The Labor Market Effects of Regulating Platform Work: Evidence from Chile*

Omar Bamieh[a], Juan J Dolado[bde], Álvaro Jáñez[c], and Felix Wellschmied[be]

[a]Universidad Andres Bello, [b]Universidad Carlos III de Madrid, [c]Stockholm School of Economics, [d]CEPR, [e]IZA

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Abstract

Chile's 2022 Platform Work Law mandates firms to monitor their subcontractors' formality and establishes maximum working hours, minimum pay, and the right to collective bargaining among independent contractors. Chile is possibly the country with the best platform work data in the world. By means of DiD/ event study regressions, we find that this reform induced an 8-percentage-point shift from the share of informal to formal subcontractors. However, there were no significant changes in collective bargaining, compliance with minimum pay and maximum hours, or wage differentials between employees and subcontractors. The changes in hiring practices and wages are rationalized through a structural labor market model with heterogeneous workers and labor contracts. The calibrated model also shows that the reform reduced platforms' profits, while strictly enforcing hours regulations leads to very small welfare losses.

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*Corresponding author: Álvaro Jáñez (alvaro.janez.garcia@hhs.se). We thank our discussant Tatiana Rosá and participants at CAF Workshop 2026 in Buenos Aires for helpful comments. Financial support from the CAF project *Latin America and the Caribbean at the Crossroads of Informality and Digitalization* is gratefully acknowledged: Felix Wellschmied appreciates the support of grants RYC2023-043181-I, PID2024-158085NB-I00, and CEX2021-001181-M funded by MICIU/AEI/ 10.13039/501100011033 and by ERDF/UE. The usual disclaimer applies.

1 Introduction

Around 300 million workers are currently employed through digital platforms globally, representing between 4.4 and 12.5 percent (%) of the workforce (Datta et al., 2023). Among platform work, delivery and transportation services (transportation, hereafter) take a dominant position, partially as a result of the COVID-19 pandemic, with their workers being commonly employed as independent contractors. The usage of these workers has brought about a radical transformation in labor market relationships, as it allows platforms to sidestep traditional employment regulations and social protection (Katz and Krueger, 2019; Abraham et al., 2021).

These common practices have raised deep concerns about the precarious conditions of many platform workers, prompting regulatory responses across continents.[1] These concerns are further amplified in Latin America, where independent contractors are not only the dominant form form of employment but informality is also pervasive among platform workers (ILO, 2025), thereby leaving many of them with even less social protection. In this region—where the gig economy employs about 46 million people—Chile becomes a key case study due to the approval of one of the earliest regulations of platform work in 2022 in a setting marked by widespread informality.[2] Moreover, this country stands out for the availability of uniquely detailed and comprehensive administrative data on the labor market conditions of platform workers enabling the evaluation of the Chilean Platform Work Law (Ley N° 21,431, hereafter PWL).

The reform explicitly introduces the new jurisdictional figure of "independent platform worker" in their Labor Code, making explicit that platforms may no longer rely on informal independent contractors. Instead, platforms have to monitor, even when hiring through subcontracting firms, whether their workers are registered with the tax authorities. In addition, the law establishes maximum working hours, minimum pay, and the right to collective bargaining among independent platform workers. We quantify the labor market effects of this regulation for transportation workers, who represent about 84 percent of all workers employed by the platform companies affected by the law, such as Uber. To that end, we combine reduced-form methods with an equilibrium model of the platform work market.

As for data sources, we exploit the Chilean Labor Force Survey (LFS), which explicitly identifies platform work since 2020. Foremost, it provides microdata on working hours,

[1] For example, Australia (Fair Work Legislation Amendment Act 2024), Belgium (Wet van 28 november 2022), California (Assembly Bill 5), Colombia (Ley 2466 from 2025), France (Loi n° 2016-1088), Italy (Legge 2 novembre 2019, n. 128), Massachusetts (Ballot Question 3), South Korea (Employment Insurance Act No. 17859), or Spain (Real Decreto-ley 9/2021).

[2] Mexico (Ley Federal del Trabajo 2024) and Uruguay (Ley N° 20,396) have also enacted legislation regulating platform work, while similar initiatives are underway in Brazil, Colombia, and Peru.

wages, employment status, formal status, and social security coverage for a nationally representative sample of the working-age population on a quarterly basis. Using this information, we document salient features of the transportation platform sector prior to the reform. Before the PWL, the informality rate among platform workers stood at around 80%, with an additional 15% of workers being formally registered as independent contractors. This reflects the widespread practice of platforms circumventing employee labor regulations. Accordingly, our results show that most platform workers do not have social security coverage, nearly one-fifth earn hourly income below the legal minimum pay, one-tenth work more hours than the legal maximum applicable to employees, and less than 0.2 percent participate in trade unions. As for hours worked and wages, we find that formal and informal independent contractors have a similar distribution of wages and hours worked. Moreover, they both work substantially longer hours, feature more dispersion in hours worked, and earn lower wages compared to formal platform employees.

Next, we report reduced-form evidence on the labor market effects of the PWL through a static difference-in-differences (DiD) regression that compares outcomes of treated and control workers before and after the enactment of the PWL in September 2022. The treated group includes low-skilled workers employed by transportation platform companies covered by the PWL. The control group consists of low-skilled, non-platform workers in that sector. The chosen specification controls for sociodemographic characteristics (education, age, foreign-born status, indigenous status, and rural residence), plus region and time fixed effects. In addition, we complement the static DiD regression with an event-study analysis that allows us to test for pre-trends and sheds light on the dynamic effects of the reform.

The results from the static DiD specification show that, relative to the control group, the informality rate falls by 8.2 percentage points (pp.) among platform workers following the reform. This represents a 10% decline in the number of informal workers in this sector. Hence, the reform was successful in terms of reducing informality, even though it remains the dominant status among workers after the PWL. The reduction stems entirely from a substitution of informal for formal contractors: the share of the latter increases by 8.0 pp., while the share of formal employees exhibits no significant changes. Consistent with the pre-reform similarity between both groups of contractors documented above, we also find no significant changes in wages or hours worked for treated vs. control workers following the PWL. Turning to labor law enforcement, no evidence is found that the reform had any effects either in the share of workers exceeding maximum working hours, in the share of workers earning below the minimum wage, or in trade union participation. However, there is a rise of 4.5 pp. in social security coverage.[3] These results are robust to

[3]The incomplete pass-through of formality to this coverage rate stems from the fact that some self-employed workers register with the tax authorities, and thus have a formal status, but do not contribute

the event-study specification, which additionally supports the parallel trends assumption underlying our DiD design.

Since we rely on repeated cross-sections rather than panel data, a natural concern is that the reform may have changed the composition of workers employed by platform companies. To address this issue, we regress each sociodemographic covariate on the treatment interaction and find only modest shifts—platform workers are slightly older, marginally less rural, and somewhat more likely to be of indigenous origin after the reform—but the corresponding event-study graphs reveal no sharp structural break at the reform date, and these magnitudes are small relative to our main treatment effects. Moreover, overlaying controlled and uncontrolled event-study estimates shows that the two series track each other closely throughout the sample period, confirming that compositional changes do not confound our main findings.

As a complementary robustness exercise, we implement a pseudo-panel approach following Deaton (1985) to address the concern that time-invariant unobservable differences between platform and non-platform workers could confound our estimates. We define cohorts by the interaction of four time-invariant characteristics—occupation code, college education, 10-year birth cohort, and urban/rural residence—and track survey-weighted cohort means over time, so that cohort fixed effects absorb any unobserved heterogeneity that is common within a cohort. Treatment intensity is measured as the pre-reform average share of platform workers in each cohort, and cohorts are classified as high- or low-exposure relative to the sample median. The resulting estimates confirm our main findings above while the the associated event-study coefficients show no pre-trend violations at the cohort level, independently validating the parallel trends assumption.

In addition, to understand the reform's effect on employment decisions and to conduct counterfactual simulations, we develop an equilibrium labor-market model that incorporates an informal sector and partial compliance by platforms. The model economy features a representative platform and a unit mass of workers who are heterogeneous in their preferences for hours worked and contract status. Given that these workers can register on platform apps immediately, we model a frictionless labor market in which equilibrium wages clear each segment of the labor market. The platform demands both employees and independent contractors to produce output, who are assumed to be imperfect substitutes in production. Consistent with the reduced-form evidence, the platform offers higher wages to its employees and more work flexibility to its contractors. In particular, employees work fixed hours and are subject to employer-side payroll taxes, while contractors choose freely their own hours. When the latter become formal workers, the platform incurs administrative costs which platforms may try to avoid by hiring informal

to the social security system.

contractors.[4] However, in such a case, the platform faces expected sanctions that are convex in the number of informal contractors, where convexity captures an increasing likelihood of being audited and caught when the firm gets larger.

We simulate the labor market reform as an increase in these sanctions consistent with the obligations the reform puts on firms to monitor their independent contractors. The reform, just as in the data, leaves the share of employees unchanged and only affects the share of self-employed who become formal. Moreover, as in the data, it does not change relative wages across contracts. The economic intuition is that sanctions do not affect marginal costs, which determine whether to hire self-employed or employees, but only the platform's average costs. The marginal cost of hiring self-employed is independent of sanctions because this reflects the marginal cost of hiring *formal* self-employed workers. Nevertheless, as average costs increase, our simulation implies that the platforms' expected profits fall by 10%.

One way the government can affect the marginal costs trade-off between contractors and employees is by lowering the platforms' social security contributions for the latter workers. We therefore simulate a payroll tax exemption, which corresponds with a decline of 4.4 pp. in employer payroll taxes. The reform increases the wages of employees by 3.8% and the share of employees from 5.0% to 5.2%. Thus, the scope for reducing informality through employer payroll tax cuts is limited. Furthermore, we simulate a reform where the government actually enforces the maximum hours regulation of platform workers (84 hours per week). We evaluate this reform in terms of a wage subsidy that the government would have to pay to make workers indifferent to not enforcing the law. We find small welfare losses from enforcing the law: the required wage subsidy is 0.07%. The small welfare losses are the result of the maximum-hours bar being very high. Even among contractors, few work longer than 84 hours and, hence, few would be negatively affected by the law enforcement.

Related literature and outline This paper contributes to a growing literature on the characteristics of the online gig economy where a large body of empirical research has dealt with the difficulty of measuring platform work arrangements through either conventional administrative data, specific surveys, or field experiments (Mas and Pallais, 2017; Collins et al., 2019; Katz and Krueger, 2019; Boeri et al., 2020; Abraham et al., 2021). Given that Chile is one the countries in the world with the best administrative data on platform work, our study aims reducing measurement problems.

Similar to us, there is a recent literature which also highlights the high value that digital platforms provide to workers through flexible work arrangements. For example,

[4]We assume only contractors may be informal because only a negligible share of informal workers declare to be employees, and their distributions of hours and wages are very similar to those of contractors.

Chen et al. (2019) study the case of Uber drivers in the US and show that their surplus is higher in these flexible jobs than in alternative work arrangements which offer less flexibility. Similarly, Stanton and Thomas (2025) analyze a platform environment where buyers post one-time projects and workers compete for these projects by posting wages. They find that imposing traditional employment regulations on short-term platform work reduces overall welfare and workers' surplus for those valuing flexibility. Angrist et al. (2021) study a yet different setup where drivers choose between permanent lease contracts (taxi driver) and revenue fees (Uber driver), finding that the worker retains work flexibility in both arrangements. We add to this literature by considering an environment where flexible platform jobs coexist with workers being hired as employees so that, unlike those papers, formality and informality play a big role.

Another related line of research is the study of the labor market effects of on-call and zero-hours contracts by Scarfe (2019), Dolado et al. (2025) and Datta (2024), which share similarities with contracts offered to subcontracted drivers and riders. Under those work arrangements, firms only call-up workers when they need their services leading to workers being operative in some periods but not in others. Just like us, these papers employ structural models to analyze the general equilibrium effects of regulating flexible contracts. However, we differ from their approach in that we add informality as an additional status to being employee and self-employed and in analyzing in more detail workers' heterogeneity in time availability. Moreover, these authors use search and matching models, whereas ours is about a frictionless labor market which we deem more appropriate for the type of platform work under consideration.

Additionally, our paper is linked to the literature on the informal economy. Ulyssea (2020) concludes that formality enforcement generates efficiency gains without necessarily increasing unemployment. Our results show that increasing the formality rate in the platform sector does not necessarily translate into output or employment gains. Moreover, our approach is similar to equilibrium models of the labor market with informal jobs (Zenou, 2008; Satchi and Temple, 2009; Albrecht et al., 2009). Our paper differs in that we characterize a different job sorting mechanism based on leisure or contract preferences.

Finally, our paper also speaks to other strands of the literature that deal with the effects of changing legal work-time regulations (Carry, 2022), and the modeling of hours of work in search and matching models (Cooper et al., 2017; Frazier, 2018). We depart from these works in allowing for heterogeneity regarding labor labor supply decisions by workers in frictionless model and by introducing and informal labor-market segment.

The rest of the paper is structured as follows. Section 2 provides some institutional background about platform work in Chile, as well as a detailed discussion of the 2022 reform under consideration. Section 3 describes the data sources and draws stylized facts

about the platform workers ' labor market. Section 4 provides reduced-form evidence about the labor market effects of the reform by means of D-i-D and event-study regressions. Section 5 lays out the quantitative model. Section 6 describes its calibration. Section 7 discusses the counterfactual results from policy experiments. Finally, Section 8 concludes. An Appendix gathers further evidence discussed in the main text.

