WORKING PAPER Nº IDB-WP-1650

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January 2025

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Cataloging-in-Publication data provided by the
Inter-American Development Bank
Felipe Herrera Library

Amarante, Verónica.
Employment dynamics during COVID-19 in Uruguay / Verónica Amarante, Estefanía Galván, Mijail Yapor.
p. cm. — (IDB Working Paper Series ; 1650)
Includes bibliographic references.
1. Labor market-Uruguay. 2. Unemployment insurance-Uruguay. 3. Coronavirus infections-Economic aspects-Uruguay. 4. Coronavirus infections-Social aspects-Uruguay. 5. Gender mainstreaming-Uruguay. I. Galván, Estefanía. II. Yapor, Mijail. III. Inter-American Development Bank. Gender and Diversity Division. IV. Título. V. Series.
IDB-WP-1650

http://www.iadb.org

Abstract[1]

This paper provides novel insights into labor market dynamics during the COVID-19 pandemic and the subsequent recovery period in Uruguay. Using social security administrative records, we focus on the gender-differentiated patterns of labor market transitions following the pandemic outbreak, compared to a previous period. Furthermore, we evaluate the role of unemployment insurance (UI) as an instrument for employment protection during the pandemic-induced recession. The analysis reveals that women—particularly those with children and earning low wages—experienced greater employment and wage losses compared to men at the pandemic's onset, though they showed signs of recovery in later periods. Moreover, women were more likely to transition from UI to formal employment during the pandemic, diverging from previous trends, largely due to the suspension modality (similar to a temporary lay-off) of the Uruguayan UI program. Through a regression discontinuity (RD) approach, the study identifies positive local effects of the beneficiaries of the UI suspension program on the probability of being employed and earning higher wages for both men and women, eight and twelve months after entering the program. These findings carry significant policy implications, underlying the importance of maintaining and potentially expanding UI programs with temporary suspension schemes, and the necessity of adapting social protection systems to respond quickly to crises. Our results underscore the potential of temporary layoff unemployment insurance schemes in developing countries as effective tools to address unexpected crises or shocks like COVID-19, preserving employment relationships and facilitating faster economic recovery.

JEL classifications: J16, J08, J21
Keywords: Covid-19, Gender, Labor market, Unemployment insurance

[1] This study was supported by the IDB Group's Gender and Diversity Knowledge Initiative (GDLab) through the call "Post-COVID-19 Employment Recovery for Women and Diverse Populations in Latin America and the Caribbean." We are grateful to Raquel Fernandez, Jeanne Lafortune, Claudia Martínez and the GDLab Team for valuable comments and suggestions on early drafts. We are thankful to *Ministerio de Trabajo y Seguridad Social* for providing access to the data. We are thankful to Matías Brum for contributions in data handling for earlier versions of this paper.
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1. Introduction

The COVID-19 pandemic has severely impacted economies and labor markets worldwide, resulting in far-reaching consequences. Given the high concentration of female employment in the most affected sectors and the increased childcare burden on women due to school closures, well-founded concerns have been raised about the magnitude and persistence of the pandemic's detrimental effects on female labor market outcomes. This paper aims to understand the gender differences in the behavior of the Uruguayan formal labor market during COVID-19 and post-recuperation and to evaluate the role of unemployment insurance (UI) as an instrument for employment protection during the pandemic recession.

Early studies on the impact of COVID-19 on the labor market indicate that, given the high female employment shares in the service industry, which was most affected by the Covid-19 recession, women experienced larger job losses during the pandemic (Albanesi and Kim, 2021; Alon et al., 2020). These negative demand-side effects were compounded by the disproportionate rise in the childcare burden on women resulting from school closures. Albanesi and Kim (2021) find that, in the United States, employment fell more for women than men at every stage of the pandemic in 2020, with the most significant gender differences observed among married women with children. They also report a disproportionate increase in employment to non-participation flows for women during the pandemic, with a differential effect for single parents, particularly single mothers. Alon et al. (2020) argue that a pandemic recession, unlike a regular recession, depreciates women's skills, leading to a substantial widening of the wage gap. Alon et al. (2021) find that the pandemic recession had an unusually large impact on working women across many countries, with the magnitude of the impact varying depending on the role of policies and institutions in shaping the recession's economic impact.

