus, in order to compute ps_t for each worker we take a random draw from a gamma distribution, with the mean equal to the average ps_t in the stratum the worker belongs to for that year, and the variance equal to the size-weighted average within-firm, across time variance of ps_t for firms in that stratum.

[76] We verify our numerical solution by computing the equality with our CE_i^{ps} values, demonstrating the accuracy of the solution method.

$$\alpha_i = 1 - \pi_i^R = \frac{CE_i^{ps}}{\mathbb{E}(ps_i)}$$

We estimate α_i for each worker using the estimated certainty equivalent, and approximating the expected value in the denominator using the average profit sharing received during the 2018-2024 period.

$$\hat{\alpha}_i = \frac{\widehat{CE_i^{ps}}}{\overline{ps_i}} \tag{19}$$

We then take the average value of α_i across workers to obtain a single estimated value of $\hat{\alpha}$ for each risk aversion parameter.

$$\hat{\alpha} = \frac{1}{n} \sum_i \hat{\alpha}_i \tag{20}$$

The results are presented in row 1 of Table C.1. For a relative risk aversion of 3, one peso of profit sharing is valued at 89 cents on average by workers. As risk aversion increases, the value per peso of profit-sharing decreases, reflecting a stronger discounting of risk. For a high risk aversion value of 5, workers value one peso of profit sharing at 85 cents. Rows 2 and 3 show the values of α_i at the median and the 25 percentile of the distribution. Row 4 shows the average certainty equivalent over the average profit-sharing value (as used in Nimier-David et al. (2025)).

Table C.1: Certainty equivalent over profit sharing for different values of relative risk aversion

	Relative risk aversion parameter				
	1	2	3	4	5
$\hat{\alpha}$ = mean $\hat{\alpha}_i$	0.96	0.92	0.89	0.87	0.85
50^{th} percentile $\hat{\alpha}_i$	0.98	0.95	0.92	0.90	0.87
25^{th} percentile $\hat{\alpha}_i$	0.93	0.85	0.79	0.72	0.67
$\frac{Average\ \widehat{CE_i^{ps}}}{Average\ \overline{ps_i}}$	0.94	0.90	0.86	0.83	0.81

Notes: This table shows the relationship between the calculated certainty equivalent and average profit sharing received by workers in our sample. The certainty equivalent is calculated on the sample of control workers from 2018 to 2024, assuming a CRRA utility function, for different values of relative risk aversion. The first row reports $\hat{\alpha}$ defined in Equation 20 as the average $\hat{\alpha}_i$ across workers. The second and third rows report the value at the 50th and 25th percentile of the distribution of $\hat{\alpha}_i$. The fourth row reports the ratio between the average certainty equivalent and the average profit sharing received by workers in our sample $\frac{\frac{1}{n}\sum_i \widehat{CE_i^{ps}}}{\frac{1}{n}\sum_i \overline{ps_i}}$. [Go to Section 6.2.6]

Step 3: Estimation of risk-adjusted value of total compensation. Using the estimated $\hat{\alpha}$, we construct the risk-adjusted value of total compensation, defined as:

$$risk\ adj.\ value\ total\ compensation_{it} = wage_{it} + \hat{\alpha} \cdot profit\ sharing_{it}$$

This outcome variable captures how much workers discount profit-sharing due to risk, on average, treating one peso of profit-sharing as worth only $\hat{\alpha}$ pesos of wage income on average. We construct this outcome for different values of relative risk aversion, using the values of $\hat{\alpha}$ from the first row of Table C.1.

We then estimate the effect of the reform using Equation 12 on the risk adjusted value of total compensation across different risk aversion parameters. The results for $RRA \in \{1, 3, 5\}$ are presented in Figure 10. We can see that even for a very high relative risk aversion of 5, the value of total compensation increases for workers after the reform, although the increase is approximately 20% lower than the rise in total compensation when risk discounting is not considered. The results are discussed in Section 6.2.6.

A natural question that arises from these results is why the estimated discount for risk is so low. We argue that an important reason is that profit sharing constitutes a small proportion of total worker compensation. If we abstract from wage uncertainty and apply a first-order Taylor approximation to the left-hand side of Equation 17, along with a second-order Taylor approximation to the right-hand side around $\mathbb{E}(ps_i)$, we derive the following expression:

$$\pi_i^R = 1 - \frac{CE_i^{ps}}{\mathbb{E}(ps_i)} \approx \frac{1}{2} \cdot \gamma \cdot \sigma^2 \cdot \frac{\mathbb{E}(ps_i)}{w_i + \mathbb{E}(ps_i)} \tag{21}$$

Where σ^2 is the variance of $\frac{ps_i}{\mathbb{E}(ps_i)}$ and γ is the relative risk aversion parameter. In our setting, profit sharing represents only about 4% of total annual income. Consequently, the last term on the right-hand side of the equation is small. This indicates that for workers to significantly discount risk, the variance of profit sharing would need to be much higher than what we observe in our sample. Figure A.12 presents the average estimated $\hat{\alpha}$ across deciles of $\frac{\mathbb{E}(ps_i)}{w_i+\mathbb{E}(ps_i)}$, assuming a relative risk aversion of 3. As expected, $\hat{\alpha}$ decreases as profit-sharing constitutes a larger share of total income. Nonetheless, its value remains relatively stable across the distribution. This pattern may be explained by lower volatility of profits among high-profit firms (Calvino et al., 2018) implying that workers with a higher $\frac{\mathbb{E}(ps_i)}{w_i+\mathbb{E}(ps_i)}$ may also face a smaller σ.

C.2 Establishment Exit from EMIM

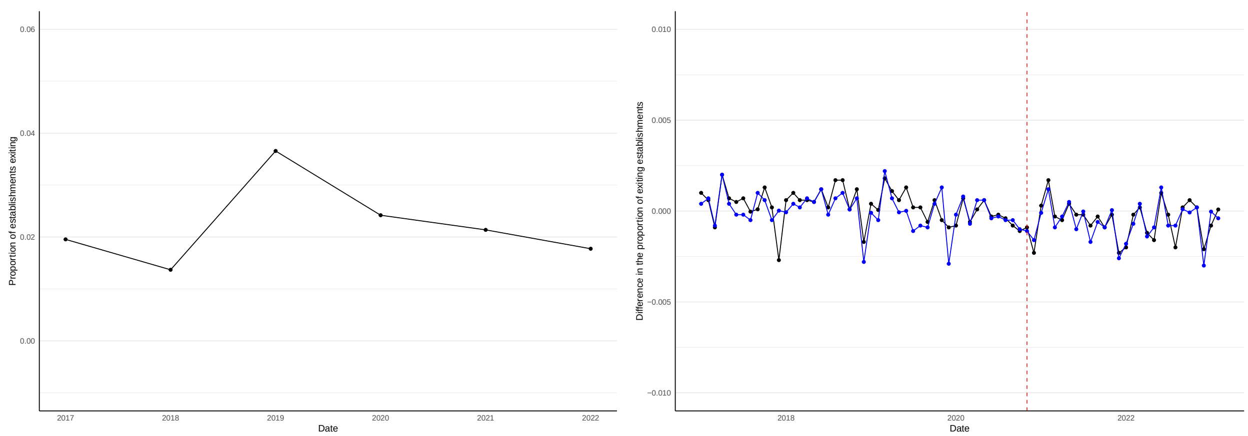
As is mentioned in Section 3.1, the establishment surveys do not provide any information on why an establishment exits the survey sample. An establishment that ceases to appear in or sample may have exited the sample because it suspended its operations, switched to industries not covered by the survey, merged with other establishments or failed to answer the survey for some other reason (Verhoogen, 2008). Because we are not able to distinguish each of these reasons, and each reason would have a very different economic interpretation, we work with a balanced sample of establishments in our main analysis. In this section, we show that the patterns in exit do not change around the time of the reform. This suggests that the reform did not affect establishments' exit decisions. Thus, using the balanced sample of establishments in our main analysis does *not* condition on an endogenous outcome of the reform (i.e. not exiting).