2 Institutional Background

Pre-reform institutions. Over the last fifteen years—and with a marked acceleration since the pandemic episode—gig economy platforms have expanded significantly in Chile, primarily through multinational companies such as Uber, Rappi, and PedidosYa. In fact, this country is one of Uber's most active markets in the world, trailing only the US and the UK, with operations in nearly three-fourths of Chile's medium and large cities (Azuara-Herrera et al., 2019). This rapid rise in platform-based employment has led to growing concerns about how to regulate these jobs.

Broadly speaking, Chile's labor relations system is highly decentralized, with fragmented trade unionism. This is largely due to the so-called "Labour Plan" enacted in 1979 under the Pinochet dictatorship, which confined collective bargaining to the firm level or even lower levels (e.g., at the workplace or shop floor). Although the democratic transition expanded workers' social rights, collective bargaining has remained largely atomized, helping employers retain a high degree of discretion over employment matters.

Regarding these employment decisions, prior to the reform, Chile maintained a dual system classifying workers either as dependent employees, subject to labor law regulation, or as independent contractors, enjoying far fewer labor law protections. To ensure tax compliance and social security coverage among independent contractors, they are required to issue so-called *Boletas de Honorarios* (freelance service invoices), which were introduced in 1984. These allow independent workers to bill for their services without a formal contract with the hiring company, while ensuring tax collection. The system has been widely criticized as a form of bogus self-employment, since it enables companies to avoid formal employment relationships given that existing jurisprudence lacks a uniform criterion about the legal definition of independent contractors (Muñoz-García, 2018).

Platforms often have taken advantage of the difficulty of proving a classical subordinate employment relationship in court. Hence, absent explicit labor legislation for platform workers, companies classified 95% of their workforce as independent contractors rather than employees. As a result, the vast majority of platform workers were subject

to minimal regulation regarding working hours and remuneration. Moreover, though independent contractors are required to be registered with the tax authorities and thus formalized, in practice this often did not occur. Consequently, prior to the labor reform, the informality rate in the sector reached 80%—approximately three times higher than in the Chilean economy as a whole (26%).

The Platform Work Law. The high degree of informality and the lack of social protection have sparked an intense debate on how to improve the rights of platform workers while preserving the flexibility offered by these new forms of employment. As stated by the Minister of Labor in parliamentary debates preceding the law, there was a need to establish "regulation for a sector that was completely unregulated" and to "guarantee worker protections while also allowing them to harness the potential made available by globalization and new technologies" (Biblioteca del Congreso Nacional de Chile, 2022). Law 21.431, known as the Platform Work Law, approved in March 2022 and in force since September 2022 in Chile, became the first law in Latin America to establish a regulatory framework governing "work performed via digital service platforms" and, in doing so, addressing the issue of informality.[5] Specifically, the law applies to companies that *manage* the execution of services by workers for users through a digital platform, explicitly including sectors such as delivery and transport (e.g., Uber). By contrast, platforms that merely advertise others' services without managing their execution are excluded from these regulations (e.g., Airbnb).[6]

Determination of employment status. To reduce informal subcontracting, a central part of the reform relied upon the amendment of the existing Labor Code through the introduction of the new jurisdictional figure of "independent platform worker." Hence, companies may still hire either *dependent* platform workers, whose status closely resembles that of traditional employees, or *independent* platform workers, who operate as self-employed contractors. However, unlike traditional independent contractors, companies are required to ensure that their independent platform workers become formal. In other words, it is the platform's obligation to verify that these contractors (i) have a valid tax identification number, (ii) are authorized to issue the aforementioned Boletas de Honorarios, and (iii) report the resulting revenue to the tax authorities. Importantly, platforms

[5]Note that later, the so-called Uber Law, enacted in 2023 but still not fully implemented by 2026 (therefore not affecting our reference period 2020-2024) regulates transportation apps in Chile by requiring drivers to hold a professional license, setting a maximum vehicle age (1–3 years) to improve safety, creating an official registry, and standardizing the service. However, it did not change the labor regulations established by the PWL.

[6]In this case, although the supplier of the physical service may depend on advertising platforms to access opportunities, these companies only connect supply and demand without setting trading rules, such as prices. More concretely, according to the Consejo Superior Laboral (2024), the following platform companies operating in Chile should comply with the PWL: Uber, Cabify, Beat, InDriver, Cornershop, Jumbo, Jumbo Shoppers, Rappi, Uber Eats, PedidosYa, Upgirl, Eback, Justo, Moova, Bossmap, Roadrunner, Shopper, and Delivery.

Table 1: Main new regulations introduced by Platform Work Law

	Formal		**Informal**
	Employee	**Contractor**	
Panel A. Before the reform			
Hours worked	Contractual, $\bar{h}$	Workers' choice	Workers' choice
Maximum working time	45 hours-week	No	No
Minimum pay	$\underline{w}$	No	No
Social security taxes	Employer	Worker	None
Right to bargain collectively	Yes	No	No
Enforcement risk borne by	None	None	Potentially none
Panel B. After the reform			
Hours worked	Contractual, $\bar{h}$	Workers' choice	Workers' choice
Maximum working time	45 hours-week	84 hours-week	No
Minimum pay	$1.2 \times \underline{w}$	$1.2 \times \underline{w}$	No
Social security taxes	Employer	Worker	None
Right to bargain collectively	Yes	Yes	No
Enforcement risk borne by	None	None	Firm

Note: This Table reports the main features of changes in the regulation of work arrangements following the Platform Work Law 21.431 by contract type. The source is Chapter X of Chile's Labor Code.

are also obliged to monitor the formality of independent platform workers employed by subcontractors, i.e., firms that hire contractors to work on the platform. Beyond these regulations aimed at formalizing independent contractors, the reform imposed additional social protections for both types of workers, which we discuss next.

New regulations for dependent platform workers. Table 1 summarizes the main new regulations established in the reform distinguishing by type of labor contract. Regarding dependent employment, the PWL introduces two main regulatory changes regarding maximum working time and minimum pay (García and Azócar, 2022). The first change relates to the definition of working time, which is expanded to include all hours during which a worker remains at the platform's disposal, encompassing both active service and passive waiting periods. Notably, the sum of active and passive hours is subject to statutory maximum-hours regulations, while only active hours are remunerated. The second change concerns minimum pay, which is set at 20% above the monthly minimum wage, being proportional to the number of active hours worked. This premium aims at compensating workers for passive working time.

New regulations for independent platform workers. The PWL has introduced several regulatory changes for independent platform workers concerning maximum working time, minimum pay, and the right to collective bargaining. First, a maximum working

schedule of 12 hours (within any 24-hour period) is established by enforcing a mandatory minimum disconnection time from the platform. Second, these workers are subject to the same minimum pay regulations as dependent platform workers. Third, independent platform workers have the right to unionize and bargain collectively with platforms.

3 Descriptive Features of Platform Work

Chile has the advantage of being one of the few countries worldwide that measures platform work in its official employment statistics. We begin by describing this dataset. Next, we document some salient features of the Chilean delivery and transport platform sector, focusing on employment, hours worked, and hourly income.

3.1 Data

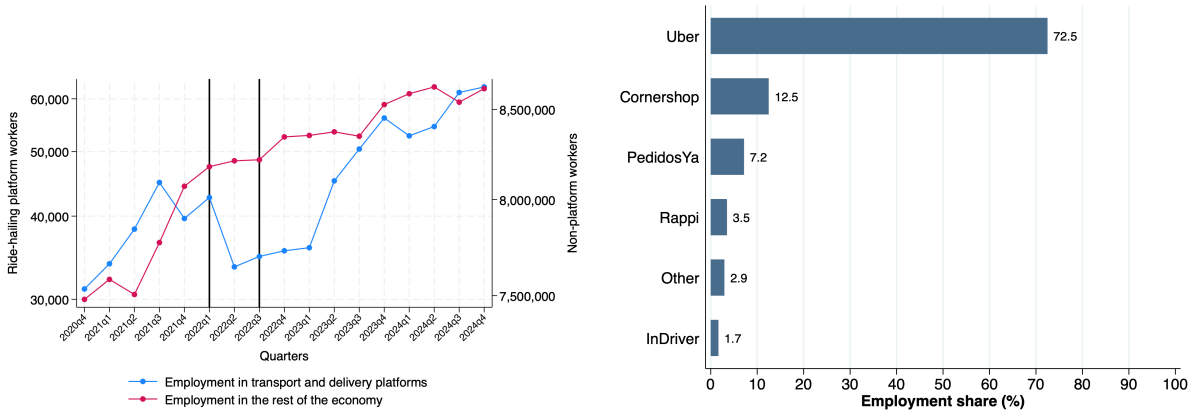
Our main data source is the Chilean Labor Force Survey (CLFS; or *Encuesta Nacional de Empleo, ENE*, in Spanish), a panel data survey conducted by the Chilean Statistical Office on a representative sample of the resident population aged 15 or older. The CLFS provides individual-level monthly information on employment status, hours worked, occupation, industry, social security coverage, and firm tax registration. Importantly, it is among the first nationally representative surveys to include a module on platform work since 2020. This module identifies the specific web platform or mobile application through which individuals work and whether platform work is their main job.

We complement the CLFS data with the Income Supplement Survey (ISS; or *Encuesta Suplementaria de Ingresos, ESI*), an annual supplementary module that provides individual-level information on monthly income during the last quarter of each year for a sub-sample of individuals observed in the CLFS. The income measure is the sum of total net earnings from dependent employment and total net income from self-employment, including business income and self-consumption. These income measures are net of personal income and social security taxes. We use this information to construct hourly income from the main job for each individual by dividing monthly income by the weekly ordinary hours worked multiplied by an adjustment factor of 4.35 weeks worked in a month.

With this available information, we adopt the following definitions of workers' labor market status. We define *platform workers* as individuals whose main job is with a company covered by the PWL, as listed in Section 2.[7] To focus the analysis on transport and delivery workers within these platforms, we further restrict the sample to workers

[7]Only 6.6 percent of platform workers held it as a secondary job before the reform. Moreover, this share did not change significantly after the reform, consistent with the PWL imposing no particularly strict regulations on working time.

Figure 1: The delivery and transport platform sector



(a) Size of the platform sector

(b) Pre-reform employment share

Note: This Figure displays the evolution of delivery and transport platform work and its pre-reform employment share distribution. The left panel shows the number of platform workers affected by the reform and other platform workers relative to total employment. The axis is in log scale. In addition, the right panel plots the pre-reform employment share distribution of transport and delivery platform workers across firms.

in low-skill ISCO-08 occupations (major groups 4 through 9) in the ISIC transport and storage sector (group H).Following Statistics Chile's standard definition, we classify *informal workers* as either dependent employees without employer-provided social security coverage or independent contractors whose activity is not registered with the tax authorities. Conversely, we consider that dependent employees have social security coverage if their employers pay health, unemployment, or pension contributions on their behalf.

We restrict the sample to working-age individuals (15–65) and focus on the period 2020q1-2024q4, the last available survey wave. Workers in agriculture and mining, as well as those involved in family businesses, are excluded.

3.2 Descriptive features

Sectoral size and market structure. Prior to the approval of the PWL, the transport and delivery platform sector represented a substantial share of gig workers and a non-negligible share of total employment. Specifically, this sector employed about 40,000 workers, accounting for 27.1 percent of gig employment (i.e., including Airbnb, Whatssap, etc.) and 0.5 percent of total employment in Chile. Figure 1(a) shows the evolution of (log) employment in the above-mentioned sector in comparison to the rest of the Chilean economy. Employment in this sector temporarily diverged from its previous trend around the time of the PWL and even recorded negative growth one year after its approval, unlike in the rest of the economy. However, employment began to recover in 2023 and surpassed pre-reform levels by the end of 2024.

Regarding the market structure, we find that employment in this sector is highly concentrated in just a handful of firms. Specifically, Figure 1(b) displays the pre-reform employment share across firms within the sector. Only four firms hire 95.7% of platform workers, where Uber clearly stands out as the dominant player in this market, hiring about two-thirds of workers.

Characteristics of platform workers. Column (2) of Table 2 provides a portrait of all workers employed by platform companies affected by the PWL. In addition, column (1) reports the same for the general Chilean workforce (column 1). Employed workers in PWL affected platforms are predominantly male (85.5%), younger (38 versus 43 years), urban (only 3.9% rural), and foreign-born (25.5 percent, compared to 5.6% in the general workforce). Interestingly, the share with a college degree among platform workers (29.1%) is comparable to the national average (25.5%), suggesting that platform work attracts workers across the overall education distribution rather than being concentrated among the least educated.