Initial short-term evidence during the Covid-19 crisis led to it being dubbed a "she-cession." However, longer-term studies present a more nuanced picture. Research from Spain, Italy, and the United Kingdom shows that while women shouldered most of the increased childcare responsibilities, the effects on paid work were not significantly different between genders and were temporary, typically reversing as restrictions eased (Farré et al., 2020; Del Boca et al., 2020; Hupka and Petrongolo, 2020). In the United States, Lee et al. (2021) found that by February 2021, the pandemic's differential impacts across gender, age, and education in the labor market had largely dissipated, suggesting that women's progress in the workforce over recent decades has not been

undone. Similarly, Bluedorn et al. (2023), in their study of 38 advanced and emerging market economies, did not find consistently disproportionate adverse effects on female workers. Instead, they highlighted significant variation across countries. While "she-cessions" were observed in 50-67 percent of the countries studied, these tended to be short-lived and did not exacerbate pre-existing gender gaps. Their research also revealed that most of the relative employment decline among women was due to a greater tendency to exit the labor force rather than transition into unemployment.

When considering developing regions, evidence on this issue is limited, mainly due to data constraints. In Latin America, most studies are based on household surveys (CEPAL/ILO, 2021; ILO, 2021; García Rojas et al., 2021) or phone surveys conducted during the pandemic (Berniell et al., 2021) and tend to conclude that women faced more adverse conditions during the COVID-19 crisis and in the immediate aftermath. Among the exceptions using longitudinal survey data, Viollaz et al. (2022) study the labor market effects of COVID-19 after four quarters in Brazil, Chile, the Dominican Republic, and Mexico, finding stronger negative effects for women, which magnify the existing large gender gaps in these countries. In the same line, Hoen-Velasco et al. (2022) report higher employment losses for women and a faster recovery of employment for men in Mexico.

This paper aims to provide novel evidence on the gender differential effects of the COVID-19 pandemic on labor market outcomes in Uruguay. Our study focuses on the private formal sector, which accounts for 50 percent of the country's labor market and was the most affected by the crisis within the formal labor market. Notably, private salaried workers are the only ones entitled to unemployment insurance (UI) benefits.

Our methodology leverages social security administrative data on labor market histories combined with information on UI beneficiaries. While most available evidence is based on household surveys and focuses on short-term effects, the panel nature of our data allows us to study labor market flows for all private formal workers in the country from pre-COVID to October 2022. This extended timeframe enables us to illustrate the gender patterns of recovery over a relatively long span. Furthermore, building on the eligibility rules of the UI program and using a regression discontinuity approach, we analyze the impact of the UI program and its different components on subsequent workers" labor market outcomes.

We document that the COVID-19 pandemic led to significant deterioration in the Uruguayan labor market, with women experiencing higher formal employment and wage losses than men, particularly among those with children and low wages. The substantial decline in employment was compensated by a significant increase in the probability of entering the UI rather than exiting the formal labor market. Interestingly, during the pandemic, this probability has been higher for women than for men, indicating that Uruguay's social protection system has tended to protect female formal workers over men, particularly high-wage women and those with children.

Flow analysis confirms that the pandemic increased women's probability of losing their formal job and exiting the formal labor market compared to men. However, women had higher probabilities of transitioning from UI to formal employment during the pandemic, mainly due to temporarily laid-off women returning to work.[2] In contrast, permanently laid-off women had lower chances of returning to formal employment than men. Delving deeper into the effects of the UI program through our regression discontinuity estimations, we find that both men and women have a higher probability of being employed and earning higher wages eight and twelve months after entering the UI program on the suspension scheme. Notably, these positive effects are not observed for the UI layoff modality, which shows no significant impact on subsequent employment or wages. These findings underscore the critical importance of protection schemes that preserve worker-firm relationships during acute, unexpected economic shocks, highlighting their role in facilitating labor market recovery and mitigating long-term negative impacts on employment and wages.

The paper is organized as follows. Section 2 describes our data, while Section 3 provides a contextual analysis of COVID-19 and the social protection responses in Uruguay. Section 4 analyzes formal employment, wage, and income losses, as well as probabilities of entering the unemployment insurance program during the pandemic recession and up to two years after the outbreak of the COVID-19 crisis. Section 5 examines gender differentials in the transitions between different labor market states, comparing them with the pre-pandemic situation. Section 6 focuses on the performance of the unemployment insurance program during the COVID-19 crisis, comparing the flows out of the program and its components before and after the pandemic for men

[2] "Temporarily laid-off" refers to a situation where employees are temporarily released from work due to economic conditions or other circumstances, with the expectation of being recalled to their jobs when conditions improve.

and women, and employing a fuzzy RD approach to evaluate the program's impacts. Finally, Section 7 presents our concluding remarks.