Panel (a) of Figure C.1 shows the proportion of establishments exiting the EMIM sample in each year from 2017 to 2022. We do not find evidence of particularly high or low exit in the post-reform years 2021 and 2022. In Panel (b) we compare exit rates across time between outsourcing and non outsourcing establishments. The blue line represents the difference in the proportion of establishments exiting in each period between establishments using outsourcing and in 2017 and those not outsourcing any workers. The black line shows this same difference dividing establishments into those outsourcing over 95% of workers and those falling below this threshold. We do not find evidence indicating changes in this differential exit rate following the reform, thereby suggesting the absence of endogenous exit dynamics.

Figure C.1: Establishment exit from EMIM

(a) Yearly exit from EMIM

(b) Differential exit in outsourcing estab.



Notes: This figure shows the evolution in establishment exit in EMIM from 2017 to 2022. Panel (a) plots the share of establishments that exited in each year. Panel (b) plots the coefficients from a regression where we regress a binary variable equal to 1 if the establishment exited between date t and $t+1$ on date dummies interacted with a binary variable equal to 1 if the establishment was outsourcing more than 95% of workers on date t, controlling for date fixed effects. For the coefficients in blue, we eliminate establishments with positive outsourcing, but less than 95% from the sample.

C.3 Evidence on profits of contracting firms

We argue in Section 4.2 that full outsourcing firms were outsourcing all or most of their workers to contracting firms, ensuring that these contracting firms had zero profits, or lower profits than the parent firms, and thus avoiding profit-sharing contributions with their workers. Evidence on parent firms having zero profit-sharing is clear. Showing that contracting firms had zero or low profit-sharing is challenging with our data, which does not allow us to link parent and contracting firms. However, if a contracting firm had positive profit-sharing payments, it must have had positive profits. These profits would be embedded in the payments made by the parent firm to the contracting firm, a variable recorded in EMIM. We can express this relationship as:

$$payments\ to\ contracting\ firm = wages + other\ costs + profit \tag{22}$$

Here, wages include social security contributions, while other costs may encompass overhead, training, and employee transportation. The measurement error introduced by these costs is discussed in Section 6. Since total profit-sharing is given by $0.1 \cdot$ profits, we can rewrite the equation as:

$$payments\ to\ contracting\ firm = wages + other\ costs + \frac{profit\ sharing}{0.1}$$

Rearranging, we obtain an upper bound for outsourced workers' wages:

$$wages \leq payments\ to\ contracting\ firm - \frac{profit\ sharing}{0.1} \tag{23}$$

Since we can directly observe the *payments to contracting firm* in EMIM, we estimate an upper bound for outsourced workers' pre-reform wages under different assumptions about contracting firms' profit-sharing.[77] This estimate serves as an upper bound due to the presence of other costs in the equation. The change in worker wages after the reform can then be expressed as:

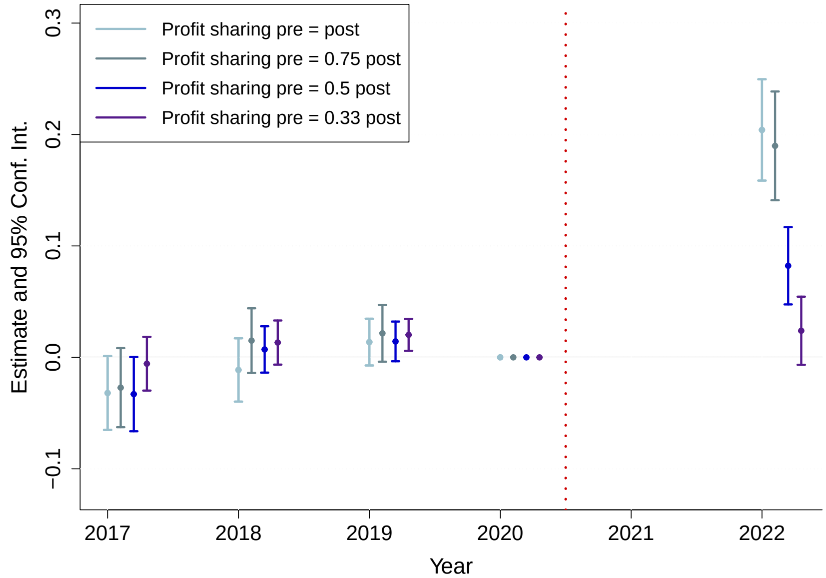
$$\Delta log(wages) \geq \underbrace{log\,(wages_{post})}_{\text{observed in EMIM}} - log\left(\underbrace{payments\ to\ contracting\ firm_{pre}}_{\text{observed in EMIM}} - \underbrace{\frac{profit\ sharing_{pre}}{0.1}}_{\text{assumed}}\right) \tag{24}$$

This equation provides a lower bound for the reform's impact on wages. Equation 24 also highlights that the higher the assumed pre-reform profit-sharing, the lower the employment-related payments to the contracting firm, as a greater portion of payments is attributed to profits. Consequently, assuming higher contracting firm profits results in lower estimated pre-reform wages and a larger estimated wage increase due to the reform.

Figure C.2 illustrates the estimated impact of the reform on average worker wages under four hypothetical scenarios for pre-reform profit-sharing: (i) equal to post-reform levels, (ii) 75% of post-reform levels, (iii) 50% of post-reform levels, and (iv) one-third of pre-reform levels. We eliminate the year 2021 for the estimation, as this was the transition year when worker insourcing took place. The results suggest that if contracting firms' profits had matched those of parent firms, wages would have needed to increase by at least 20% relative to the control group post-reform. If contracting firm profits were 75% of parent firm profits, wages would have needed to rise by at least 19%, and if contracting firm profits were 50% or one-third of parent firm profits, wages would have had to increase by at least 8% and 2%, respectively. These findings are inconsistent with results from social security data - where we accurately measure wage - leading us to conclude that contracting firms' profits were either zero or significantly lower than those of fully outsourced firms.

[77] In this exercise, we assume firm employment remains constant, consistent with our empirical finding that the reform did not affect total employment.

Figure C.2: Hypothetical increase in wages under different assumptions of contracting firm profits



Notes: This figure shows the difference in differences coefficients and 95% confidence intervals from estimating Equation 11 aggregating establishment data at the yearly level. The treatment group includes establishments outsourcing more than 95% of their workers pre-reform. The control group are establishments not using outsourcing pre-reform. The outcome variable is hypothetical log yearly average wage under different assumptions of the profits of contracting firms pre-reform. Wages for full outsourcing establishments pre-reform are calculated using the expression in the RHS of Equation 23. Standard errors are clustered at the establishment level. Partial outsourcing establishment, i.e. those with positive outsourcing $< 95\%$ pre-reform are excluded from the sample.

C.4 Robustness: effects on wages with matched sample

In this section, we demonstrate that the wage results presented in Section 6.2.4 remain robust when we restrict the estimation sample using a matching procedure that balances treated and control workers on observable characteristics. Specifically, each worker in the treatment group is matched to one worker in the control group that belongs to the same cell. Each cell is based on the following characteristics: gender, age (rounded to the nearest ten years), and average daily wage from 2018 to 2020 (rounded to the nearest 75 pesos). Consequently, every treated worker has an exact counterpart in the control group with respect to these attributes.

Table C.2 shows that in the matched sample, treated and control workers are highly similar in the matched characteristics. We lose four treated workers who could not be matched to any control counterpart. Importantly, average wages in 2018 are also nearly identical between groups, and firm size becomes much more comparable than in the original sample in Table 4, even though firm size was not used as a matching variable.