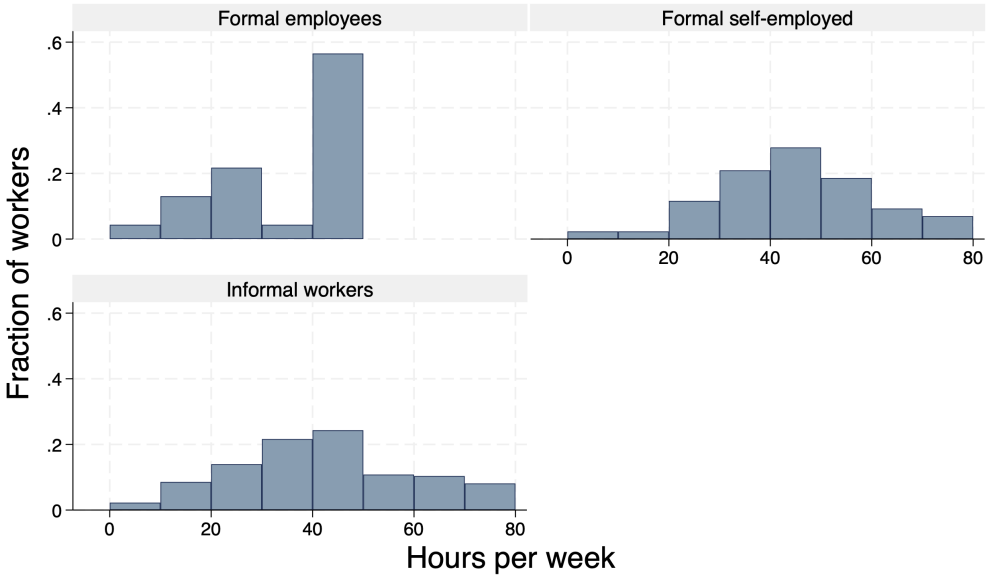
As shown in Panels A and B, workers in PWL affected platforms are concentrated in occupation 8 ("Plant and machine operators," 87.6%) and sector H ("Transportation and storage," 83.8%), though a non-negligible share are high-skilled workers (major groups 1 through 3) or work in wholesale and retail, accommodation and food, and other services. To focus on transport and delivery workers, we restrict the treatment group in subsequent sections to low-skilled workers in the transportation sector within these platforms. However, the most striking feature of this workforce is its employment status. Thus, while 27.2% of all employed workers are informal (column 1), this share reaches 82.3% among platform workers. Conversely, only 4.0% of platform workers are formal employees, compared to 64.3% percent in the general workforce. Consistent with this pattern, social security coverage is low (10.4%), trade union participation is negligible (0.6%), and platform workers earn lower hourly wages (3.21 USD versus 4.56 USD) while working longer hours (43.7 versus 40.5 hours per week). Hence, as stressed earlier, this high incidence of informality and the associated lack of social protections provide the central motivation for the PWL.

Table 2: Descriptive statistics

	All employed	Platform workers on ride-hailing apps	Treatment (transport, low-skilled)	Control (transport, low-skilled)
	(1)	(2)	(3)	(4)
Panel A: Occupation (ISCO-08)				
1. Managers	0.033	0.006	0.000	0.000
2. Professionals	0.134	0.004	0.000	0.000
3. Technicians	0.119	0.004	0.000	0.000
4. Clerical support	0.049	0.003	0.000	0.000
5. Service and sales	0.202	0.046	0.011	0.092
6. Skilled agricultural	0.035	0.000	0.000	0.002
7. Craft and trades	0.130	0.001	0.000	0.038
8. Plant and machine operators	0.083	0.876	0.975	0.719
9. Elementary occupations	0.210	0.031	0.014	0.149
Other	0.004	0.000	0.000	0.000
Panel B: Sector (ISIC)				
A Agriculture	0.098	0.001	0.000	0.000
B Mining	0.039	0.000	0.000	0.000
C Manufacturing	0.095	0.002	0.000	0.000
D Electricity and gas	0.006	0.000	0.000	0.000
E Water supply	0.008	0.000	0.000	0.000
F Construction	0.082	0.003	0.000	0.000
G Wholesale and retail	0.174	0.042	0.000	0.000
H Transport. and storage	0.058	0.838	1.000	1.000
I Accommodation and food	0.041	0.063	0.000	0.000
J Information and comm.	0.014	0.004	0.000	0.000
K Financial and insurance	0.014	0.000	0.000	0.000
L Real estate	0.008	0.000	0.000	0.000
M Professional and scient.	0.027	0.002	0.000	0.000
N Administrative support	0.026	0.002	0.000	0.000
O Public administration	0.070	0.000	0.000	0.000
P Education	0.093	0.001	0.000	0.000
Q Health and social work	0.070	0.002	0.000	0.000
R Arts and recreation	0.009	0.004	0.000	0.000
S Other services	0.029	0.037	0.000	0.000
T Household activities	0.035	0.000	0.000	0.000
U Extraterrit. organizations	0.000	0.000	0.000	0.000
Panel C: Worker characteristics				
Female	0.447	0.145	0.117	0.112
College	0.255	0.291	0.273	0.077
Age	43	38	39	45
Foreign-born	0.056	0.255	0.229	0.041
Rural	0.205	0.039	0.040	0.174
Indigenous	0.134	0.090	0.095	0.136
Panel D: Employment and regulations				
Formal employee	0.643	0.040	0.012	0.537
Formal self-employed	0.085	0.137	0.130	0.114
Informal worker	0.272	0.823	0.859	0.349
Social security	0.689	0.104	0.070	0.560
Exceed max hours	0.092	0.075	0.055	0.202
Trade union	0.165	0.006	0.005	0.149
Weekly hours worked	40.5	43.7	44.0	43.6
Observations	678,027	2,520	2,067	28,739
Panel E: Income (ESI)				
Hourly income (2023 USD)	4.56	3.21	3.17	3.78
Observations (ESI)	91,550	524	426	4,642

Note: This Table reports sample means for four groups: (1) all employed workers aged 15–65 in the Chilean LFS, (2) all platform workers, (3) the treatment group (platform workers restricted to sector H "Transportation and storage" and ISCO-08 occupation codes 5–9), and (4) the control group (non-platform workers subject to the same sector and occupation restriction). Column (3) is a subset of column (2). Panel A reports occupation shares. Panel B reports sector shares. Panels C and D report worker characteristics, labor market outcomes, and weekly hours worked from the LFS (ENE). Panel E reports real hourly income from the Supplementary Employment Survey (ESI), which is a subsample of the ENE that collects income data; monetary values are expressed in 2023 USD. The sample period covers 2020q1–2024q4.

Figure 2: Weekly hours worked in platform companies by employment status



Note: This Figure displays the distribution of usual weekly hours worked by type of employment status in platform companies. The sample period ranges from Jan.2020 to March 2022, just before the PWL approval.

Hours worked. To better understand the high incidence of non-dependent employment in the sector, we consider differences in the working conditions between employees and the self-employed. First, the top row of Table 3 shows that hours worked are similar for formal self-employed and informal workers, while both groups differ markedly from formal employees in this respect. In particular, average weekly hours are about 12 hours lower for formal employees than for formal self-employed and informal workers. Moreover, Figure 2 shows that the distribution of hours is smooth for the latter two groups but much more concentrated among formal employees. These results are consistent with the stricter regulation of working time for employees relative to self-employed or informal workers.

Turning to potential explanations behind the vast variation in hours worked between platform workers, Table A.4 in the Appendix reports the results of regressing (log) weekly hours of work on a conventional set of individual socioeconomic characteristics. We find that hours worked are higher among foreign-born workers and those aged 36–50, while hours worked are lower among women, students, and workers with a secondary job. These results support the view that workers take up platform work for different reasons: it may supplement other activities, in which case workers choose to work few hours, or it may be the main job, in which case the worker may work very long hours.

Table 3: Hours and income by employment status in the platform sector

	Formal employee		**Formal self-employed**		**Informal workers**	
	Before	After	Before	After	Before	After
Hours worked	33.03	42.48	48.21	51.03	46.06	47.39
	(4.64)	(2.07)	(2.99)	(1.55)	(1.24)	(0.87)
(Log) hourly income	7.94	8.22	7.72	7.99	7.78	7.83
	(0.65)	(0.24)	(0.20)	(0.08)	(0.06)	(0.04)
Share below MW	0.29	0.12	0.30	0.21	0.19	0.33
	(0.31)	(0.09)	(0.18)	(0.06)	(0.05)	(0.04)

Note: This Table reports hours worked, the logarithm of hourly income (in real Chilean pesos; October 2023 = 1), and the share of platform workers earning below the minimum pay. We report the outcomes by employment status and reform period. The asterisk represents that there are not observations.

Table 4: Hours and income in the platform sector

	All platform workers	
	Before	After
Hours worked	45.82	48.09
	(1.14)	(0.74)
(Log) hourly income	7.77	7.86
	(0.06)	(0.04)
Share below MW	0.20	0.30
	(0.05)	(0.03)

Note: This Table reports the number of hours worked, the log. of hourly income (Chilean peso in real terms, index Oct. 2023 = 1), and the share of platform workers earning below the minimum pay. Outcomes are shown before and after the PWL for all platform workers.

Income. Table 3 and Table 4 also report average log hourly income by reform period for each employment status and for all workers, respectively. Though differences are not statistically significant, the point estimates indicate that, on average, self-employed workers earn net hourly wages that are about 0.2 log points lower than those of employees. Put differently, this wage penalty points to the existence of *compensating differentials* between pay and flexibility of hours worked for self-employed workers.

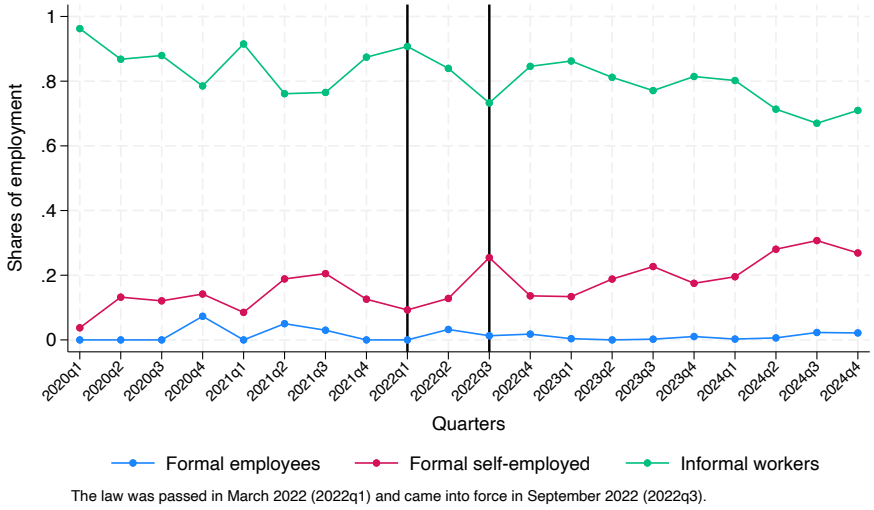
As discussed above, Uber is the dominant player in the industry. One may wonder whether this high market concentration goes hand-in-hand with substantial monopsonistic power being exercised by this large platform. Table A.2 in the Appendix suggests

otherwise: despite large differences in national market shares within the platform industry, residual wages are remarkably similar across platforms. This finding may be less surprising than at first glance.In effect, the most common reason for monopsony power (see, e.g., Berger et al. (2024)) is the imperfect substitutability of local employers from workers' perspective due to factors such as commuting costs or job search frictions, an argument that hardly applies with national online platforms, as in the Chilean case.

4 Evidence on the Effects of the PWL

This section studies the effect of the labor reform on those margins as well as on other labor regulations using an event-study analysis. Throughout the paper, we refer to the "platform sector" or "platform work" as those firms or workers affected by the reform, unless otherwise stated.

Figure 3: Evolution in the employment status of platform workers

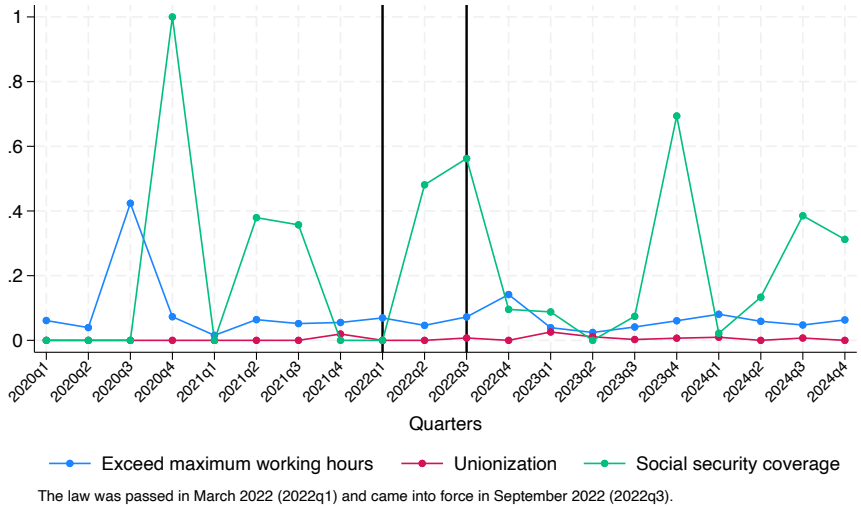


Note: This Figure displays the share of workers by employment status in platform companies during 2020-2024 where the data has been aggregated in quarters.

4.1 Descriptive analysis

The time series behavior around the reform shown in Figure 3 suggests a clear turning point in employment composition resulting from the reform. Compared with the pre-reform period, the share of informal workers declines steadily by 16.1 percentage points. Notably, this drop mirrors the surge in the share of formal self-employed, which rises from 12.0 to 28.8 percent. By contrast, the share of formal employees hardly changes.

Figure 4: Evolution in the regulation of platform work



Note: The Figure displays: (i) the share of platform workers with social security coverage, (iii) the share of platform workers who belong to a trade union, and (iv) the share of workers reporting weekly hours worked above the maximum legal number of hours. We aggregate the data in quarters.

As discussed in Section 2, besides increasing the share of formal jobs, the reform also aimed to regulate these jobs. In what follows, we examine whether the PWL has led to a greater enforcement of these types of labor regulations. Figure 4 assesses the degree of enforcement along three dimensions, displaying the shares of workers with social security coverage, those who are part of a labor union, and those exceeding the statutory maximum working time. In addition, Table 3 reports the share of workers whose hourly income is below the minimum hourly pay.