2. Data

This study relies on social security administrative records provided by *Banco de Previsión Social* (BPS), the public agency responsible for social security affairs in Uruguay. We combine information from two primary sources. First, we utilize a comprehensive dataset consisting of monthly individual-level payroll registers, which includes all formal workers in the country.[3] This database provides information on workers' job characteristics and personal attributes, such as contract type, monthly wages, weekly hours worked, gender, and year of birth. It does not, however, include data on educational levels, marital status, or number of children. Each worker has a unique firm identifier, allowing us to merge information on firm size and industry code.

Second, we use data from the administration of the unemployment insurance program, which contains detailed information on the dates and periods during which individuals received benefits, the amounts paid, and the insurance modality (layoff, temporary layoff, or reduction in hours of work). By combining these two panel datasets at the individual level using a unique identification, we construct labor market trajectories, observing periods of employment, work suspension while receiving insurance benefits (temporary layoffs or reductions in hours of work), and unemployment with unemployment insurance benefits (permanent layoffs).

Our data span from January 2019 to September 2022, encompassing a pre-COVID period and the various phases of the COVID-19 crisis. A limitation of this dataset is that when workers are not registered in formal employment or receiving UI benefits, we cannot distinguish whether they are working in the informal sector, unemployed, or out of the labor force.

The formal workforce in Uruguay, which accounts for 75 percent of all workers, comprises private salaried workers (68 percent), public and education workers (16 percent), and self-employed workers (15 percent); see Table A.1 in Appendix 2. The COVID-19 crisis most severely affected private salaried workers, with more than half of the decline in formal employment during the initial phase attributed to workers in Hotels and Restaurants (23 percent), Commerce (19 percent), and Manufacturing (10 percent). Public and education workers also experienced a decline

[3] Access to administrative data from *Banco de Previsión Social* was possible due to an agreement signed by the research team with the Ministry of Labor and Social Security.

(Figure A.1 in Appendix 2), but this was likely due to changes in government contracts rather than the pandemic. Self-employed workers saw smaller changes compared to the other groups.

Given that private salaried workers were the group most affected by COVID-19 among formal workers, represent almost 70 percent of total formal workers in the country, and are the only ones eligible for the unemployment insurance program, we focus our analysis on this group.

Our final dataset comprises all private salaried workers who reported at least one month of positive wages between January 2019 and September 2022. For months when these workers do not report positive wages in the administrative records, we record their formal wages as zero. We consider workers to be employed (in the formal sector) when they report positive wages. It is relevant to note that, in order to provide a comprehensive view of labor market dynamics during the pandemic and recovery period, we chose not to restrict our analysis to individuals present in the pre-COVID period. Consequently, our analysis includes workers who were not employed before the pandemic but entered the labor market during or after the COVID-19 outbreak. This approach allows us to capture the differential probabilities of men and women entering the labor market during or after the COVID-19 crisis, providing insights into gender-specific labor market dynamics during the whole period. This strategy also allows us to develop the complete flow analysis considering all possible states. Table 1 presents the main descriptive statistics for the sample considered in this study.

Table 1. Administrative Data Summary Statistics: Formal Private Salaried Workers, 2019-2022

	Men		Women	
	Mean	St. Dev	Mean	St. Dev
Employed	0.66	0.47	0.70	0.46
UI program	0.09	0.29	0.08	0.27
Wages	35,125	50,948	30,858	44,690
Wages + UI benefits	35,802	50,795	31,375	44,611
Ln (Salary)	6.72	5.11	6.94	4.90
Ln (Salary + UI benefits)	7.04	4.98	7.18	4.78
Age 14-29	0.28	0.45	0.27	0.44
Age 30-49	0.47	0.50	0.48	0.50
Age 50-64	0.21	0.41	0.22	0.41
Age 65 +	0.03	0.18	0.03	0.16
Kind of contract				
Pay by month	0.56	0.50	0.73	0.45
Pay by day worked	0.41	0.49	0.25	0.43
Other type of contract	0.03	0.18	0.03	0.16
Firm size				
Less tan 5	0.12	0.32	0.17	0.37
5 to 19 employees	0.16	0.36	0.11	0.32
20 to 99 employees	0.16	0.36	0.13	0.34
More than 100	0.57	0.50	0.59	0.49
Observations	42,301,272		36,931,391	
Individuals	514,232		465,224	

Source: Based on administrative records from Banco de Previsión Social.