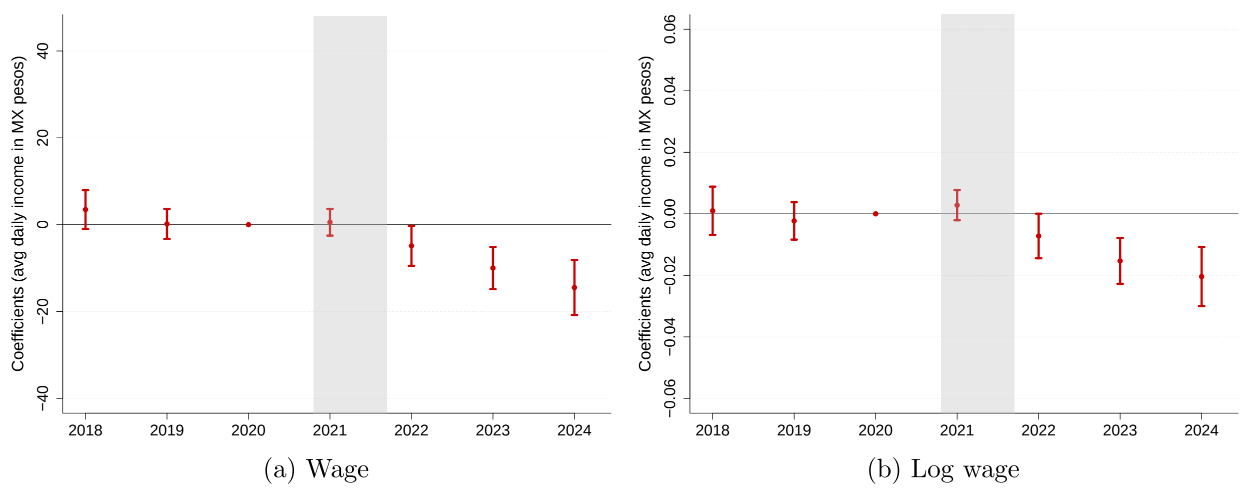
Table C.2: Summary Statistics Matched Sample

	N	Avg wage 2018-2020	Avg wage 2018	Share female	Firm size	Age
Treat	26635	617	588	0.27	1443	37.0
Control	26635	616	584	0.27	1285	37.2

Notes: This table shows the average of different variables for 2018 for a sample of workers from IMSS where each treated worker is matched to a control worker based on average pre reform wage, gender and age. Treated workers represent workers who were insourced by a full outsourcing establishment during the reform. Control workers represent workers who were not insourced and were working for firms that were not using outsourcing (control group).

We then re-estimate the effect on worker wages on this matched sample using Equation 12, including matching cell-by-year fixed effects and sector-by-state-by-year fixed effects. The results, presented in Figure C.3, confirm that the negative impact on wages persists in the matched sample. This holds both when estimating the regression using daily wages and when using the logarithm of daily wages. In particular, we estimate that average daily wages decline by approximately 9.8 pesos in the post-reform period—an effect that is very similar to the estimates obtained from the original, unmatched sample.

Figure C.3: Effects on wages - matched sample



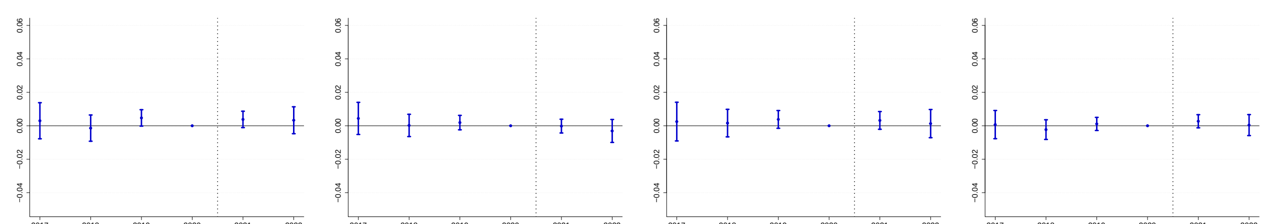
Notes: This figure shows the estimated θ_k and 95% confidence intervals from estimating Equation 12 on the yearly average of worker daily wages (red), and the estimated α_k and 95% CI from Equation 14 on daily total compensation (blue). The shaded grey area represents the year in which the outsourcing reform was approved. Regressions are estimated on a subsample of the original IMSS sample of workers described in Section 6.1.2, where the control group is restricted to workers matched to treated workers based on pre-reform average wage, gender, and age. Standard errors are clustered at the establishment level. [Back to Section 6.2.4]

C.5 Potential bias introduced by the cap con profit-sharing

When the outsourcing reform was a approved, the Mexican government also introduced a specific limit on the total shared profits per employee. The formulation of this cap was the outcome of negotiations between policymakers and corporate stakeholders conducted before the implementation of the outsourcing reform. This limit was calculated based on the higher of two values: either three times the monthly salary of the employee or the average profit-sharing amount received over the past three years. Consequently, if an employee's corresponding profit-sharing income in 2022 surpassed *both* three times their monthly salary and the average received in the previous three years, the cap would come into effect. Consequently, control firms that had been distributing profit-sharing contributions exceeding three times the monthly wages before the reform might be impacted by this cap, particularly if 2022 turned out to be an exceptionally profitable year. This cap could have reduced employment costs for these control firms, potentially introducing a bias into our results. We provide evidence that any potential effects of the cap on the control group were likely to be minimal.

Unfortunately, we lack precise data on the exact profit-sharing amounts received by individual workers in the EMIM dataset. Nevertheless, we estimate the average profit-sharing contributions per worker and their relationship with the average wage paid to blue-collar workers. We estimate profit-sharing as a proportion of blue-collar wages, as these workers that should receive higher profit-sharing as a proportion of their wages. Only around 3% of control firms reported profit-sharing contributions exceeding three times monthly blue-collar wages between 2017 and 2020. Additionally C.4 displays the results of an event-study estimation exclusively for the control group. In these regressions, the outcome variable is binary, taking the value of one if profit-sharing per employee exceeded 3 or 4 monthly wages that year. The results do not show evidence of the reform having had a negative effect on profit-sharing costs for control firms. In summary, the introduction of the profit-sharing cap, is unlikely to significantly impact the results, as the evidence suggests that the majority of control firms did not surpass the cap threshold, and the event-study analysis does not reveal a negative effect on profit-sharing costs.

Figure C.4: Change in profit sharing post-reform. Control establishments



(a) Profit Sharing/Avg wage >3 (b) Profit Sharing/Avg wage >4 (c) Profit Sharing/Avg b.c. wage >3 (d) Profit Sharing/Avg b.c. wage >4

Notes: This figure shows the results of an event-study regression using the sub-sample of establishments from EMIM that were not using outsourcing before the reform. The data is aggregated at the yearly level from 2017 to 2022. The outcome is a binary variable, taking the value of one in panels (a) and (b) if profit-sharing per worker exceeded 3 or 4 times the monthly average wages that year; and equal to one in panels (c) and (d) if profit-sharing per worker exceeded 3 or 4 times the monthly average wages of blue-collar workers that year. The dashed lines in each graph mark the date the outsourcing reform was passed.

D Appendix D: Theoretical Model

In this section, we solve the model presented in Section 5. We first micro-found the firm specific labor supply curve presented in Equation (3). We then derive the analytical solution for the model and the results in Predictions 1 to 3.

D.1 Micro-foundation of labor supply function

In this section we micro-found the firm specific labor supply function

$$n_j = (w_j + \mu \cdot \alpha \cdot E[ps_j])^{\theta} \tag{25}$$

Presented in Section 5, where w_j represents the wage offered by firm j and $E[ps_j]$ denotes the expected profit-sharing per worker offered. We use a static discrete choice framework where workers have heterogeneous preferences for firms, as is common in the monopsony literature (Card et al., 2018; Berger et al., 2022). As mentioned in Section 5, labor supply and demand decisions are made before the realization of z_j, when there is no uncertainty on w_j but there is uncertainty on ps_j. Thus, to model workers' labor supply decision we consider the expected utility from working in a firm j from the worker's perspective. This value includes information frictions which may prevent the worker from correctly estimating her true expected utility. The indirect ex-ante utility of worker i for working in firm j is:[78]

$$\mathbb{E}_{ps}[U_i(w_j, ps_j)] = \mathbb{E}_{ps}\left(\frac{(w_j + \widetilde{ps}_{ij})^{1-\gamma}}{1-\gamma}\right) \cdot \epsilon_{ij} \tag{26}$$

Where ϵ_{ij} is an idiosyncratic preference shock of working at firm j which follows a Fréchet distribution with shape parameter $\frac{1}{\theta}$. We define $\widetilde{ps}_{ij} = \mu_i \cdot ps_j$ as the worker's perceived profit-sharing, which may be different from the true profit sharing offered by the firm. The parameter $\mu_i \leq 1$ is a measure of the information frictions and information processing constraints present when evaluating profit sharing. A low μ_i can indicate that profit sharing is not very salient for workers, or that they are not well informed about this benefit. This decreases the importance of profit sharing in workers' expected utility because they put less weight on this factor (Gabaix and Laibson, 2006; Gabaix, 2019). A low μ can also reflect that the complexity of profit-sharing leads workers to assign less weight to this benefit.[79] Using the expression for $\widetilde{ps}_{ij}$ and the definition of the certainty equivalent of profit sharing CE_{ps},[80] the right hand side of (26) can also be expressed as:

[78] Our utility specification follows the framework of Dube et al. (2022), but we focus on a single non-wage attribute—profit-sharing and assume perfect substitution between wages and profit-sharing, as both are monetary forms of compensation. In addition, we place greater emphasis on understanding the parameters that govern the relative importance of wages and profit-sharing in the utility function.