Two main findings stand out from this evidence. First, the reform marks a turning point in the trend of social security coverage. We find that the share of platform workers contributing to social security rises from 15.9 percent before 2022 to 20.5 percent in 2024, with most of this increase occurring from early 2023 onward. Note that this pattern does not follow mechanically from the increase in the formality share. The reason is that the formal status comes from registering with the tax authorities, which is administratively separate from the social security system. Thus, those workers entering formal self-employment after the reform could therefore choose not to pay social security taxes. However, we find that a significant share of these new formal workers opt to contribute to social security.

Second, we do not find evidence of meaningful changes following the reform in the other enforcement measures. The share of workers exceeding statutory working hours had already been declining before the reform, falling from 10.3% to 7.4%. In addition, the share of platform workers participating in any type of workers' organization remains

around 0.4% both before and after the PWL, suggesting a negligible effect of the reform on collective bargaining in this sector. Lastly, about two-thirds of platform workers earn above the minimum pay, a proportion which is again very stable.

The PWL does not regulate wages and hours besides imposing maximum hours and and minimum-wage pay. Reassuringly, Table 3 and Table 4 show that the average number of weekly hours worked for each employment status does not seem to be affected differently by the reform. We find no evidence of statistically significant changes in hours worked at conventional confidence levels (p=0.15), and similar results hold for hourly wages following the reform.

4.2 Differences-in-difference evidence

Panel regressions. The evolution of platform workers' labor market outcomes may reflect general trends in the economy, rather than the effects of the new platform worker regulation. For instance, a decline in informality could be a general feature of the Chilean economy. To control for this, we use low-skilled workers in the transportation sector—but not operating on platforms—as a control group and rely the following DiD regression:

$$y_{it} = \alpha_{r(i)} + \delta_t + \beta_0 \, Treated_i + \beta_1 \left(Treated_i \times Post_t\right) + \mathbf{X}'_{it}\gamma + \varepsilon_{it}, \tag{1}$$

where y_{it} is an outcome of interest for worker i in quarter t; $Treated_i$ is a dummy equal to 1 for platform workers in the transportation sector; $Post_t$ is a dummy equal to 1 after 2022q3, when the reform took effect; $\mathbf{X}_{it}$ is a vector of controls including dummies for sex, college education, age, foreign status, indigenous status, and rural residence; finally, $\alpha_{r(i)}$ and δ_t denote region and time fixed effects, respectively. The coefficient of interest is β_1, which captures the average change in y_{it} for transportation platform workers following the PWL relative to a control group formed by low-skilled non-platform workers in that specific sector.[8]

Treatment and control groups. To estimate the effects of the PWL, we restrict the sample to workers in the transportation and storage sector (ISIC Section H) with ISCO-08 occupation codes 5–9. This focuses on the delivery and minor transport segment which is the primary target of the reform, while excluding a small number of high-skilled IT workers employed by platform companies. Given that most platform workers already operate

[8]Specifically, we restrict the sample to workers in sector H "Storage and Transportation" from the Chilean National Classifier of Economic Activities for Sociodemographic Surveys (CAENES) and to workers in the occupations "Craft and Related Trades Workers", "Plant and Machine Operators and Assemblers", and "Elementary Occupations" from the International Standard Classification of Occupations (ISCO-08).

in this sector and occupation range, the resulting treatment group (column 3 of Table 2) closely resembles the broader platform workforce (column 2) along all dimensions.

The control group (column 4) consists of non-platform workers subject to the same sector and occupation restriction. By requiring that treated and control workers operate in the same industry and perform comparable types of work, we ensure that our DiD estimates are not driven by sectoral or occupational differences unrelated to the reform. While this restriction produces a well-matched comparison group along industry and occupation lines, the treatment and control groups differ along several demographic dimensions. Control workers are older (45 versus 39 years), much less likely to hold a college degree (7.7 versus 27.3%), less likely to be foreign-born (4.1 versus 22.9%), and more likely to reside in rural areas (17.4 versus 4.0%). Importantly, control workers also exhibit substantially higher formality rates (53.7% are formal employees, compared to 1.2% among treated workers), higher social security coverage (56.0 versus 7.0%), and greater trade union participation (14.9 versus 0.5%). These differences motivate the inclusion of demographic controls in our baseline specification and the robustness analysis presented in Section 4.4.

Table 5: Employment status of platform workers after the PWL

Panel A: Employment status	Formal employee	Formal self-employed	Informal worker
Treated × Post	0.002	0.080***	-0.082***
	(0.013)	(0.027)	(0.030)
Mean (pre-reform, treated)	0.018	0.123	0.859
Observations	30,738	30,738	30,738
R-squared	0.142	0.037	0.113
Panel B: Labor regulations	Social security	Exceed max hours	Trade union
Treated × Post	0.045*	0.013	0.008
	(0.024)	(0.021)	(0.008)
Mean (pre-reform, treated)	0.072	0.075	0.002
Observations	30,375	30,738	30,194
R-squared	0.124	0.033	0.045

Note: This Table reports the OLS estimates from a regression of Equation (1) for different labor market outcomes. Panel A reports the estimates when the dependent variable are dummies for formal employees, formal self-employed, and informal workers. Panel B shows the estimates when the dependent variables are dummies for social security coverage, exceed maximum legal working hours, and participation in trade unions. The treatment variable is a dummy equal to one for platform workers. The post period refers to months after September 2022, when the PWL was effective. Lastly, the sample is restricted to low-skilled workers in the transportation and storage industry.

Panel A in Table 5 reports the OLS estimates from regression (1) for each employment status. We find that the implementation of the PWL is associated with an average drop of 8.2 pp. (9.6%) in the probability of being informal for platform workers relative to similarly observable workers in the control group. Moreover, consistent with the descriptive evidence shown in the previous section, platforms replace informal jobs with

Table 6: Hours and wages after the PWL

	Log hours worked	Log hourly income	Share of workers below MW
Treated × Post	0.028	-0.010	0.078
	(0.031)	(0.074)	(0.055)
Mean (pre-reform, treated)	3.741	7.807	0.221
Observations	30,597	5,061	5,061
R-squared	0.032	0.040	0.042

Note: This Table reports the OLS estimates from a regression of Equation (1) for the log of weekly hours worked, the log of hourly income, and the share of workers with hourly income below the minimum wage. For the latter, we take into account that the minimum wage for platform workers is 1.2 × the statutory national minimum wage after the PWL. The treatment variable is a dummy equal to one for platform workers. The post-reform period refers to months after September 2022, when the PWL became effective. Lastly, the sample is restricted to low-skilled workers in the transportation and storage industry (ISCO-08).

formal self-employment. In particular, relative to the control group, the probability of being a formal self-employed platform worker more than doubles, rising by 8.0 pp. in the post-reform period. By contrast, the probability of becoming a formal employee does not experience any significant change.

In addition, Panel B in Table 5 reports OLS estimates from Equation (1) for three measures of labor law enforcement: social security coverage, compliance with maximum legal working hours, and trade union participation. In general, two results suggest limited enforcement of the PWL. First, while social security coverage doubled relative to its pre-reform level, the vast majority of platform workers still do not contribute to social security. Second, we find no significant change in the share of platform workers exceeding maximum working hours or trade union participation.

Regarding wages and hours worked, Table 6 shows the OLS estimates from the regression in Equation (1) for (log) hours worked, (log) hourly income, and the share of workers earning below the minimum wage. Once more, we find no statistically significant changes in these outcomes following the PWL. Regarding income, lack of response may be due to the fact that formal independent contractors continue to pay out of their own pockets for fuel, vehicle maintenance (motorcycles, cars, bicycles), and insurance in the absence of a legal mechanism that obliges companies to absorb all of these operating costs. Moreover, these workers' compensation only applies to the time the worker is on a trip or delivery, excluding waiting time between orders.

Even-study. In addition to the cross-sectional reduced-form evidence, we also implement an event-study regression to test for pre-trends and understand the dynamic effects of the PWL. As before, the sample is restricted to low-skilled workers in the transportation sector.

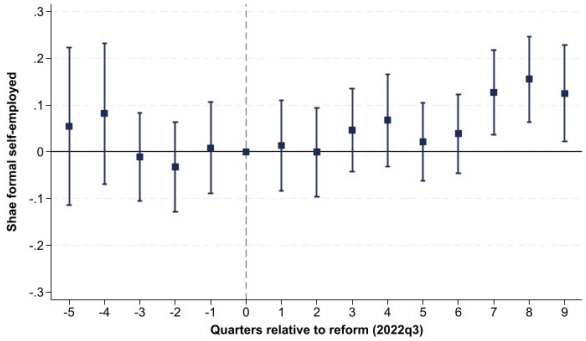
$$y_{it} \;=\; \alpha_{r(i)} + \delta_t + \beta_0\, Treated_i + \sum_{\substack{k=2020q1 \\ k\neq 2022q3}}^{2024q4} \beta_1^k\, \mathbf{1}[t=k] \times Treated_i + \mathbf{X}'_{it}\gamma + \varepsilon_{it}, \qquad (2)$$

where y_{it} is the outcome of worker i in quarter t; $\alpha_{c(i)}$ is the fixed-effect denoting the cell c to which worker i belongs; δ_t are quarters fixed-effects; $Treated_i$ is a dummy equal to 1 for platform workers, and ε_{it} is the error term. Our interest is in the coefficients β_k, which capture the evolution of outcome y_{it} for platform workers following the PWL relative to the above-mentioned control group.

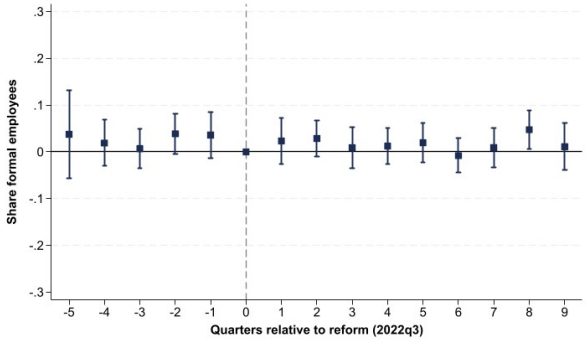
The evidence drawn from these regressions is summarized in Figures 5 and 6, where the vertical bars capture the quarters of the approval and effective implementation of the PWL. Figure 5 uses the shares of formal employees (top-left panel), formal self-employed workers (top-right panel) and informal informal (bottom panel) as dependent variables. In each panel, the graphs show the OLS estimates of the coefficients of interest, β_k, from Equation (2) along with their 95 percent confidence intervals. Importantly, we find no evidence of pre-trends when comparing workers in the treatment and control groups. Consistent with the results from the static DiD regressions, we find that the share of informal workers declines by about 10.0 percentage points after the reform in the treatment relative to the control group, which is mirrored by a similar increase in the share of formal self-employed workers.

Next, Figure 6 displays similar evidence when the outcome variables capture the enforceability of new regulations brought in by the reform, namely those regarding the social security coverage (top-left panel), the share of workers exceeding the maximum number of working hours (top-right panel), and the share of unionization (bottom panel). We find an increase in social security coverage of about 10.0 pp. after the reform in the treatment relative to the control group. However, there is no evidence of significant changes in any of the other enforcement measures after the reform.

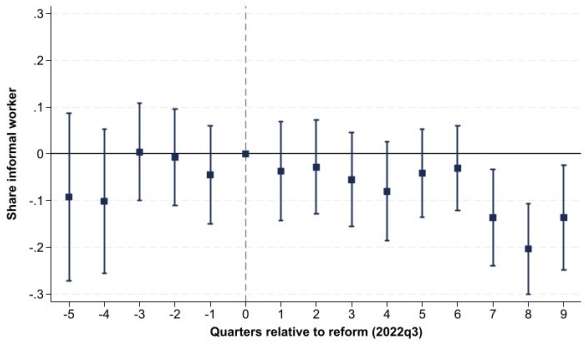
Figure 5: Event study results for employment status



(a) Formal self-employed

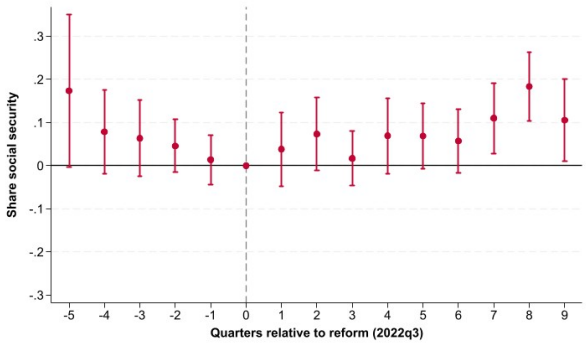


(b) Formal employee

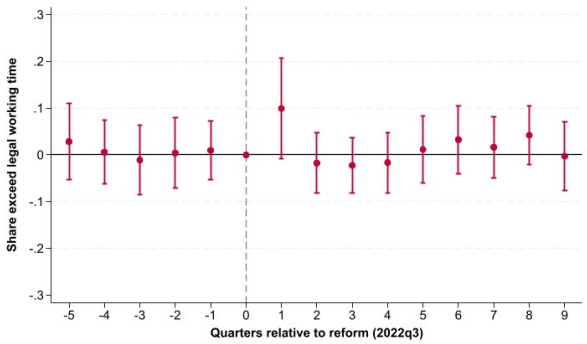


(c) Informal worker

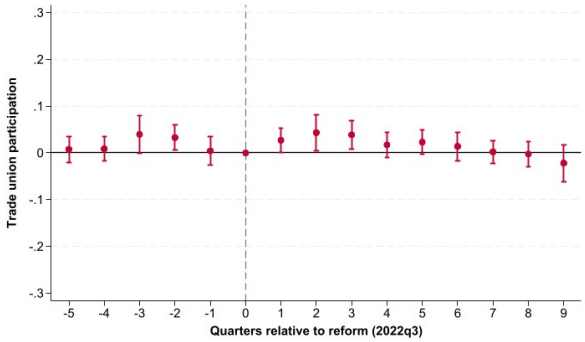
Figure 6: Event study results for law enforcement measures



(a) Social security coverage



(b) Exceed legal working hours



(c) Trade union participation

4.3 Placebo test

A potential concern is that platform workers experienced occupation-specific shocks after the PWL. To assess whether our results reflect this type of spurious correlations, a placebo analysis is conducted, where Equation (1) is re-estimated using an alternative treatment definition: we restrict the sample to low-skilled non-platform workers in the transportation sector and assign placebo treatment status to those in the "Plant and Machine Operators and Assemblers" occupation. This provides a natural placebo because nearly all platform workers are classified in this category, making it the closest occupational match among non-platform workers. Regarding the control group, it comprises low-skilled non-platform workers in other occupations. Reassuringly, we find no evidence of reduced informality or increased social security coverage for this untreated group (see Table A.3 in Appendix A).