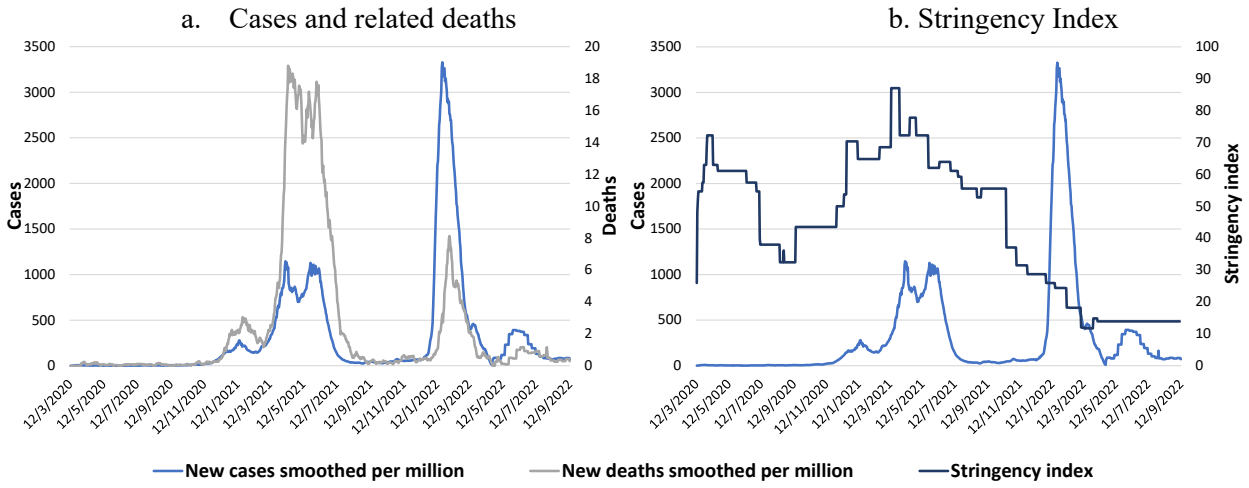
To explore whether the pandemic's impacts were stronger for women with children, we combine our labor market administrative data with birth records (*Certificado de Nacido Vivo*), which provide information on all live births registered in Uruguay. We can link data from 2014 onwards, allowing us to detect if men and women in the formal labor force had a child during the period. This enables us to capture all parents with children aged around 6 or less at the time of the pandemic. Approximately 9.6 percent of women and 13 percent of men in our sample have children aged 6 or less during this period.

3. COVID-19, Social Protection Responses and the Labor Market

3.1 The Covid-19 Crisis in Uruguay

Uruguay experienced two peaks of COVID-19 infections, with the first occurring around the end of March 2021 and the second, more severe wave, at the beginning of 2022 (Figure 1, panel a). Mortality rates were highest during the first wave; by the time the second wave struck, the country had already implemented a mass vaccination campaign. The Stringency Index, developed by the Oxford Coronavirus Government Response Tracker and presented in panel b of Figure 1, is a composite measure of nine response metrics that reflects the constraints on economic activity faced by Uruguay.[4] These constraints were most pronounced in the second quarter of 2020 and the second and third quarters of 2021.