[79] For this last type of information processing constraints, μ_i can be expressed in terms of a 'simplicity equivalent': the simply described amounts individuals consider equally valuable to the complex benefit (Oprea, 2024).

[80] $u(w + CE_{ps}) = \mathbb{E}[u(w + ps)]$

$$\mathbb{E}_{ps}[U_i(w_j, ps_j)] = \frac{(w_j + \mu_i \cdot \alpha_j E[ps_j])^{1-\gamma}}{1-\gamma} \cdot \epsilon_{ij} \tag{27}$$

Where $\alpha_j = \frac{CE_{ps}}{E[ps_j]} \leq 1$ is a measure of how much the workers discount risk associated to profit sharing. Importantly, α_j will affect workers' labor supply decision through worker preferences. If $\alpha_j < 1$ workers will value each unit of profit sharing less than each unit of wages, due to the additional risk associated with profit sharing. However, while the information frictions reflected in μ_i impact labor supply decisions, they do not affect utility once the worker is employed by a particular firm. In other words, these frictions are not related to workers' preferences for profit sharing but rather to constraints that prevent them from valuing it properly ex-ante.

We assume all workers have the same awareness of profit sharing $\mu_i = \mu$, and $\alpha_j = \alpha \ \forall \ j$, the likelihood of choosing employer j is:

$$p_j = \frac{(w_j + \mu \cdot \alpha E[ps_j])^{\theta}}{\sum_{k \in \{1 \dots J\}} (w_k + \mu \cdot \alpha E[ps_k])^{\theta}} \tag{28}$$

Where $\theta = (1-\gamma)\tilde{\theta}$. For simplicity, we assume that the number of firms is sufficiently large, and that there are no strategic interactions between firms, such that Equation (28) can be approximated by $p_j = \lambda(w_j + \mu \cdot \alpha E[ps_j])^{\theta}$. Aggregating across workers, yields the firm specific upward-sloping labor supply curve:

$$n_j^s(w_j, E[ps_j]) = N\lambda(w_j + \mu \cdot \alpha \cdot E[ps_j])^{\theta} \tag{29}$$

If we normalize the size of the labor force N to $\frac{1}{\lambda}$ we obtain the labor supply function in 25.

D.2 Definition of risk-adjusted value of total compensation

We now define the risk-adjusted value of total compensation, which is introduced in Prediction 3. Total expected compensation is given by $w_j + \mathbb{E}[ps_j]$. However, worker' valuation of this total compensation is affected by their risk-aversion and the uncertainty surrounding profit-sharing. To account for this, we introduce the concept of the risk-adjusted value of total compensation, which is the risk-free amount of total compensation that workers would value equally to the risky total compensation, absent any information frictions.

$$U(risk\ adj\ value\ total\ comp) = \mathbb{E}\left(U(w + ps_j)|\mu = 1\right)$$

Note that this value can also be thought of as the certainty equivalent of total compensation.[81]

$$\frac{(risk\ adj\ value\ total\ comp)^{1-\gamma}}{1-\gamma} = \mathbb{E}\left(\frac{(w_j + ps_j)^{1-\gamma}}{1-\gamma}\right) \cdot \epsilon_{ij}$$

[81] Throughout the paper, we focus on uncertainty in profit-sharing payments and abstract from wage uncertainty

Under the assumption of no uncertainty in wages, and using the definition of the certainty equivalent of profit-sharing introduced in D.1 we can re-write the expression as:

$$risk\ adjusted\ value\ of\ total\ comp_j = w_j + CE^{ps} = w_j + \alpha_j \cdot \mathbb{E}[ps_j]$$

This value is relevant when considering the effect of enforcing profit-sharing on workers, as an increase in total compensation may not necessarily reflect an increase in the value of total compensation when accounting for workers' risk preferences and the uncertainty associated with profit-sharing.

D.3 Heterogeneous information frictions μ_i

Section 7 presents empirical evidence consistent with the presence of information constraints related to profit-sharing. Among the findings, we demonstrate that some workers are entirely unaware of the existence of profit-sharing in Mexico. These workers likely exhibit $\mu = 0$ as they are unlikely to factor in this benefit at all when making labor supply decisions if they are unaware of it. Furthermore, we show that the information processing constraints present in understanding and calculating profit-sharing reduce the weight workers assign to this benefit, suggesting a $\mu \in (0, 1)$ for some workers. Conversely, some workers are well-informed about profit-sharing and fully incorporate this benefit into their labor supply decisions, indicating a $\mu = 1$. Together, this evidence supports the existence of heterogeneous μ values across workers. Consequently, we extend the model to assume that workers have varying levels of misinformation about profit sharing, but that firms cannot discriminate between these different types. We demonstrate that even if *some* workers are well-informed about profit sharing ($\mu_i = 1$ for some i), the firm's overall elasticity of labor supply with respect to profit sharing will be affected if the average level of awareness is lower than that for wages ($\exists\ i$ s.t. $\mu_i < 1$). Thus, the lack of awareness of profit sharing in some workers will have effect on the average total compensation for all workers in the labor market, under the assumption that the firm cannot offer workers of the same labor market different amounts of total compensation. In other words, under the assumption that the firm cannot perfectly price discriminate in the labor market, as is commonly assumed in monopsony models (Card et al., 2018).

We assume $\mu_i \in [0, 1]$ has discrete probability $P(\mu_i = \mu_g) = p_g$. Then the likelihood of choosing employer j for a worker with awareness parameter μ_g is:

$$P(\max_{k \in \{1,\ldots J\}} \{U_k\} = U_j \mid \mu_g) = \lambda_g (w_j + \mu_g \cdot \alpha E[ps_j])^{\theta} \tag{30}$$

If we assume that firms cannot discriminate between workers of different μ_g, then using the rules of conditional probability,[82] we obtain that the likelihood of any given worker choosing employer j is:

$$P(\max_{k \in \{1,\ldots J\}} \{U_k\} = U_j) = \sum_{g \in G} p_g \lambda_g (w_j + \mu_g \cdot \alpha E[ps_j])^{\theta} \tag{31}$$

Then, the labor supply curve faced by the firm is:

[82] $P(A) = \sum_n P(A \mid B_n) P(B_n)$.

$$n(w_j, E[ps_j]) = N \sum_{g \in G} p_g \lambda_g (w_j + \mu_g \cdot \alpha \cdot E[ps_j])^\theta \tag{32}$$

We can see that the elasticity of the labor supply curve with respect to profit sharing depends on the distribution of the level of awareness of workers in the labor market, $\bar{p} = \{p_1 ... p_G\}$ and $\bar{\mu} = \{\mu_1 ... \mu_G\}$. This implies that if firms cannot offer different amounts of total compensation to different types g, the level of awareness of profit sharing among some workers affects the total compensation for all workers.[83]

For $\theta = 1$ Equation (32) can be expressed in a form identical to Equation (25). For $\theta \neq 1$ this is not possible. However, both hold the property that if workers are risk averse ($\alpha < 1$) *or* at least one group of workers has information friction ($\exists\ g$ s.t. $\mu_g < 1$), the partial derivative of labor supply with respect to w_j will be greater than the partial derivative with respect to ps_j for all values of w_j, ps_j.[84] This implies that avoiding profit sharing allows firms to decrease total worker compensation. In the following section, we present the analytical solution to the model for the case of homogeneous μ_i For the case of heterogeneous μ_i, we solve the model numerically under different parameter values and provide evidence illustration our predictions for specific parameter values in Figure D.1.