4.4 Compositional changes

Compositional changes. Since we rely on repeated cross-sections rather than panel data, a potential concern is that the reform may have changed the composition of workers

employed by platform companies, which could confound our DiD estimates. To deal with this concern, we regress each of our control variables on the treatment interaction $Treated_i \times Post_t$, including only region and time fixed effects. Table 7 reports the static DiD estimates, while Figure 7 displays the corresponding event-study coefficients.

The static specification detects modest but statistically significant shifts in three out of six covariates: platform workers after the reform are approximately 1.2 years older ($p < 0.10$), 1.6 pp. less likely to reside in rural areas ($p < 0.05$), and 3.3 pp. more likely to be of indigenous origin ($p < 0.05$). There are no significant changes in the share of female, college-educated, or foreign-born workers. Importantly, however, the event-study graphs reveal that none of these shifts correspond to a sharp structural break at the reform date. Pre-reform coefficients fluctuate around zero with wide confidence intervals for all those six covariates, and the post-reform point estimates exhibit no clear discontinuity at 2022q3. Hence, this pattern is more consistent with sampling variability in a relatively small treatment group than with reform-induced selection into platform work.

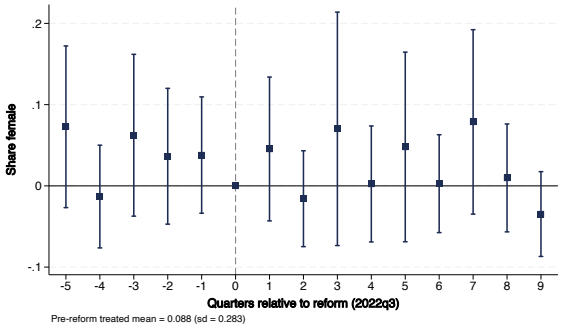
Moreover, the magnitudes of the significant shifts are small relative to both the baseline means and our main treatment effects. The rural share among platform workers is only 2.3 percent before the reform, so a 1.6 percentage point decline—while statistically significant—involves a negligible number of workers. Similarly, the indigenous share rises from a baseline of 5.0 percent, a change that is unlikely to account for the 8.2 percentage point decline in informality documented in Table 5.

Table 7: Composition test: covariates as dependent variables

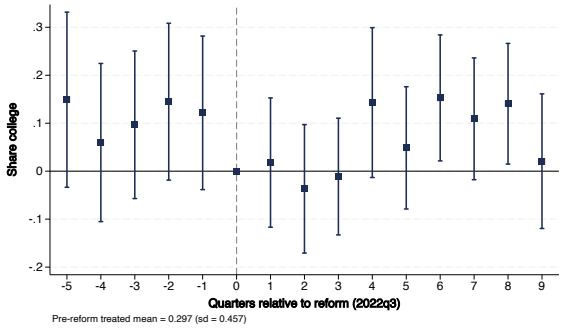
	Female	College	Age	Foreign	Rural	Indigenous
Treated × Post	-0.006	0.004	1.200*	0.039	-0.016**	0.033**
	(0.019)	(0.033)	(0.634)	(0.039)	(0.007)	(0.016)
Mean (pre-reform, treated)	0.088	0.297	37.031	0.380	0.023	0.050
Observations	30,806	30,776	30,806	30,806	30,806	30,764

Note: This Table reports the OLS estimates from a DiD regression where each column uses a different workers' covariate as dependent variable. The treatment variable is a dummy equal to one for platform workers. The post period refers to months after September 2022, when the PWL became effective. The specification includes region and time fixed effects but no individual-level controls. The sample is restricted to low-skilled workers in the transportation and storage industry. $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.10$.

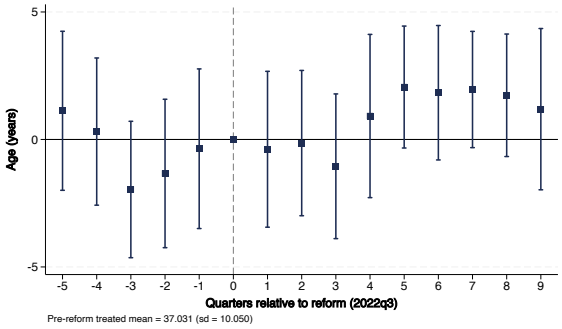
Figure 7: Event study: compositional changes in platform workers



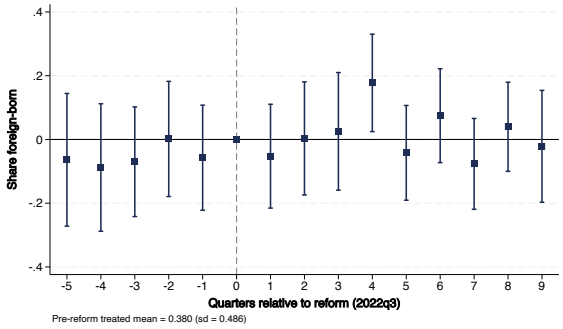
(a) Female



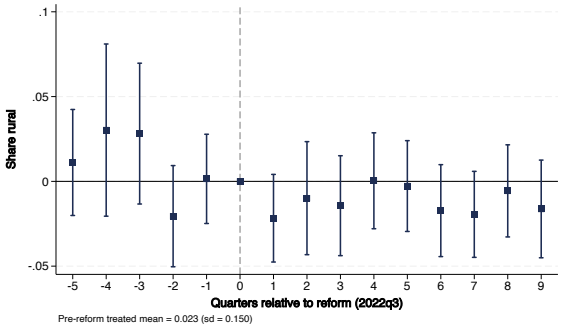
(b) College



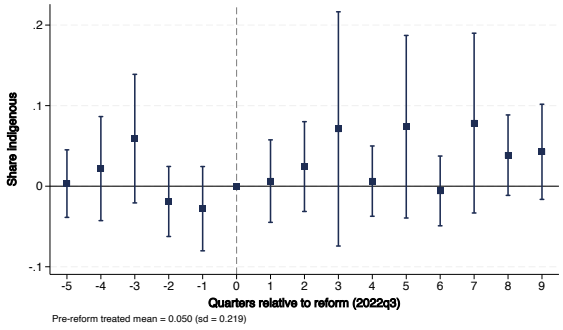
(c) Age



(d) Foreign-born



(e) Rural



(f) Indigenous

Note: Each panel reports the OLS estimates of the coefficients β_k from Equation (2) where the dependent variable is the covariate indicated in each panel title and the specification includes only region and time fixed effects (no individual controls). The dashed vertical line marks 2022q3, when the PWL became effective. Bars represent 95 percent confidence intervals. Pre-reform treated means and standard deviations are reported at the bottom of each panel.

To further verify that these compositional differences do not drive our results, Figure A.2 overlays the event-study estimates from our baseline specification (with the full set of demographic controls) against estimates from an otherwise identical specification that excludes all individual-level controls. If compositional shifts were biasing our results, the controlled and uncontrolled estimates would diverge after the reform. Instead, the two series track each other closely throughout the sample period for all employment-

status and law-enforcement outcomes. This lack of response to the inclusion of controls provides direct evidence that the modest compositional changes documented above do not confound our main findings.

4.5 Pseudo-panel analysis

A limitation of our empirical setting is that the Chilean LFS is a repeated cross-section: we do not observe the same individuals before and after the reform and hence individual fixed effects cannot be included. The baseline DiD in Equation (1) addresses this by controlling for observable characteristics and exploiting within-group variation over time. However, time-invariant unobservable differences between platform and non-platform workers—such as preferences, risk attitudes, or local labor market conditions—could still confound the estimates if they are correlated with both treatment status and outcome trajectories.

To address this concern, we implement a pseudo-panel approach following Deaton (1985). The key idea is to group individuals into cohorts defined by time-invariant characteristics and track cohort-level averages over time. Because cohort membership is fixed, cohort fixed effects absorb any time-invariant unobservable heterogeneity that is common within a cohort—analogous to individual fixed effects in a true panel, but feasible with repeated cross-sections. Verbeek and Nijman (1992) establish the asymptotic properties of this estimator and show that it is consistent as both the number of time periods and the cohort sizes grow, with small cohort sizes introducing attenuation bias through measurement error in the cohort means.[9]

Cohort construction. We define cohorts by the interaction of four time-invariant worker characteristics: occupation code (ISCO-08 major group), college education, 10-year birth cohort, and urban/rural residence. These variables are chosen because they are plausibly constant over the sample period and because they jointly predict platform exposure: occupation captures the type of work (nearly all platform workers are classified as "Plant and Machine Operators and Assemblers"), education captures skill level, birth cohort captures life-cycle differences in platform participation, and urban/rural residence captures the geographic concentration of platform activity. This yields 36 cohorts, with a median of 28 observations per cohort-quarter cell after dropping cells with fewer than 10 observations.

[9]Intuitively, a cohort mean computed from n_c observations estimates the true population mean with variance proportional to $1/n_c$. This classical measurement error attenuates coefficients toward zero, making the pseudo-panel estimates conservative.

Econometric specification. For each cohort c observed in quarter t, we compute the survey-weighted mean of each outcome variable $\bar{y}_{ct}$, where weights are the LFS sampling weights (*fact_cal*) to ensure population representativeness. We then define treatment intensity at the cohort level as the pre-reform average share of platform workers in cohort c:

$$\overline{Treated}_c \;=\; \frac{1}{|\mathcal{T}_{pre}|} \sum_{t \in \mathcal{T}_{pre}} \bar{D}_{ct}, \tag{3}$$

where $\bar{D}_{ct}$ is the survey-weighted share of platform workers in cohort c at time t and $\mathcal{T}_{pre}$ denotes the set of pre-reform quarters. Hence, $\overline{Treated}_c$ averages the platform worker share in cohort c exclusively over the pre-reform period. Because $\overline{Treated}_c$ is computed from pre-reform data, it is not affected by any post-reform selection into or out of platform work. Cohorts are then classified as "high exposure" if $\overline{Treated}_c$ exceeds the sample median, and "low exposure" otherwise. The static pseudo-panel DiD regression is:

$$\bar{y}_{ct} \;=\; \alpha_c + \delta_t + \beta_1 \left(HighExposure_c \times Post_t \right) + \varepsilon_{ct}, \tag{4}$$

where α_c are cohort fixed effects, δ_t are quarter fixed effects, $HighExposure_c$ is a dummy equal to one for high-exposure cohorts, and $Post_t$ is a dummy equal to one for quarters after the PWL took effect (2022q3). The coefficient β_1 captures the average change in $\bar{y}_{ct}$ for high-exposure cohorts relative to low-exposure cohorts after the reform, net of cohort-specific and time-specific factors. Note that the main effect of $HighExposure_c$ is absorbed by the cohort fixed effects. Following Deaton (1985), the regression is estimated by weighted least squares, with weights equal to the number of individual observations in each cohort-quarter cell, to account for differences in the precision of the estimated cohort means. Standard errors are clustered at the cohort level to allow for arbitrary within-cohort serial correlation. We complement the static specification with the following event-study version:

$$\bar{y}_{ct} \;=\; \alpha_c + \delta_t + \sum_{\substack{k=-5 \\ k \neq 0}}^{9} \beta_k \, \mathbf{1}[t = k] \times HighExposure_c + \varepsilon_{ct}, \tag{5}$$

where the reference period is $k = 0$ (2022q3, when the PWL became effective) and the coefficients β_k trace the dynamic evolution of outcomes for high-exposure relative to low-exposure cohorts. The pre-reform coefficients ($k < 0$) serve as a test of parallel trends at the cohort level.

Interpretation. The pseudo-panel coefficient β_1 has the interpretation of an intention-to-treat (ITT) effect: it captures the average impact of being in a cohort with high platform exposure, rather than the individual-level effect of working on a platform. Because

even high-exposure cohorts contain many non-platform workers, the pseudo-panel coefficients are attenuated relative to the individual-level DiD estimates in Table 5. This attenuation is a mechanical consequence of the cohort-level design and does not indicate that the reform had a smaller effect on platform workers themselves.