Figure 1. COVID-19 Confirmed Cases and Related Deaths, and Stringency Index



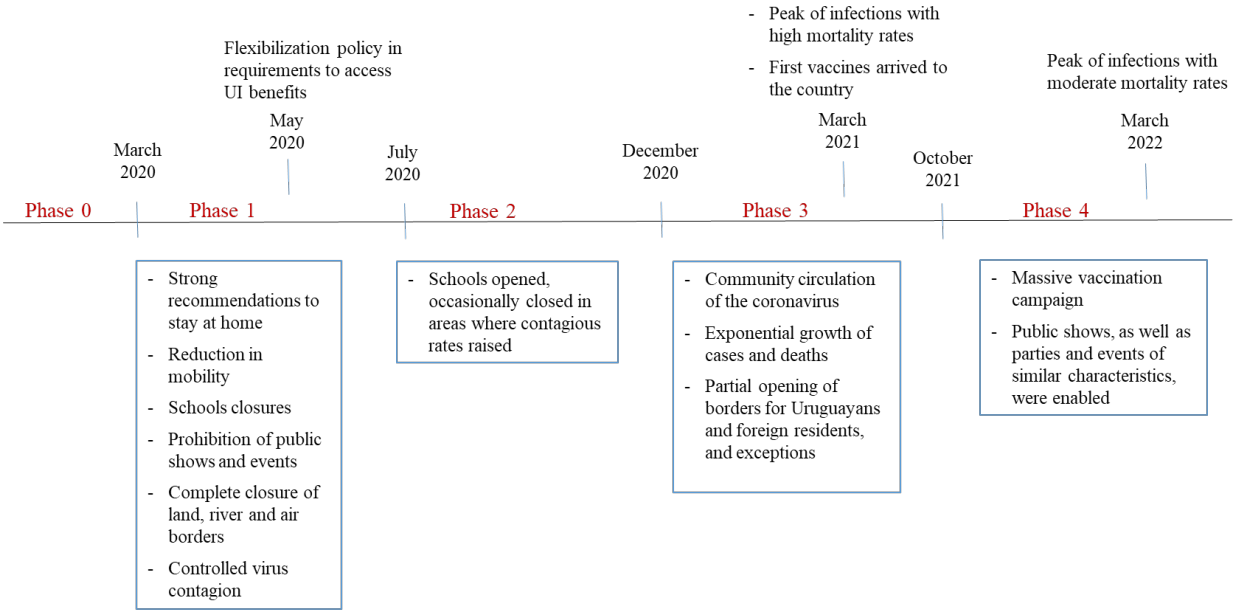
Source: Based on Our World in Data.

Based on the information presented in Figure 1 and following previous analyses of COVID-19 in Uruguay (Filgueira et al., 2021), we consider a periodization of four stages of the pandemic in Uruguay, as depicted in Figure 2. The first stage, spanning from March to June 2020, was characterized by a strong epidemic containment response. Although the government did not

[4] The nine metrics used to calculate the Stringency Index are: school closures, workplace closures, cancellation of public events, restrictions on public gatherings, closures of public transport, stay-at-home requirements, public information campaigns, restrictions on internal movements, and international travel controls. The index on any given day is calculated as the mean score of the nine metrics, each taking a value between 0 and 100.

impose lockdown measures, it issued strong recommendations to stay at home. These recommendations led to a significant reduction in mobility, and the government implemented an asymmetrical social mitigation response through public policy, which was robust for the formal sector but weaker for the informal and more vulnerable sectors (Filgueira et al., 2021). From the early stages of the pandemic, Uruguay was able to respond through social insurance and social assistance measures, thanks to the configuration of the country's pre-crisis social protection system. In particular, the unemployment insurance program acted as a crucial buffer during this crisis. Moreover, the amount of existing cash transfer programs was increased starting in April 2020 (although coverage was not expanded), and a new cash transfer targeting informal workers was implemented in April 2020. These aspects are further discussed in the following section.[5]

Figure 2. Phases of the Pandemic



Source: Authors' compilation.

[5] A key factor contributing to Uruguay's successful management of the pandemic during the first stages in 2020 was the establishment of the Honorary Scientific Advisory Group ("Grupo Asesor Científico Honorario," GACH). Created in April 2020, GACH generated systematic evidence to inform and advise on public policy for managing the pandemic (Pittaluga and Deana, 2021; López et al., 2021).

The second phase, spanning from July to November 2020, reflects the effectiveness of the epidemic containment strategy, as evidenced by the low number of contagions during this period. Mobility restrictions were gradually relaxed, while the asymmetric social mitigation response persisted. The third phase, from December 2020 to September 2021, marked the confirmation of community circulation of the coronavirus. For the first time since the outbreak of the pandemic, the epidemiological thread was lost, resulting in an exponential growth of cases and deaths, combined with a moderate commitment to containment and mitigation of the disease. Throughout the second and third phases, social protection responses, including unemployment insurance and cash transfers, were maintained. The fourth stage of the pandemic, beginning in October 2021, is characterized by an aggressive and successful vaccination strategy, leading to increased control of the epidemic and the easing of mobility restriction measures. During 2022, the temporary measures implemented in response to the COVID-19 pandemic were gradually phased out.