D.4 Analytical solution to the model

To solve the model, we start by deriving the optimal firm choice of wages, and profit sharing in two scenarios. The first is the scenario in which the firm decides to pay fixed cost k and marginal cost c, avoids mandatory profit sharing and chooses w_j. In the second scenario the firm decides not to avoid mandatory profit sharing. In this case, $E[ps_j]$ is determined by the firms' expected pre-profit-sharing profits,[85] and the firm decides optimally on w_j. We then compare expected post-profit-sharing profits in both scenarios to derive an optimal decision rule regarding whether to avoid mandatory profit sharing or not.

Case 1: If firm avoids mandatory profit sharing

If firm the decides to avoid mandatory profit sharing, it pays the marginal cost c and fixed cost k of avoidance, and chooses w_j to maximize profits. Under the assumption that the firm is risk neutral, the firm maximizes:

$$\max_{w_j}\ \mathbb{E}(z_j n_j - w_j n_j - c \cdot n_j) = \ \hat{z}_j n_j - w_j n_j - c \cdot n_j \tag{33}$$

subject to:

$$n_j = (w_j + \mu \cdot \alpha \cdot \mathbb{E}[ps_j])^\theta$$

[83] The intuition behind this result is similar to the argument for the micro-foundation of monopsony through differentiation across firms. In this scenario, differential preferences for firms across workers affect the wage received by all workers if firms cannot perfectly discriminate.

[84] $\frac{\partial n_j^s}{\partial w_j} - \frac{\partial n_j^s}{\partial E[ps_j]} > 0\ \ \forall\ w_j, ps_j$.

[85] We refer to pre-profit-sharing profits as the firm profits before distributing profit-sharing, and post-profit-sharing profits as the firm profits after distributing profit-sharing.

which can be written as $n_j = (w_j)^\theta$ since $\mathbb{E}[ps_j] = 0$.

In the equality of Equation (33) we use the fact that productivity z_j follows a random process $z_j = \hat{z}_j + \xi_j$ where $\mathbb{E}(\xi_j) = 0$, and that w_j and n_j are set before the productivity shock is drawn. Solving the firm's maximization problem, we obtain the following expressions for wages and total compensation:

$$w_j = (\hat{z}_j - c)\frac{\theta}{\theta + 1} \tag{34}$$

$$\mathbb{E}[\textit{total compensation}_j] = (\hat{z}_j - c)\frac{\theta}{\theta + 1} \tag{35}$$

The resulting labor n_j and expected profits $_j$ are:

$$n_j = \left((\hat{z}_j - c)\frac{\theta}{\theta + 1}\right)^\theta \tag{36}$$

$$\mathbb{E}(\Pi_j) = (\hat{z}_j - c)\frac{1}{\theta + 1}\left((\hat{z}_j - c)\frac{\theta}{\theta + 1}\right)^\theta - k \tag{37}$$

Case 2: If firm does not avoid mandatory profit sharing

If firm decides **not** to avoid mandatory profit sharing, then total profit sharing, PS_j is a proportion of pre-profit sharing profits:

$$PS_j = \rho(z_j - w_j)n_j \tag{38}$$

And expected profit sharing per worker is:

$$\mathbb{E}[ps_j] = \rho(\hat{z}_j - w_j) \tag{39}$$

The firm's maximization problem is now:

$$\max_{w_j} \mathbb{E}[(1 - \rho)(z_j n_j - w_j n_j)] = (1 - \rho)(\hat{z}_j n_j - w_j n_j) \tag{40}$$

subject to:

$$n_j = (w_j + \mu \cdot \alpha \cdot \rho(\hat{z}_j - w_j))^\theta$$

Where in Equation (40) we again use the fact that $\mathbb{E}[z_j] = \hat{z}_j$ and that wages and labor are determined before the realization of z_j, and we replace $\mathbb{E}[ps_j]$ by the expression in Equation (39) in the labor supply function. Solving the firm's maximization problem, we obtain:

$$w_j = \hat{z}_j\frac{\theta}{\theta + 1} - \frac{\rho\mu\alpha \cdot \hat{z}_j}{(1 + \theta)(1 - \rho\mu\alpha)} \tag{41}$$

Using Equation (39) again, expected total compensation is equal to:

$$\mathbb{E}[total\ compensation_j] = \left(\hat{z}_j \frac{\theta}{\theta+1} - \frac{\rho\mu\alpha \cdot \hat{z}_j}{(1+\theta)(1-\rho\mu\alpha)} \right) (1-\rho) + \rho \hat{z}_j \tag{42}$$

The resulting labor n_j and expected post-profit sharing profits Π_j are:

$$n_j = \left(\hat{z}_j \frac{\theta}{\theta+1} \right)^{\theta} \tag{43}$$

$$\mathbb{E}(\Pi_j) = \left(\hat{z}_j \frac{\theta}{\theta+1} \right)^{\theta} \cdot \left(\frac{\hat{z}_j}{(1+\theta)(1-\rho\mu\alpha)} \right) (1-\rho) \tag{44}$$

Expected profit-sharing per worker is:

$$\mathbb{E}[ps_j] = \left(\frac{\rho \hat{z}_j}{(1+\theta)(1-\rho\mu\alpha)} \right) \tag{45}$$

D.5 Decision on whether to avoid mandatory profit sharing

The firm will decide to avoid profit sharing if the expected profits of doing so are greater than the profits of not avoiding:

$$\underbrace{(\hat{z}_j - c)\frac{1}{\theta+1} \left((\hat{z}_j - c)\frac{\theta}{\theta+1} \right)^{\theta} - k}_{\text{expected profits when avoiding mandatory p.s.}} \geq \underbrace{\left(\hat{z}_j \frac{\theta}{\theta+1} \right)^{\theta} \left(\frac{\hat{z}_j}{(1+\theta)(1-\rho\mu \cdot \alpha)} \right) (1-\rho)}_{\text{expected profits when paying mandatory p.s.}} \tag{46}$$

By re-arranging the terms, we arrive at the inequality (6) in Section 5.2.

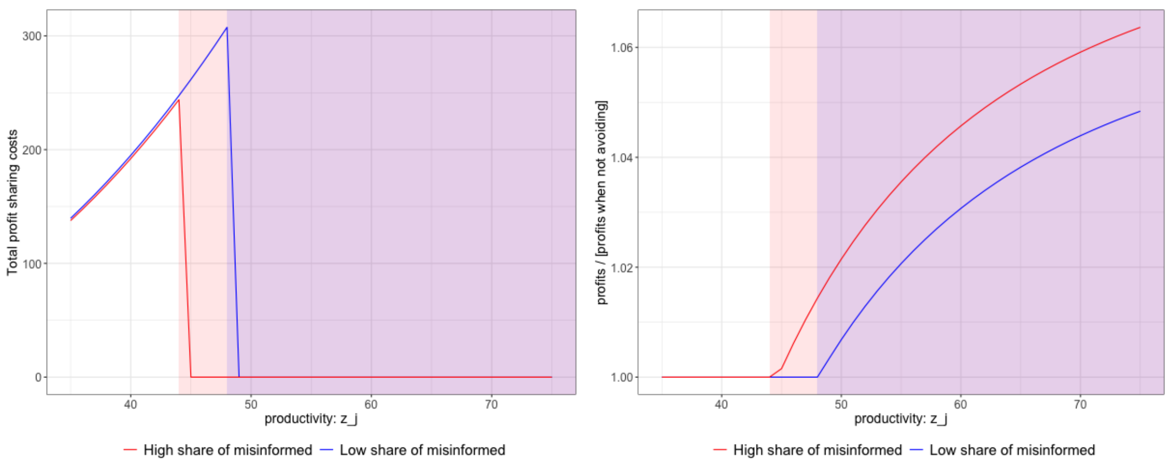
$$k \leq \frac{\hat{z}_j}{1+\theta} \left(\hat{z}_j \frac{\theta}{\theta+1} \right)^{\theta} \left[\left(1 - \frac{c}{\hat{z}_j} \right)^{1+\theta} - \left(\frac{1-\rho}{1-\mu\alpha\rho} \right) \right] \tag{47}$$