Results. Table 8 reports the pseudo-panel DiD estimates from Equation (4). Panel A shows that the reform is associated with a 5.4 pp. decline in the informality rate for high-exposure cohorts relative to low-exposure cohorts (significant at the 1 percent level). Mirroring this decline, the share of formal self-employed increases by 4.3 pp.(significant at the 5 percent level). The coefficient on formal employment is small and statistically insignificant, confirming that the reform induced a substitution from informal to formal self-employment without affecting formal dependent employment. As expected under the ITT interpretation of the cohort-level design, note that these results are qualitatively consistent with—although attenuated—relative to the individual-level DiD estimates reported in section 4.2.

Panel B reports the pseudo-panel estimates for labor regulation outcomes. Consistent with the individual-level results, we find no statistically significant changes in social security coverage, compliance with maximum working hours, or trade union participation for high-exposure relative to low-exposure cohorts after the reform.

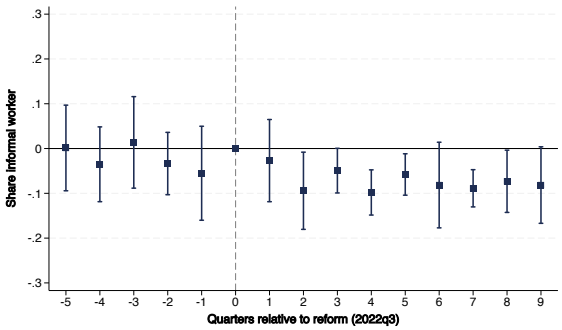
Figure 8 displays the corresponding event-study coefficients from Equation (5). Two features stand out. First, the pre-reform coefficients for informal employment and formal self-employment are centered around zero with no statistically significant deviations from the null, supporting the parallel trends assumption at the cohort level. This is important because it validates the identifying assumption of the pseudo-panel design independently of the individual-level event study. Second, the post-reform coefficients for informality are consistently negative, with the effect materializing gradually after the reform—consistent with the phased enforcement of the PWL documented in Section 2.

Table 8: Pseudo-panel DiD estimates

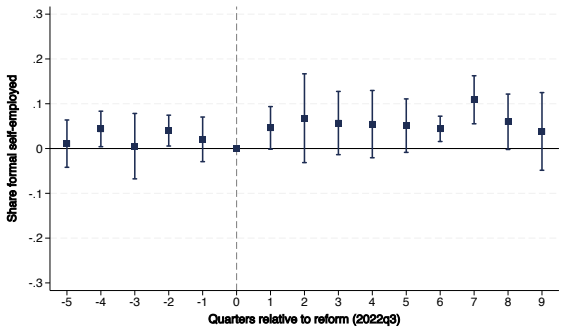
Panel A: Employment status	Formal employee	Formal self-employed	Informal worker
High exposure × Post	0.008	0.043*	-0.051***
	(0.018)	(0.024)	(0.013)
Mean (pre-reform, high exp.)	0.455	0.122	0.423
Observations	510	510	510
Panel B: Labor regulations	Social security	Exceed max hours	Trade union
High exposure × Post	0.026	-0.013	-0.010
	(0.017)	(0.013)	(0.012)
Mean (pre-reform, high exp.)	0.482	0.232	0.142
Observations	510	510	510

Note: This Table reports WLS estimates of Equation (4), where the unit of observation is a cohort-quarter cell. Cohorts are defined by the interaction of occupation (ISCO-08 major group), college education, 10-year birth cohort, and urban/rural residence. High-exposure cohorts are those with above-median pre-reform platform worker share. The post period refers to quarters after 2022q3, when the PWL became effective. Observations are weighted by the number of individuals in each cohort-quarter cell. Standard errors clustered at the cohort level are reported in parentheses. Cells with fewer than 10 observations are dropped. $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.10$.

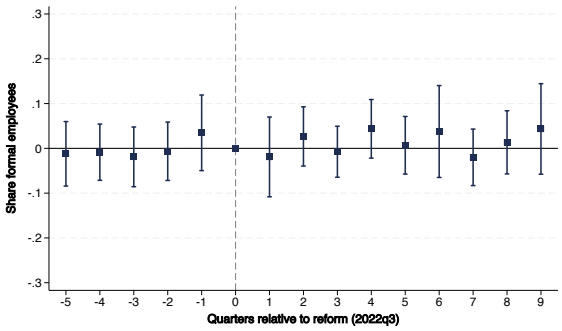
Figure 8: Pseudo-panel event study



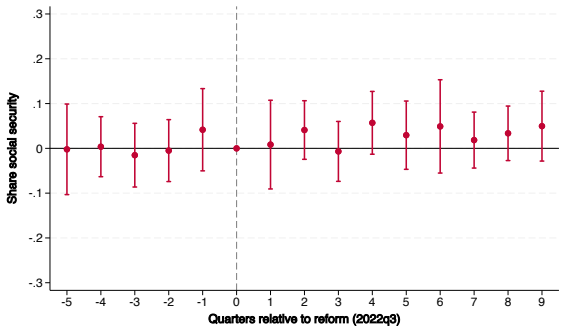
(a) Informal worker



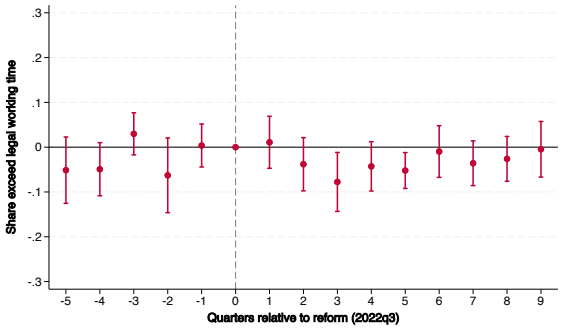
(b) Formal self-employed



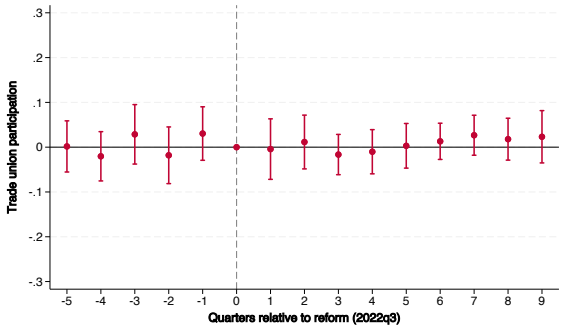
(c) Formal employee



(d) Social security coverage



(e) Exceed legal working hours



(f) Trade union participation

Note: Each panel reports WLS estimates of β_k from Equation (5), where the unit of observation is a cohort-quarter cell. Cohorts are defined by occupation, college education, 10-year birth cohort, and urban/rural residence. The reference period is 2022q3 (quarter 0), when the PWL became effective. Observations are weighted by cell size. Standard errors are clustered at the cohort level. Bars represent 95 percent confidence intervals.

5 Model

To conduct counterfactual policy evaluations, we employ a structural labor market model of the platform economy. The model is one of firms imperfectly complying with labor market regulations by hiring informal workers. Because the reform operates on the incen-

tives of firms, by means of monitoring obligations, instead on the incentives by workers, e.g., by fines of working informally, we model the contract decision as one of the firm. That is, workers are always indifferent between being a formal or informal independent contractor (self-employment). As in the data, employees and self-employed differ in their wages, the payroll taxes employers have to pay, and their flexibility of working hours. We abstract from collective bargaining and minimum wages due to their negligible incidence both before and after the PWL, as documented in Section 4. Moreover, as the data is on net wages, we abstract from any payroll taxes and other taxes paid by workers.

Jobs. We denote by e *employee*, by s_F formal *self-employed*, and by s_I informal *self-employed*. Formal employee jobs have fixed working hours ($\bar{h}_e$) schedules and payroll taxes (τ_e) levied on the employer. To avoid these labor regulations, platforms may decide to offer self-employed jobs that provide neither fixed work schedules nor payroll taxes. In such jobs, workers freely choose their hours of work.

Production technology. We consider a representative platform that only uses labor to produce output, Y. We model the labor input, L, as a constant elasticity of substitution (CES) aggregation of two types of labor: employee L_e and self-employed L_s labor inputs (including formal and informal contractors). Thus, the production function is given by:

$$Y = Af(L), \tag{6}$$

$$L = \left[\eta L_e^{\rho} + (1-\eta) L_s^{\rho}\right]^{\frac{1}{\rho}}, \tag{7}$$

$$L_e = \int_0^{n_e} h_e(i)\, di, \quad \text{and} \quad L_s = \int_0^{n_s} h_s(i)\, di. \tag{8}$$

where L_j is the total number of hours of work supplied for each job type $j \in \{e, s\}$, defined as the aggregation of hours worked h_j by each worker i and the number of workers in each job, n_j. Moreover, A stands for total factor productivity, η is the labor share parameter, ρ is the elasticity of substitution between labor inputs, and $L_s = L_{s,F} + L_{s,I}$. We think of the imperfect substitututution between employees and self-employed arising from the greater control the platform has over the working hours of its employees. For example, it can use employees to assure some baseline coverage even in times of low demand for its services. In contrast, the self-employed freely choose their working hours. In terms of production, it is natural to assume that informal and formal self-employed hours are perfect substitutes for the platform.

Determinants of labor costs. Platform companies pay payroll taxes τ_e when hiring employees and an administrative cost τ_s (e.g., paperwork, accounting, or legal costs) when hiring a formal self-employed worker. Firms can avoid these costs by hiring informal self-employed workers which, however, entails a risk for employers, as they may be audited

by government officials. Following Ulyssea (2018), the expected fine is increasing and convex in the number of informal workers hours, $L_{s,I}$. The convex nature of those costs arises because firms not only pay a fine for each informal worker but also because having more informal workers make the firm more visible to the regulatory authorities (see, e.g., De Paula and Scheinkman, 2011). Specifically, sanctions are given by:

$$\gamma(L_{s,I}) = 1 + 0.5\frac{L_{s,I}}{\kappa_s}, \quad \kappa_s > 0,$$

so that, for a given number of informal labor supply, a lower value of κ_s implies a higher probability of the firm being audited and, hence, sanctioned. We think of the PWL to increase these sanctions through its explicit obligations for platforms to monitor the formality status of its independent contractors. Hence, the cost functions by contract type are as follows:

$$C(L) = \begin{cases} (1+\tau_e)w_e L_e & \text{if} \quad \text{employee} \\ (1+\tau_s)w_s L_{s,F} & \text{if} \quad \text{formal self-employed} \\ \gamma(L_{s,I})w_s L_{s,I} & \text{if} \quad \text{informal self-employed.} \end{cases}$$

Labor demand decisions. As discussed in Section 3.2, we find no strong evidence against competitive labor markets, and we assume firms hire labor accordingly. Consider the trade-off between hiring formal and informal self-employed. As their hours are perfect substitutes in terms of production, the platform hires informal self-employed until their marginal costs, $\frac{\partial(\gamma(L_{s,I})w_s L_{s,I})}{\partial L_{s,I}}$, are equal to the marginal costs of hiring formal self-employed, $(1+\tau_s)w_s$. Conversely, the optimal policy beyond that cutoff is to hire only formal self-employed. Note that, since the marginal cost of informal workers is increasing in labor and the marginal cost of hiring formal self-employed is constant, there exists an endogenous maximum level of informal self-employed, $\bar{L}_{s,I}$, such that

$$w_s\left(1 + \frac{\bar{L}_{s,I}}{\kappa_s}\right) = w_s(1+\tau_s),$$

which solves for the cutoff $\bar{L}_{s,I} = \tau_s\kappa_s$. Thus, higher sanctions (i.e. lower κ_s) or lower administrative cost (τ_s) reduce the number of informal workers

Next, consider the tradeoff between hiring employees and self-employed workers, with marginal costs given by $(1+\tau_e)w_e$ and $(1+\tau_s)w_s$, respectively. The f.o.c. for profit

maximization yields the following labor demand schedules for each of these workers

$$\eta L_e^{\rho-1} A \left[\eta L_e^{\rho} + (1-\eta) L_s^{\rho}\right]^{\frac{1-\rho}{\rho}} = (1+\tau_e) w_e \tag{9}$$

$$(1-\eta) L_s^{\rho-1} A \left[\eta L_e^{\rho} + (1-\eta) L_s^{\rho}\right]^{\frac{1-\rho}{\rho}} = (1+\tau_s) w_s, \tag{10}$$

where (9) and (10) together determine the platform's demand of employees and total self-employed. Together with the cutoff rule for hiring informal workers, the latter determines the demand for formal self-employed.