As a result of the recommendations to stay at home and people's responses to the risk of contagion, economic activity was significantly affected during 2020. However, the decline in GDP in Uruguay was less severe compared to other economies in the region. Uruguay experienced a 6.3 percent drop in GDP in 2020, which was below the regional average of 7.5 percent (according to Cepalstat data).[6]

The COVID-19 outbreak had direct impacts on the entire labor market. Participation and employment rates decreased, with similar movements observed for both men and women (Figure A.2, panel a in the Appendix). The unemployment rate climbed to 11 percent, with women experiencing a stronger increase and subsequent rebound compared to men (panel c). There was a drop in informality, from 25 percent of employment in the last quarter of 2019 to 22 percent in the last quarter of 2020 (panel b). Despite specific fluctuations during 2021, the annual informality rate in 2022 was nearly 2 percentage points lower than the rate prevailing in 2019 (panel d), indicating a lasting impact on the informal sector.

[6] In Chile, the decline was 7.4 percent, while in Colombia and Mexico it was 8.6 percent. Argentina and Peru experienced even more significant drops, with GDP falling by 10.5 percent and 12.2 percent, respectively. Brazil is one of the outliers in the region, with a GDP decline of around 4 percent.

3.2 Social Protection Responses to Covid-19 in Uruguay

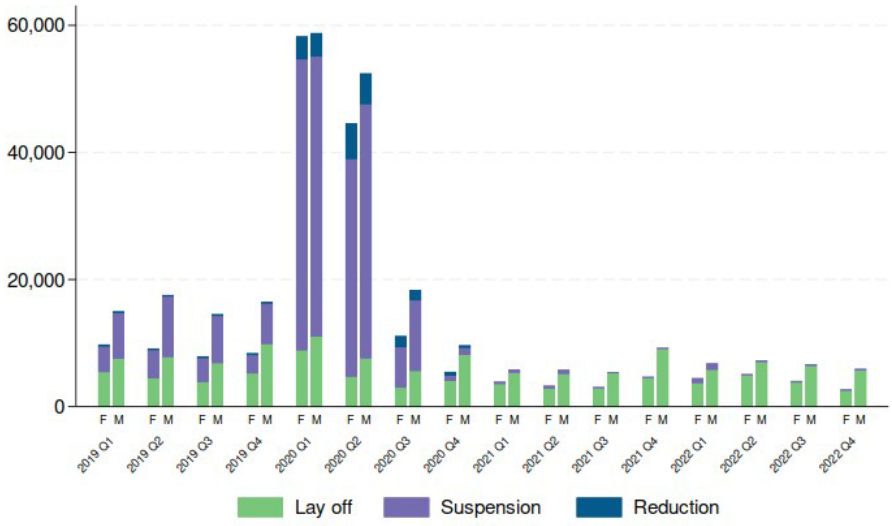
The primary policy response to COVID-19 in Uruguay was implemented through the unemployment insurance program. Although the Uruguayan government also employed non-contributory transfers to alleviate the economic hardship caused by the pandemic, the resources allocated to these non-contributory responses were comparatively lower. The benefits of two existing cash transfer programs, "*Asignaciones Familiares*" and "*Tarjeta Uruguay Social*," were increased, but the coverage of these programs remained unchanged. A new cash transfer program, "*Canasta Alimentaria de Emergencia*," was created to support informal workers not covered by other non-contributory or contributory programs. However, the transfer amount provided by this program was substantially lower than the other measures. For a comprehensive analysis of the direct impacts of these policies, see Amarante and Scalese (2022).

The Uruguayan unemployment insurance program covers formal private salaried workers and provides benefits under three possible scenarios: job loss (being fired or permanently laid off), job suspension (total suspension of activities for a period, temporary lay-off), and job reduction (when days or hours of work are reduced by at least 25 percent, also called partial suspension or reduced work). The latter two modalities aim to preserve the worker-firm links. The benefits can last for six months in the case of job loss or job reduction, and four months in the other modalities. The monthly unemployment subsidy amounts to 50 percent of the worker's average wages over the six full months preceding the unemployment event. Workers with dependents (spouse or children under 21 years of age) are entitled to request a 20 percent supplement to their unemployment benefit payment. There are minimum and maximum payment thresholds based on the value of the BPC (*Base de Prestaciones y Contributivas*), which is a reference unit used in Uruguay to calculate various social benefits, contributions, and taxes. More detailed information about the UI program can be found in Appendix 1.