A few things to note from Equation (47):

- If $\mu \cdot \alpha = 1$ the expression collapses to $k \leq D$ with $D < 0$, i.e. the cost of avoidance has to be negative for the firm to avoid profit-sharing. If $\mu \cdot \alpha = 1$ and $c = 0$ the expression collapses to $k \leq 0$.
- The right hand side of the inequality is increasing in ρ and z_j, such that higher profit sharing requirements and higher levels of productivity will lead firms to avoid profit-sharing.
- The right hand side of the inequality is decreasing in c and $\mu \cdot \alpha$, such that lower avoidance costs and lower elasticity of labor supply with respect to profit-sharing will incentivize profit-sharing avoidance.

Figure D.1 illustrates this result for heterogenous μ_i with simulations. The red (blue) lines correspond to simulations where there is a high (low) share of misinformed workers (i.e. workers with low μ_g). The shaded areas indicate the firms that choose to avoid profit-sharing in each simulation. Panel (a) displays total profit-sharing costs across different productivity levels z_j, showing that higher-productivity firms are more likely to avoid profit-sharing. Additionally, the proportion of firms opting to avoid profit-sharing is greater in the scenario with a higher share of misinformed workers. Panel (b) depicts firm profits as a fraction of what profits would be if firms did not avoid profit-sharing. When firms do not avoid profit-sharing, this ratio equals 1. As firms begin to avoid, the ratio exceeds 1, indicating that avoiding profit-sharing yields higher profits than complying with it.

Figure D.1: Model simulations for heterogenous μ_g: decision to avoid profit-sharing



(a) Total profit sharing (b) $\frac{Profits}{Profits\ not\ avoiding}$

Notes: This figure shows the results of simulations of the model for different productivity levels $z_j \in [35:75]$ and different shares of misinformed workers. Panel (a) shows total profit-sharing costs as a function of z_j. Panel (b) depicts total profits, as a share of total profits if profit-sharing avoidance was not possible. For all simulations $\bar{\mu} \in \{0, 0.5, 1\}$. For the results in red (high share misinformed), $\bar{p} = \{0.5, 0.4, 0.1\}$. For the results in blue (low share misinformed), $\bar{p} = \{\frac{1}{3}, \frac{1}{3}, \frac{1}{3}\}$. The shaded regions indicate the firms that opt to avoid profit-sharing under each parametrization of $\bar{p}$. The parameters for the simulations are $\theta = 1.5$, $c = 0$, $k = 200$, $\alpha = 0.7$, $\rho = 0.1$.

D.6 An increase in k

As can be seen in Equation (47) increase in the cost avoiding profit-sharing k will lead some firms to shift from avoiding profit-sharing, to complying with profit-sharing. We proceed to prove the Predictions for the effects of an increase in compliance stated in Section 5.

D.6.1 Proof of Prediction 1: Effect on employment

Using Equations (43) and (36), we derive the result presented in Prediction 1, which states that the effect on firm employment will be:

$$\Delta n_j = c \cdot \left(\frac{\theta}{\theta + 1} \right)^{\theta} \tag{48}$$

Note that if $c = 0$, the effect on employment will be zero. The reason behind this results is that profit sharing does not distort the marginal cost of employment at the point where marginal profits are zero, i.e. where profits are maximized. We proceed to derive this result, for a general class of labor supply functions of the form $n^s = g(w_j + \alpha\mu p s_j)$, which includes our labor supply function in Equation (25). The labor supply curves and inverse labor supply curves when the firm avoids, and when the firm complies with profit-sharing can be expressed as:

$$\begin{aligned} n_j^{avoid} &= g(w_j) & n_j^{comply} &= g(w_j + \alpha\mu p s_j) \\ w(n_j)^{avoid} &= g^{-1}(n_j) & w(n_j)^{comply} &= g^{-1}(n_j) - \alpha\mu \cdot p s_j \end{aligned}$$

Thus, the marginal cost of employment when the firm avoids, and when the firm complies with profit-sharing are:

$$MC_n^{avoid} \;=\; w(n_j)^{avoid} + \frac{\partial w(n_j)^{avoid}}{\partial n_j} n_j = \underbrace{g^{-1}(n_j)}_{w(n_j)^{avoid}} + \frac{\partial g^{-1}(n_j)}{\partial n_j} n_j \tag{49}$$

$$MC_n^{comply} \;=\; w(n_j)^{comply} + \frac{\partial w(n_j)^{comply}}{\partial n_j} n_j = \underbrace{g^{-1}(n_j) - \alpha\mu \cdot p s_j}_{w(n_j)^{comply}} + \left(\frac{\partial g^{-1}(n_j)}{\partial n_j} - \alpha\mu \frac{\partial p s_j}{\partial n_j}\right) n_j \tag{50}$$

Which can be expressed as:

$$MC_n^{comply} = \underbrace{g^{-1}(n_j) + \frac{\partial g^{-1}(n_j)}{\partial n_j} n_j}_{MC_n^{avoid}} - \alpha\mu \left(\underbrace{p s_j}_{*} + \underbrace{\frac{\partial p s_j}{\partial n_j} n_j}_{**} \right) \tag{51}$$

Where:

$$\frac{\partial p s_j}{\partial n_j} = \frac{\partial \frac{\rho \Pi}{n_j}}{\partial n_j} = \rho \frac{\Pi' n_j - \Pi}{n_j^2} \tag{52}$$

Notice that when $\Pi' = 0$, we have $\frac{\partial p s_j}{\partial n_j} = \frac{-p s_j}{n_j}$, causing the second term in Equation (50) to collapse to zero. Thus, at the optimal level of labor, where profits are maximized, the marginal cost of employment with profit-sharing is identical to the marginal cost of employment without profit sharing. Importantly, this result holds without imposing any specific revenue function, and applies to any labor supply function $g(\cdot)$ of the form $n^s(w_j, p s_j) = g(A_1 w_j + A_2 p s_j)$. The result also holds if additional production factors are included, as long as the cost of these production factors is discounted from the profit base used to calculate profit-sharing. This result is notable as it implies that profit sharing does not distort labor decisions, even if we take into account the fact that it affects labor supply.

The intuition behind this result lies in the two effects of profit sharing on the marginal cost of labor. First, for a given level of employment, the firm can offer a wage that is $\alpha\mu \cdot p s_j$ lower, thereby reducing the first term after the first equality sign in the marginal cost expression in (50), this is term $(*)$ in Equation (51). Second, an increase in the number of workers reduces the profit-sharing amount allocated to each worker (for a concave profit function, the numerator in Equation (52) is always negative), requiring an upward wage adjustment for every worker to compensate for this decline, equal to $\alpha\mu|\frac{\partial ps_j}{\partial n_j}|$. This adjustment raises the second term of the marginal cost and is in term $(**)$ in Equation (51). At the optimal level of employment, profits do not change at the margin ($\Pi' = 0$). **Thus, any profit-sharing given to the new worker must be exactly offset by the total reductions in profit-sharing for existing workers.** Consequently, the initial wage savings from offering the new worker profit sharing is perfectly canceled out by the wage increases needed to compensate the existing workforce. As a result profit sharing does not alter marginal costs at the optimal employment level.

A graphical representation of this result for a linear production function is shown in Figure D.2. The labor supply curves when complying with profit-sharing in this case is $n_j = ((1-\rho\alpha\mu)w_j + \rho\alpha\mu\hat{z}_j)^{\theta}$. These two curves intersect when $w = \hat{z}_j$. The marginal cost curves also intersect at $MC = MPL$, the point that determines optimal employment. Consequently, employment is identical in both scenarios. This is illustrated with a dashed vertical black line in Figure D.2, which also shows that while employment levels are the same, wages are higher in the avoiding scenario than in the non-avoiding scenario.