Preferences. There is a unit mass of workers who are ex-ante heterogeneous in their disutility of work. The heterogeneity reflects differences in caregiving responsibilities, educational commitments, and other time constraints that Section 3.2 highlights. The taste parameter for leisure, ϵ, is distributed as a left-truncated normal distribution, $\epsilon \sim N(\mu_\epsilon, \sigma_\epsilon^2) \in [\bar{\mu}, \infty]$, across workers. Individuals are endowed with $\tilde{h}$ units of time per period, and their utility depends on both labor income, y, the share of time allocated to leisure, $1 - h/\tilde{h}$, and a preference shock for working as employee or self-employed, $v \in \{v_e, v_s\}$ with $v_e \sim i.i.d.\ Gumbel(0,1)$ and $v_s \sim i.i.d.\ Gumbel(\mu_s, 1)$. Specifically, the flow utility of workers is given by:

$$u(c,h) = \ln(c) + \epsilon \ln(1 - h/\tilde{h}) + v, \quad h \in [0, \tilde{h}]. \tag{11}$$

We assume workers are hand-to-mouth. Employees earn wages w_e and work a fixed amount of hours $\bar{h}_e$. When self-employed, workers choose hours h_s and earn wages w_s. Therefore, utility in each employment status is given by:

$$\begin{aligned} u_e &= \ln(w_e \bar{h}_e) + \epsilon \ln(1 - \bar{h}_e/\tilde{h}) + v_e && \text{if employee,} \\ u_s &= \ln(w_s h^*(\epsilon)) + \epsilon \ln(1 - h^*(\epsilon)/\tilde{h}) + v_s && \text{if self-employed,} \end{aligned}$$

where $h^*(\epsilon) = \frac{\tilde{h}}{1+\epsilon}$ is the optimal hours choice given preferences ϵ to maximize flow utility in Equation (11). Thus, the utility derived from working as self-employed is given by

$$u_s = \ln\left(w_s \frac{\tilde{h}}{1+\epsilon}\right) + \epsilon \ln\left(\frac{\epsilon}{1+\epsilon}\right) + v_s \qquad \text{if self-employed.}$$

Hence, the worker chooses to work as employee when

$$u_e > u_s \iff \ln\left(\frac{w_e \bar{h}_e}{w_s \frac{\tilde{h}}{1+\epsilon}}\right) + \epsilon \ln\left(\frac{1 - \bar{h}_e/\tilde{h}}{\frac{\epsilon}{1+\epsilon}}\right) > v_s - v_e. \tag{12}$$

As v_s, v_e are Gumbel, $v_s - v_e \sim$ *i.i.d. Logistic*$(\mu_s, 1)$, the probability of becoming an employee is given by

$$P(employee \,|\, \epsilon) = \frac{1}{1 + \exp -(x - \mu_s)}, \quad \text{where} \quad x = \ln\left(\frac{w_e \bar{h}_e}{w_s \frac{\tilde{h}}{1+\epsilon}}\right) + \epsilon \ln\left(\frac{1 - \bar{h}_e/\tilde{h}}{\frac{\epsilon}{1+\epsilon}}\right),$$

implying that the labor supply of employees and of self-employed become

$$L_e = \int P(employee|\epsilon)\, dG(\epsilon), \tag{13}$$

$$L_s = 1 - L_e. \tag{14}$$

Finally, equating labor supply and labor demand for employees and self-employed determines their respective wages, w_e and w_s, which clear both labor markets.

6 Calibration

Table 9 summarizes the calibration. Starting with the production technology, we use time series data to estimate

$$\ln\left(\frac{L_e}{L_s}\right) = \underbrace{\frac{1}{1-\rho} \ln\left(\frac{\eta}{1-\eta}\frac{(1+\tau_s)}{(1+\tau_e)}\right)}_{\beta_0} - \underbrace{\frac{1}{1-\rho}}_{\beta_1} \ln\left(\frac{w_e}{w_s}\right).$$

The estimate yields $\rho = 0.83$, i.e., employees and self-employed are close substitutes for firms. Next, we set the productivity level A to match the weekly net wages of employees, and use the relative importance of production factors, η, in Equation (7) to match the net wages of the self-employed.

Turning to the distribution of preferences for leisure, we match the mean, the 90^{th} percentile, and the maximum observed weekly hours of the self-employed. We set the hours worked by the employees, $\bar{h}_e$, to the mean weekly hours worked by employees in the data. Finally, we use the preference shifter μ_s to match that 5% of platforms workers are employees.

We set $\tau_e = 0.04$ to match the statutory social security benefits paid by employers. Finally, we target the share of workers who work as informal self-employed before the reform. The equilibrium threshold for informality $\bar{L}_{s,I} = \tau_s \kappa_s$ shows that our model does not separately identify τ_s and κ_s. Hence, we use κ_s to match that 80% of all workers are informal and normalize $\tau_s = \tau_e$.

Table 9: Summary of calibration

Parameter	Value	Description	Target
A	4590	TFP	Mean wage employees = 2807
η	0.41	CES share	Mean wage self-employed = 2369
ρ	0.83	CES elasticity	OLS coeff. $\ln(L_e/L_s)$ on $\ln(w_e/w_s)$
$\tilde{h}$	168	Maximum hours available	Hours per week
μ_ϵ	2.77	Mean work disutility	Mean weekly hours self-emp. = 46.89
σ_ϵ	0.86	Std. dev. work disutility	90^{th} pct. weekly hours self-emp. = 70.0
$\bar{\mu}$	0.66	Lower bound work disutility	Max. hours self-emp. = 101
$\bar{h}$	35.05	Fixed hours, employees	Mean weekly hours employees = 35.05
μ_s	2.77	Utility shifter, employee	Share employees = 0.05
κ_s	767.29	Sanctions, informal hiring	Share informal = 0.80
τ_e	0.044	Payroll tax, employees	Social Security employer tax
τ_s	0.044	Admin. cost, self-employed	$\tau_s = \tau_e$

7 Policy reforms

This section performs three counterfactual simulations. First, we simulate an increase in sanctions consistent with the observed evolution of the informality share after the PWL. We show that our model rationalizes why average wages, hours worked, and employment remain unchanged despite the sanctions; only profits decline. Second, we simulate a full exemption of employer payroll taxes. Since these taxes are already low in the benchmark, full exemption increases the employee share by only 0.2 percentage points. Third, enforcing the PWL's mandated maximum working hours of 84 hours per week results in a modest welfare loss of 0.07 percent among platform workers. This is because only a small fraction of self-employed workers exceeds this limit in the benchmark economy.

7.1 Adjusting informality sanctions (κ_s)

As discussed above, we interpret the reporting requirements that the PWL imposes on platforms as increasing expected sanctions, κ_s, for hiring informal subcontractors. Section 4 highlights that, in the data, the effect of the reform was mainly to shift workers from informal self-employment to formal self-employment, while the share of employees remains constant. Moreover, the reform did not affect differences in hourly wages between employees and the self-employed. Importantly, the model predicts exactly this behavior. To see this, note that, for given wages, neither labor supply decisions (see Equation (12)) nor firms' labor demand decisions (see Equation (9)) change since they do not depend on potential sanctions. Hence, it follows that neither the relative employment shares of employees and self-employed nor their wages change when administrative sanctions in-

crease. All that happens is that firms hire more formal instead of informal self-employed workers, as observed in the data. The key insight is that as long as firms hire at least some formal self-employed, the marginal costs of hiring these workers do not depend on fines; only average costs do. Hence, the share of employees remains unaltered.

Note that this prediction does not imply that sanctions have no effect on the economy at all. As fines affect average costs, firms' profits decrease as the left panel of Table 10 shows. We find this effect to be substantial: profits decline by 10 percent. One should interpret this finding in terms of the expected profit decline needed for the model to rationalize the observed changes in formality. As the reform has only recently been passed, platforms still operate under some regulatory uncertainty regarding the enforcement and fines. Nevertheless, if expected profits affect long-run firm entry, we would expect the market to become less competitive over time.

Table 10: Policy reforms

Changing fines		Changing taxes	
$\Delta\kappa_s\%$	-10.0	$\Delta\tau_e$	-0.044
Δe	0	$\Delta w_e\%$	3.78
Δs_I	-0.08	$\Delta w_e(1+\tau_e)\%$	-0.6
$\Delta\pi\%$	-10.0	$\Delta e\%$	0.18
		$\Delta eh_e\%$	3.55

7.2 Adjusting payroll taxes over employees (τ_e)

Instead, if the government wishes to increase the number of employees, it needs to either decrease their marginal costs $(1+\tau_e)w_e$ or increase the marginal costs of the formal self-employed $(1+\tau_s)w_s$. As the government directly controls the former payroll taxes, we study the effect of setting $\tau_e = 0$. The right panel of Table 10 shows that the effects of such a tax reform are modest. Employees' wages increase by 3.8 percent, implying a 0.6 percent reduction in their labor costs. Since employees' labor costs change little in equilibrium, their share increases only from 5.0 to 5.2 percent, while their total hours worked increase from 3.8 to 3.9 percent. In addition, self-employed wages remain basically unchanged. Hence, this counterfactual simulation shows that the scope for reducing informality through employer tax cuts is rather limited, as these taxes are already low in Chile: reducing τ_e from 0.044 to its lower bound of zero has only minor policy effects.

7.3 Restricting maximum working hours (h_s)

Finally, we evaluate the welfare consequences of the government actually enforcing the restriction of a maximum 84 hours work week. In our model, this implies setting $h_s^r(\epsilon) = \min\{h^*(\epsilon), 84\}$. We express welfare as the subsidy, ξ, that is required to make workers indifferent in expectation between the unregulated economy and the economy that restricts the maximum working hours. Specifically, denote by $\hat{w}_s$ and $\hat{w}_e$ the wages firms pay in the regulated economy and by $(1+\xi)\hat{w}_s$ and $(1+\xi)\hat{w}_e$ the wages workers receive. To compute welfare changes, we need to compute

$$\begin{aligned}
\mathbb{E}\Big(u_e(\epsilon)\Big) &= \ln\Big(\hat{w}_e(1+\xi)\bar{h}_e\Big) + \epsilon \ln\Big(1-\bar{h}_e/\tilde{h}\Big) + \mathbb{E}\Big(v_e(\epsilon)|e\Big) && \text{if employee,} \\
\mathbb{E}\Big(u_s(\epsilon)\Big) &= \ln\Big(\hat{w}_s(1+\xi)h_s^r(\epsilon)\Big) + \epsilon \ln\Big(1-h_s^r(\epsilon)/\tilde{h}\Big) + \mathbb{E}\Big(v_s(\epsilon)|s\Big) && \text{if self-employed,}
\end{aligned}$$

To that end, we require the expected values of the Gumbel-distributed preference shocks given that the worker chooses to be an employee and given that he chooses self-employment conditional on the underlying taste parameter ϵ:

$$\mathbb{E}\Big(v_e(\epsilon)|e\Big) = 0.5772 - \ln\Big(P(e|\epsilon)\Big) \tag{15}$$

$$\mathbb{E}\Big(v_s(\epsilon)|s\Big) = 0.5772 + \mu_s - \ln\Big(P(s|\epsilon)\Big), \tag{16}$$

where 0.5772 is the Euler-Mascheroni constant. The expected welfare is then given by

$$V = \int \Big(P(e|\epsilon)\mathbb{E}\Big(u_e(\epsilon)\Big) + P(s|\epsilon)\mathbb{E}\Big(u_s(\epsilon)\Big)\Big)\, dG(\epsilon). \tag{17}$$

We find that enforcing the maximum hours requirement implies small welfare losses. To make a worker indifferent between the benchmark and the unregulated economies, wages in the regulated economy need to increase by $\xi = 0.0007$, i.e. 0.07%. The insight for this very low welfare cost is that a maximum weekly hours of 84 hours lies in the very right tail of the observed hours worked distribution, implying that only a few workers happen to be restricted by the reform.

In contrast, enforcing more stringent maximum hours requirements decreases welfare substantially. For example, enforcing a maximum number of working hours of 60 would require wages to rise by 1.19% to keep workers' welfare unchanged.

7.4 Increasing minimum pay

The minimum pay requirement of $1.2\underline{w}$ naturally does not apply to informal subcontractors. However, as Section 4 discusses, another feature of the reform that is currently not enforced is the identical pay floor for formal workers. In principle, since the govern-

ment cannot enforce minimum wages for informal subcontractors, application of minimum wages create a gap between the unchanged mean wage of informal and the now higher mean wage of formal self-employed. Hence, the number of informal workers becomes

$$\left(1 + \frac{\bar{L}_{s,I}}{\kappa_s}\right) = \frac{w_{s,F}}{w_{s,I}}(1 + \tau_s).$$

Naturally, with a minimum wage, the labor market will not clear, and workers will offer more hours than firms demand. Denote by L_e^s and L_e^d the total supply and total demand of hours of employees, respectively. The expected utility of working as an employee becomes

$$u_e \;=\; \ln\left(\frac{L_e^d}{L_e^s} w_e \bar{h}_e\right) + \epsilon \ln(1 - \bar{h}_e/\tilde{h}) + v_e.$$

Similarly, when working as subcontractor, expected ultility is

$$u_s \;=\; \frac{\bar{L}_{s,I}}{L_s} \ln\left(\frac{L_{s,I}^d}{L_{s,I}^s} w_{s,I} \frac{\tilde{h}}{1+\epsilon}\right) + \frac{L_s - \bar{L}_{s,I}}{L_s} \ln\left(\frac{L_{s,F}^d}{L_{s,F}^s} w_{s,F} \frac{\tilde{h}}{1+\epsilon}\right) + \epsilon \ln\left(\frac{\epsilon}{1+\epsilon}\right) + v_s.$$

8 Conclusions

This paper quantifies the impact on employment, hours worked and wages of the so-called Platform Work Law (PWL) enacted by the Chilean government in September 2022 with the goal of regulating platform delivery and minor transport sector in this country which had grown substantially since the pandemic, amounting to 28.6 % of total platform work and 0.4 % of total employment in that year (0.75% by 2024q4). With the goal of eliminating the "gray area" of platform work, this reform amended the existing Labor Code through the establishment of two employment categories; in particular: (i) it recognized *dependent* platform workers whose status closely resembles that of traditional employees, and (ii) it introduced a new jurisdictional figure of *independent* platform workers, who operate as self-employed contractors but to whom the PWL provides additional social protection by establishing maximum working hours, minimum pay, social security contributions and coverage, and the right to collective bargaining among workers with this labor market status. In other words, by codifying these two labor statuses, the law makes it legally impossible for a platform to use informal workers since everyone performing a service should be linked to a tax ID and a specific legal category. This major reform, which is first one Latin America to address concerns about platform work, has taken place in a setup where the informal sector in large (80 percent). Thus, our main contribution here is to analyze how this part of the gig economy can be regulated and to examine

whether the PWL achieved its goals in such an environment.