Traditionally, most entries into the unemployment insurance program correspond to permanent layoffs, as depicted in Figure 3. In 2018 and 2019, temporary layoffs represented around 35 percent of new entrances, whereas in 2020 and 2021, this modality accounted for 66 percent and 50 percent of new entrances, respectively. Only in 2022 did the share of temporary layoffs revert to previous figures. The participation of the reduction modality remained relatively stable during the period. The requirements for entering the suspension modality were eased, allowing workers to collect unemployment insurance benefits for one job even if they continued

to be formally employed in another. Other changes included shorter periods of previous contributions to social security to gain access to UI. Starting in May 2020, monthly workers who had contributed for 3 to 5 months in the last 12 months became eligible for the subsidy, whereas prior to this change, the minimum requirement was six months of contributions. The measure also applied to day laborers who had worked between 75 and 149 working days (the previous minimum requirement was 150 days). These temporary layoff and reduction schemes are similar to the subsidies primarily implemented in European countries during the COVID-19 crisis to protect worker-firm links (Giupponi et al., 2022).

Figure 3. UI New Beneficiaries by Modality



Source: Based on administrative records from Banco de Previsión Social.

Resources allocated to UI in 2020 more than doubled compared to the previous year. The expansion of unemployment insurance accounted for 33 percent of the total public resources allocated to address the COVID-19 crisis (the Covid-19 Solidarity Fund), while social assistance measures, including increases in the amount of pre-existing cash transfers and a new transfer for informal workers, represented 18 percent of those total resources (Amarante and Scalese, 2022). The significant role of UI can be attributed to the conditions of the Uruguayan labor market, where 85 percent of private wage earners contribute to social security, and the existence of a long-standing employment protection program through the "suspension" modality provided for in the UI program.

The Uruguayan social protection system, through the activation of automatic stabilizers that were made more flexible to increase their coverage, provided a timely and adequate response in terms of insurance coverage for those in formal employment. However, the protection for non-formal sectors and the most vulnerable population, through increases in the amounts of existing transfers and the creation of a modest new transfer, was weaker and insufficient to prevent increases in poverty (see Amarante and Scalese, 2022; Filgueira et al., 2021).

4. Gender Differential Effects on Formal Labor Market Dynamics during Covid-19

4.1. Methodological Approach: Regression Analysis

To analyze the dynamics of employment and income during the pandemic, we use a regression approach following Albanesi and Kim (2021). The following equation is estimated for individual i at time t:

$$y_{it} = \alpha + \sum_{\tau=1}^{4} \beta_\tau I_\tau + \gamma I^i(g) + \sum_{\tau=1}^{4} \varphi_\tau I_\tau I^i(g) + \delta X_{it} + \varepsilon_{it} \qquad (1)$$

where the dependent variable, y_{it} corresponds to the four outcomes considered in our analysis. The first outcome is employment, in this case y_{it} is a binary variable distinguishing between being formally employed or being out of the formal labor market. This situation comprises informal workers, beneficiaries of the UI program, the unemployed, and those out of the labor force (inactive).

Our second outcome reflects if a person is a beneficiary of the UI program, conditional on being out of the formal labor market. In this case y_{it} is a binary variable that distinguishes beneficiaries of the UI program from those out of the formal labor employment (including unemployed, informal workers and out of the labor force).

Our third outcome is monthly wages (in logs), as we aim to reflect wage losses due to the pandemic. Individuals with zero monthly wages are considered in the analysis, unless otherwise specified. It is important to remind that while these individuals have no recorded formal wages, they may be generating income in the informal labor market. To retain zero-valued observations,

we apply the inverse hyperbolic sine transformation to wages or income and follow Bellemare and Wichman (2019) to estimate the associated elasticities.[7]

Finally, our fourth outcome is income (in logs), defined as the sum of wages and unemployment insurance benefits. The comparison of results based on the third and fourth outcomes allows us to discuss the buffering role of the unemployment insurance program.

The variable I_τ is an indicator variable for each one of the four phases of the pandemic, with $\tau = 1$ corresponding to March to June 2020, $\tau = 2$ corresponding to July to November 2020, $\tau = 3$ corresponding to December to September 2021 and $\tau = 4$ since October 2021. The definition of the COVID-phases in Uruguay is based on the analysis presented in the previous section.