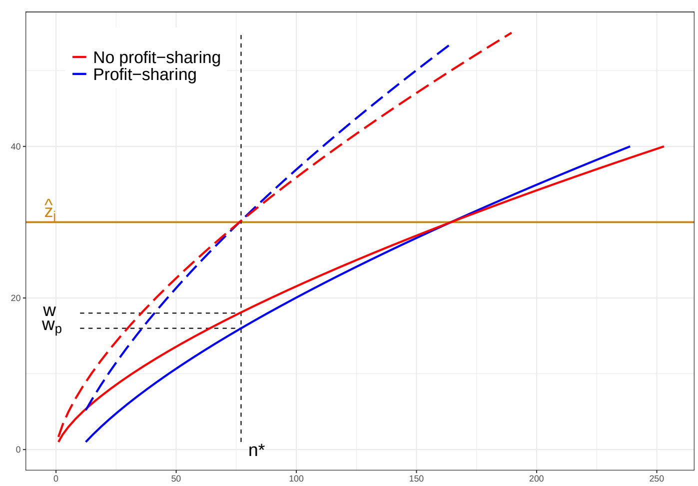


Figure D.2: Graphical illustration of optimal w_j and n_j

Notes: This figure provides a graphical illustration of the firm's optimal choices for w_j (wage) and n_j (employment) under two scenarios: when the firm does **not** provide profit-sharing (red), and when it provides profit-sharing (blue). The solid lines represent the labor supply curves: $n_j = w_j^{\theta}$ in the avoidance scenario and $((1-\rho\mu\alpha)w_j + \rho\mu\alpha\hat{z}_j)^{\theta}$ in the compliance scenario. The dashed lines depict the marginal cost in each case. The horizontal dark orange line indicates the marginal revenue product of labor, $\hat{z}_j$, and the dashed vertical black line marks the optimal employment level where $MCL = MPL$. w_p is the optimal wage with profit-sharing, and w is the optimal wage with **no** profit-sharing. The figure is generated with parameters $\theta = 1.5$, $\rho = 0.3$, $\rho\mu = 0.5$, and $\hat{z}_j = 30$. The fact that n_j^* is equal in both scenarios illustrates Prediction 1.

D.6.2 Proof of Prediction 2: Effect on total compensation

Notice that for $c = 0$—consistent with our empirical results in Section 6.2.3—Prediction 2 follows from Prediction 1. If total employment does change, it must be that the effect on $w_j + \alpha\mu ps_j$ is zero. If $\alpha\mu < 1$, it must then hold that $w_j + ps_j$ increases. As with Prediction 1, this result holds for any production function $f(n_j)$ and any labor supply of the form $n^s(w_j, ps_j) = g(A_1 w_j + A_2 ps_j)$. We derive the analytical result for a linear production function and labor supply defined in Equation (25). Using Equations (34), (41), (35) and (42) we obtain the following expressions for the change in wages, profit sharing per worker, and total compensation for these firms. This last result is stated in Prediction 2.

$$\Delta wage = c\frac{\theta}{\theta+1} - \frac{\hat{z}_j \rho\mu\alpha}{(1+\theta)(1-\rho\mu\alpha)} \tag{53}$$

$$\Delta\,\mathbb{E}[ps_j] = \frac{\hat{z}_j \rho}{1+\theta}\left(1 - \frac{\rho\mu\alpha}{1-\rho\mu\alpha}\right) \tag{54}$$

$$\Delta\,\mathbb{E}[total\ compensation] = \frac{\hat{z}_j \rho}{1+\theta}\left(1 - \frac{1-\rho}{\frac{1}{\mu\cdot\alpha} - \rho}\right) + c\frac{\theta}{\theta+1} \tag{55}$$

The expression in Equation (55) is increasing $\frac{1}{\mu\cdot\alpha}$, indicating that when labor supply is highly inelastic with respect to profit sharing, restrictions on profit-sharing avoidance lead to a larger rise in total compensation. In Section D.8 we show that the same result is obtained if wages are set via Nash bargaining, rather than wage posting.

D.6.3 Proof of Prediction 3: Effect on risk-adjusted value of total compensation

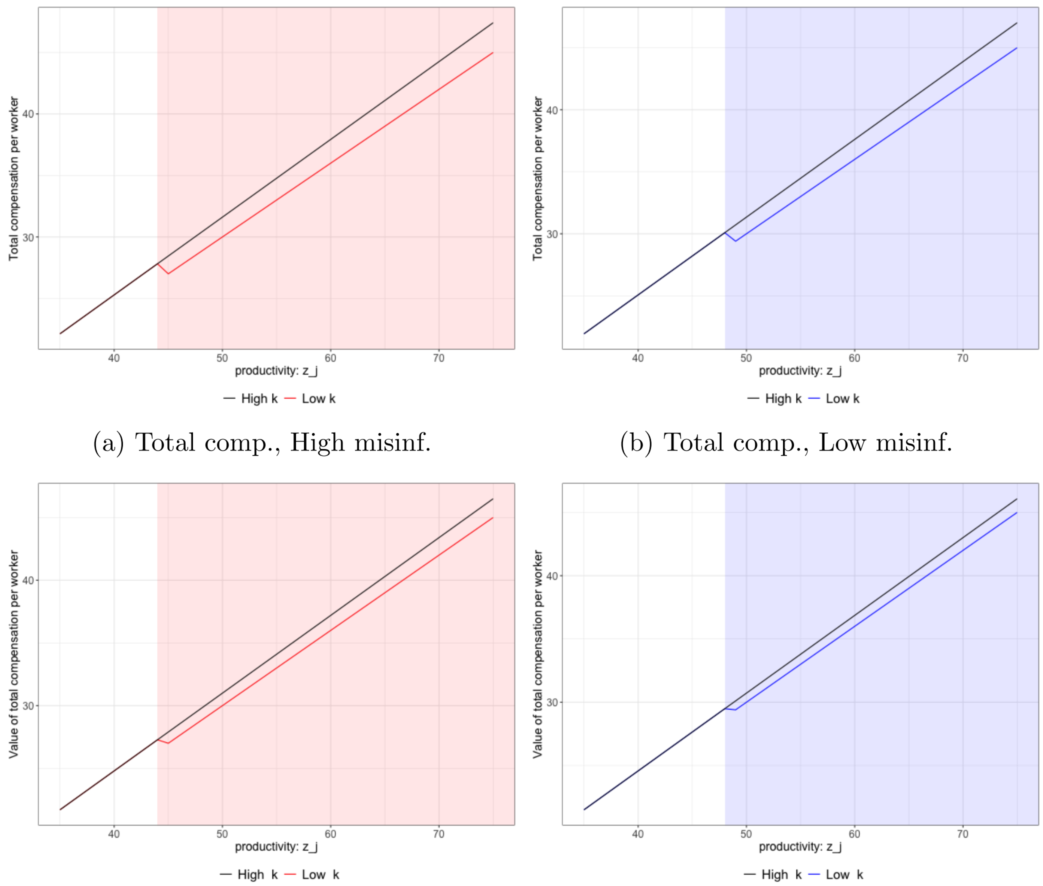
We derive the effect of a profit-sharing enforcement on the risk-adjusted value of total compensation, stated in Prediction 3. As explained in Section D.2, we define the risk-adjusted value of total compensation for workers as $(w_j + \alpha\,\mathbb{E}[ps_j])$. This represents the value of total compensation for workers, accounting for the additional risk involved in profit sharing, absent any information frictions.