To evaluate the effects of PWL, we carry out conventional DiD and event study regressions and then rationalize their main empirical findings through the lens of a quantitative equilibrium model. This model includes heterogeneous workers who sort into three types of platform jobs: (i) formal employees, (ii) formal self-employed, and (iii) informal subcontractors, according to their different preferences for flexible work schedules and income stability. Platform jobs, in turn, are heterogeneous in terms of employability, work time flexibility, and wages, capturing the main trade offs in the policy debate about the need of flexibility in the gig economy against poor working conditions and lack of social protection in this sector. Thus, while formal employee jobs have fixed working hours and payroll taxes levied on the employers, platforms may avoid these labor regulations by either offering formal self-employed jobs that that provide flexible hours of work freely chosen by workers in exchange for payroll taxes borne by them, or by subcontracting informal self-employed workers who do not have any social protection. An important feature of the PWL is that it increased substantially administrative sanctions for those platforms who were identified as being users of informal workers' services. These fines, which are proportional to the number of moonlighters, depend on the firms' size since larger firms are more likely to be audited.

We calibrate the model using several Chilean administrative data sources, which are considered to provide one of the best and more detailed information about platform firms and workers in the world. Then, we simulate the effects of the PWL by comparing the post-reform labor-market outcomes with a counterfactual simulated scenario in a setup where it had not been enacted (i.e. no higher fines on hiring informal workers and no constraints on maximum hours of work). Our main finding is that the effect of the reform was mainly to shift workers from formerly informal self-employment to formal self-employment, while it left the share of employees basically unchanged. Moreover, the reform did not affect differences in hourly wages between employees and the self-employed. The insight for these results is that the labor supply decisions by the different types of workers and the firms' labor demand decisions do not depend on potential sanctions, implying that neither the relative employment shares of employees and self-employed nor their wages will change when administrative sanctions increase. However, since higher sanctions affect average labor costs, firms' profits fall, reducing entry in this sector. We also find that enforcing a maximum of 84 hours of work per week only has minor negative effects on welfare though it may be detrimental for those workers preferring very long hours. To the extent that a relevant proportion of these workers may be undocumented migrants in the informal platform sector who badly need income to survive, it could be argued that an amnesty providing work permits to those proving a sufficiently long residence time in Chile will improve welfare without triggering a big rise in wages.

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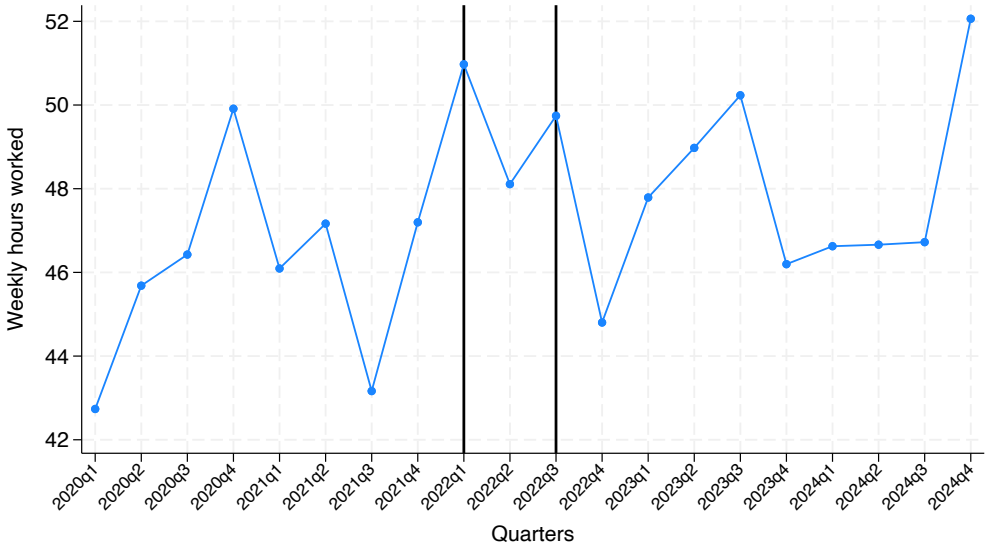
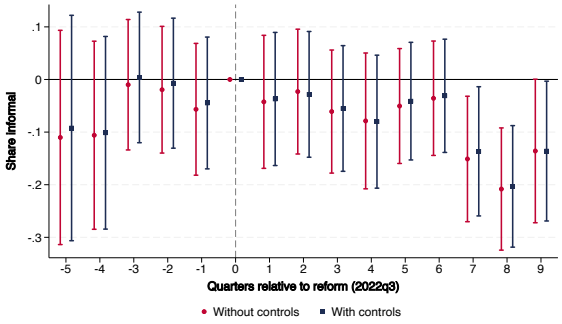
Appendix

Figure A.1: Weekly hours worked in platform companies

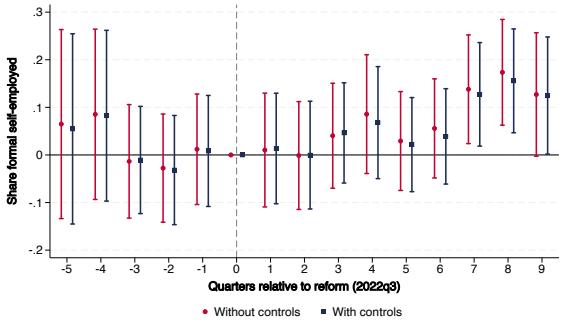


Note: ... .

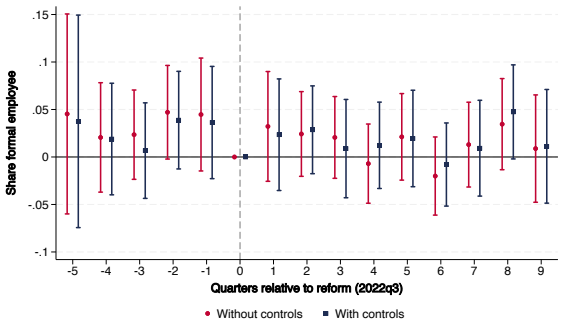
Figure A.2: Event study: sensitivity to demographic controls



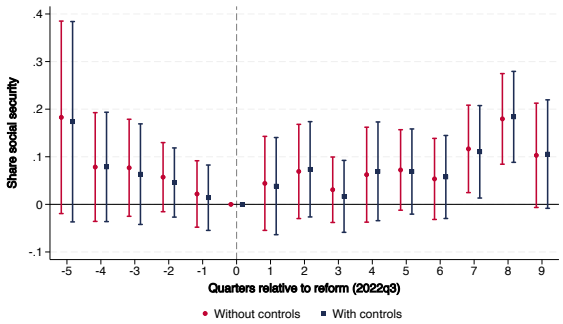
(a) Informal worker



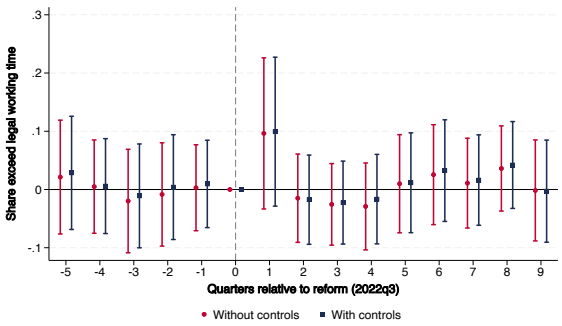
(b) Formal self-employed



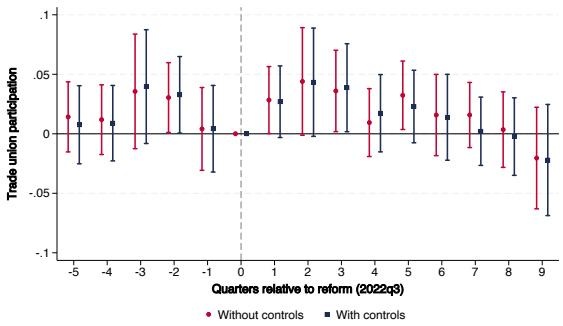
(c) Formal employee



(d) Social security coverage



(e) Exceed legal working hours



(f) Trade union participation

Note: Each panel reports event-study estimates from Equation (2) for two specifications: without demographic controls (circles) and with the full set of controls (squares). The reference period is 2022q3 (quarter 0), when the PWL became effective. Bars represent 95 percent confidence intervals.

Table A.1: Platform Definition Comparison

	All platform workers (1)	Only ride-hailing apps (2)
Panel A: Occupation (ISCO-08)		
1. Managers	0.026	0.006
2. Professionals	0.069	0.004
3. Technicians	0.049	0.004
4. Clerical support	0.006	0.003
5. Service and sales	0.410	0.046
6. Skilled agricultural	0.024	0.000
7. Craft and trades	0.200	0.001
8. Plant and machine operators	0.173	0.876
9. Elementary occupations	0.038	0.031
Other	0.000	0.000
Panel B: Sector (ISIC)		
A Agriculture	0.029	0.001
B Mining	0.001	0.000
C Manufacturing	0.166	0.002
D Electricity and gas	0.001	0.000
E Water supply	0.001	0.000
F Construction	0.033	0.003
G Wholesale and retail	0.335	0.042
H Transport. and storage	0.163	0.838
I Accommodation and food	0.069	0.063
J Information and comm.	0.013	0.004
K Financial and insurance	0.002	0.000
L Real estate	0.007	0.000
M Professional and scient.	0.034	0.002
N Administrative support	0.015	0.002
O Public administration	0.002	0.000
P Education	0.013	0.001
Q Health and social work	0.021	0.002
R Arts and recreation	0.018	0.004
S Other services	0.075	0.037
T Household activities	0.000	0.000
U Extraterrit. organizations	0.000	0.000
Panel C: Worker characteristics		
Female	0.565	0.145
College	0.275	0.291
Age	39	38
Foreign-born	0.090	0.255
Rural	0.159	0.039
Indigenous	0.140	0.090
Panel D: Employment and regulations		
Formal employee	0.051	0.040
Formal self-employed	0.280	0.137
Informal worker	0.669	0.823
Social security	0.129	0.104
Exceed max hours	0.029	0.075
Trade union	0.031	0.006
Weekly hours worked	33.9	43.7
Observations	14,449	2,520
Panel E: Income (ESI)		
Hourly income (2023 USD)	4.13	3.21
Observations (ESI)	3,169	524

Notes: Column (1) restricts to workers who report operating on a digital platform. Most of these workers list Facebook (22%), Instagram (20%), or WhatsApp (18%) as the platform on which they operate. Column (2) further restricts to workers in ride-hailing apps. Panels A–D use the ENE sample; Panel E uses the ESI subsample, which contains income data. Shares in Panels A and B are computed within each column. Statistics in Panels C–E are group means.

Table A.2: Residual Log Income in the Largest Platforms

Platform	Hourly income	Gap relative to Uber
Cabify	7.45	−0.05
Rappi	7.44	−0.06
Uber Eats	7.51	0.01
Cornershop	7.21	−0.29
inDriver	7.54	0.04
Pedidos Ya	7.47	−0.03
Uber	7.50	0.00

Note: we compute residual hourly income by regressing log hourly income on sociodemographic controls (age, municipality, sex, nationality, education), year dummies, and contract type.

Table A.3: Employment status of placebo group after the PWL

Panel A: Employment status	Formal employee	Formal self-employed	Informal worker
Placebo × Post	0.001	0.014*	-0.015
	(0.016)	(0.008)	(0.015)
Mean (pre-reform, placebo)	0.431	0.139	0.430
Observations	28,673	28,673	28,673
R-squared	0.106	0.059	0.053
Panel B: Labor regulations	Social security	Exceed max hours	Trade union
Placebo × Post	0.013	-0.022	0.003
	(0.015)	(0.015)	(0.015)
Mean (pre-reform, placebo)	0.461	0.225	0.139
Observations	28,358	28,673	28,137
R-squared	0.101	0.026	0.035

Note: The table reports the OLS estimates from a regression of Equation (1) for different labor market outcomes. Panel A reports the estimates when the dependent variable are dummies for formal employees, formal self-employed, and informal workers. Panel B shows the estimates when the dependent variables are dummies for social security coverage, exceed maximum legal working hours, and participation in trade unions. The treatment variable is a dummy equal to one for platform workers. The post period refers to months after September 2022, when the PWL was effective. Lastly, the sample is restricted to low-skilled workers in the transportation and storage industry.

Table A.4: Regression of log weekly hours worked on sociodemographic characteristics

	(1)
Age 26–35	0.140***
	(0.046)
Age 36–50	0.176***
	(0.048)
Age 51–65	0.090
	(0.055)
Female	-0.115***
	(0.044)
Single	-0.046*
	(0.026)
Foreign-born	0.320***
	(0.026)
Student	-0.357***
	(0.061)
Other job	-0.262***
	(0.053)
Constant	3.551***
	(0.047)
Observations	2,077
R^2	0.214

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Note: the regression uses log weekly hours worked as dependent variable. The omitted age group are those workers aged 15-25.

Table A.5: Regression relative employment on relative wages

	Relative employment
Relative wage	-6.888
	(3.132)
Implied elasticity (ρ)	0.83
Observations	5
R-squared	0.617

The Table shows the results from the regression of relative employment of self-employed to employees ($\frac{w_s}{w_e}$) on the relative wage of self-employed to employees ($\frac{L_s}{L_e}$). Self-employment includes both formal self-employed and informal workers. The time series spans annual data from period 2020q4-2024q4.