As with Prediction 2, for $c = 0$ Prediction 3 follows from Prediction 1. If total employment does change, it must be that the effect on $w_j + \alpha\mu ps_j$ is zero. If $\mu < 1$, it must then hold that $w_j + \alpha \cdot ps_j$ increases. This result holds for any production function $f(n_j)$ and any labor supply of the form $n^s(w_j, ps_j) = g(A_1 w_j + A_2 ps_j)$. The analytical result for the effect of an increase in k on $\Delta(w_j + \alpha\,\mathbb{E}[ps_j])$ for a linear production function and labor supply defined in Equation (25) is:

$$\Delta\,\mathbb{E}[\text{risk-adj value total comp}] = \frac{\hat{z}_j \rho\alpha}{1+\theta}\left(1 - \frac{1-\alpha\rho}{\frac{1}{\mu} - \alpha\rho}\right) + c\frac{\theta}{\theta+1} \tag{56}$$

Figure D.3 illustrates simulations for the effect of an increase in k on total compensation (panels a,b) and the risk-adjusted value of total compensation (panels c,d) for heterogenous μ_i. Panel (a) and (c) plot the results when there is a high share of misinformed workers, while panel (b) and (d) plot the results when there is a lower share of misinformed workers.The black line in each graph represents the effect on the outcome variable when k increases, leading firms that were previously avoiding profit-sharing to start complying with it. As shown in the figures, the effect on both total compensation and the risk-adjusted value of total compensation is positive, and it is higher in the scenario with a larger share of misinformed workers.

Figure D.3: Model simulations for heterogenous μ_g: increase in k



(a) Total comp., High misinf. (b) Total comp., Low misinf.

(c) Risk-adj value total comp., High misinf. (d) Risk-adj value total comp., Low misinf.

Notes:This figure shows the results of simulations of the model for different productivity levels $z_j \in [35 : 75]$ and different shares of misinformed workers. Panels (a) and (b) show total compensation ($w + \mathbb{E}[ps]$). Panels (c) and (d) show the risk-adjusted value total compensation ($w + \alpha\,\mathbb{E}[ps]$). For all simulations $\bar{\mu} \in \{0, 0.5, 1\}$. In Panels (a) and (c) (high share misinformed), $\bar{p} = \{0.5, 0.4, 0.1\}$. For Panels (b) and (d) (low share misinformed), $\bar{p} = \{\frac{1}{3}, \frac{1}{3}, \frac{1}{3}\}$. The shaded regions indicate the firms that opt to avoid profit-sharing under low k the black dotted lines in each graph depict the effect of an increase in the cost of avoiding profit-sharing, k. The parameters for the simulations are $\theta = 1.5$, $c = 0$, $k_{low} = 200$, $k_{high} = 1e^{10}$ $\alpha = 0.7$.

D.7 Alternative setup: Perfectly competitive labor markets

In this section, we solve the model under the assumption of a perfectly competitive labor market, where firms take the value of total compensation $w + \alpha\mu \cdot ps$ as given. The firm's production function is $f(n_j)$ with $f' > 0$ and $f'' < 0$. For simplicity, we set $c = 0$ and $k > 0$.

Avoiding Profit-Sharing. When avoiding profit-sharing, the firm solves:

$$\max_{n} \ \Pi_j = zf(n) - w_j n - k \qquad \text{s.t.} \quad w = \widetilde{W}. \tag{57}$$

The first-order condition (FOC) is:

$$zf'(n) = \widetilde{W}. \tag{58}$$

Thus, the total compensation when avoiding profit-sharing is:

$$tc^{avoid} = \widetilde{W}. \tag{59}$$

Complying with Profit-Sharing Under compliance, total compensation must satisfy:

$$w + \alpha\mu\rho\left(z\frac{f(n)}{n} - w\right) = \widetilde{W} \quad \Longrightarrow \quad w = \frac{\widetilde{W} - \alpha\mu\rho z\frac{f(n)}{n}}{1-\alpha\mu\rho}. \tag{60}$$

The firm's maximization problem can then be expressed as:

$$\max_{n} \ \left[zf(n) - \widetilde{W}n\right]\frac{1-\rho}{1-\alpha\mu\rho}. \tag{61}$$

Proof of Prediction 1 Since the FOC under compliance is identical to the avoidance case, we have:

$$n^{comply} = n^{avoid}. \tag{62}$$

Hence, in a perfectly competitive labor market, profit-sharing does not affect the marginal cost of employment.

Intuition. With profit-sharing, firms maximize $(1-\rho)$ times pre–profit-sharing profits: $\Pi^{pre-ps} = zf(n) - wn$. In this setting, as total compensation is wage plus profit sharing per workers, firms can provide a wage that is $\alpha\mu ps_j$ lower. Because profit-sharing depends directly on pre-profit sharing profits, the decrease in total wage costs is proportional to pre-profit-sharing profits. We can write:

$$\Pi^{pre-ps} = zf(n) - wn + \alpha\mu\rho\Pi^{pre-ps} \quad \Rightarrow \quad \Pi^{pre-ps} = \frac{zf(n) - wn}{1-\alpha\mu\rho}, \tag{63}$$

which leaves marginal costs unchanged.

Proof of Prediction 2 and Prediction 3 In a perfectly competitive labor market, it must hold that:

$$w^{avoid} = w^{comply} + \alpha\mu \cdot ps^{comply} = \widetilde{W}. \tag{64}$$

If $\alpha\mu < 1$, then total compensation under compliance, $w^{comply} + ps^{comply}$, must exceed total compensation under avoidance for equality 64 to hold. The increase in total compensation is decreasing in $\alpha\mu$. Moreover, if $\mu < 1$,

$$w^{comply} + \alpha \cdot ps^{comply} > w^{avoid} \tag{65}$$

must hold for the above equality 64 to be satisfied.

D.8 Alternative setup: Wage setting under Nash Bargaining

In this section, we show that the result in Prediction 2 also holds when wages are determined through Nash bargaining.[86] When the firm **complies with profit-sharing**, the firm's value of a filled and unfilled vacancy is:

$$J = (1-p)(z-w), \qquad V = 0$$

The value of a being employed and unemployed for workers is the following, where we define:

$$TC = w + \alpha\mu \cdot p(z-w), \qquad U = b$$

Here, TC represents the value of total compensation to the worker, accounting for the fact that workers discount profit-sharing due to risk aversion (α) and information frictions (μ). The actual total compensation received is $tc = w + p(z-w)$. Workers and firms bargain over the value of total compensation for workers through Nash bargaining, solving:

$$\max_{TC} \; (TC - U)^{\Psi}(J - V)^{1-\Psi}$$

The first-order condition implies:

$$(TC - U)(1-\Psi) = (J - V)(\Psi)$$

Substituting in the expressions for TC, U, J, and V, and rearranging terms, we derive the wage and total compensation under profit-sharing compliance:

$$w^{comply} = \frac{(1-p)\Psi z - \alpha\mu p z(1-\Psi) + b(1-\Psi)}{(1-\Psi)(1-\alpha\mu p) + (1-p)\Psi}$$

$$tc^{comply} = w^{comply} + p(z - w^{comply}) = (1-p) \cdot \frac{(1-p)\Psi z - \alpha\mu p z(1-\Psi) + b(1-\Psi)}{(1-\Psi)(1-\alpha\mu p) + (1-p)\Psi} + pz$$

When the firm **avoids profit-sharing**, the bargaining is over the wage alone, leading to the standard Nash bargaining outcome

$$tc^{avoid} = \Psi z + (1-\Psi)b$$

[86] For simplicity we assume $c = 0$ in this section. The results also hold if $c > 0$, as this would decrease the value of total compensation under avoidance.

We compare total compensation when the firm avoids and when the firm complies with profit-sharing to assess the impact of compliance on total compensation:

$$\Delta[\textit{total comp}] = \underbrace{(1-p)\cdot\frac{(1-p)\Psi z - \alpha\mu p z(1-\Psi) + b(1-\Psi)}{(1-\Psi)(1-\alpha\mu p) + (1-p)\Psi} + pz}_{\text{total compensation when complying with profit sharing}} \quad - \quad \underbrace{\Psi z + (1-\Psi)b}_{\text{total compensation when avoiding p.s.}}$$

This simplifies to:

$$p(1-\Psi)^2(1-\alpha\mu)(z-b)$$

which is greater than zero as long as $\alpha\mu < 1$. When $\alpha\mu = 1$, $tc^{avoid} = tc^{comply}$. This reproduces the result in Prediction 2.