The variable $I^i(g)$ is a dummy for gender, equal to 1 for female. X_{it} is a vector of individual characteristics, which includes age, type of contract, activity, and the size of the firm in which the worker is employed.[8] Additionally, we include an interaction between the phase effects and the female dummy.

Three coefficients in our regression model capture the gendered effects of the pandemic on labor market outcomes. It is worth remembering them, as they will be used in the analysis throughout the presentation of results.

- The coefficient on the gender dummy (γ) represents the overall difference in the outcome variable between women and men during the pre-Covid time (given that we always include the variables reflecting the phases of Covid-19).
- The coefficient on the interaction term between gender and pandemic phase ($\varphi\tau$) shows the differential effect between women and men for each pandemic

[7] Even if the inverse hyperbolic sine transformation improves the precision of the estimated elasticities when compared to the commonly used approach of adding 1 to wages before applying logs, it still has problems to approximate the actual semi-elasticity when the number of zeros is important. Modelling the data-generating process using a Tobit, zero-inflated Poisson or negative binomial model and then using the appropriate transformation to get the semi-elasticities is a better option. We faced computational restrictions for following this method for the present version of the paper.

[8] Age is reflected by four binary variables (14-29, 30-49, 50-64, 65 or more). Size of the firm is reflected by binary variables for: less than 5 workers, between 5 and 19 workers, between 20 and 99 workers, 100 and more workers). Sector of activity distinguishes: Agriculture, forestry, fishing, mining; Manufacturing industry; Electricity, gas and water; Construction; Commerce, restaurants and hotels; Transport and communications; Financial intermediation, insurance, real estate; Administrative and support services; Public Administration; Education; Health; Arts and other services; Household services; Foreign Organizations. In the case of firm size or activity sector, when workers are out of the formal labor force, the variable corresponds to his/her latest firm.

phase, compared to this gender difference in the pre Covid-19 period. We call this effect the marginal effect of Covid-19 on women.

- The sum of these coefficients ($\gamma + \varphi\tau$) represents the effect of being female during a specific pandemic phase, as compared to men. We call this effect the overall effect of Covid-19 on women.

To allow for heterogeneous effects of the pandemic, we estimate equation (1) for groups of workers according to their wage level (Section 4.3). We consider three groups: low, medium and high wages. Wage terciles are determined based on the distribution of real wages in 2019.[9] Women represent 48.4 percent of low-wage workers, 49.3 percent of medium-wage workers, and 42.8 percent of high-wage workers.

We also expand this equation and include a variable to distinguish workers with or without children. For that we include a binary variable that reflects if the individual has at least one child, and a full set of interactions (with phases, with gender, and with phases and gender).

4.2. Gender Differences in Employment, Unemployment Benefits and Income

Results of estimating equation (1) considering as dependent variables the employment and, conditional on non-employed, the probability of entering the UI program are presented in Table 2. We consider three specifications. In the first specification (columns 1 and 5), we reproduce the dynamics of employment in the five phases considered for comparative purposes (the pre-Covid period between January 2019 and February 2020 is the omitted one). Columns (2) and (6) present estimations including a variable indicating if the worker is a woman, interactions between the phases of the pandemic and the female dummy and controls for individual characteristics (age and type of contract), Columns (3) and (7) also include indicators of firm size and sector of activity, and finally columns (4) and (8) include individual fixed effects.

The largest decrease in formal employment took place in the first phase of the pandemic. During phase 2 there was a recovery with respect to the previous phase, but still the decline in formal employment was relevant when compared to the pre Covid-19 period. The fourth phase shows a recovery of private formal employment as shown in column 1 of Table 2 and Appendix Figure A.1.

[9] The upper threshold for the first tercile is 619 USD, while for the second tercile it is 1,577 USD.

The positive coefficient for the female dummy in the second column reflects the higher employment rate of women when compared to men in our sample of formal workers in pre Covid-19 times (see also Table 1 for the whole period). This coefficient turns negative when sector and firm controls are included (column 3), reflecting the concentration of women in certain sectors with high employment in the pre-Covid-19 times.[10]

The coefficients of interaction reflecting marginal effects of the Covid-19 during each phase are always significant (for employment and for entering the UI program), indicating differential patterns for men and women when compared to the pre-Covid-19 situation. Women suffered larger marginal losses in employment compared to men in the four phases of the pandemic, with the largest gender differences during the first phase (columns 2, 3 and 4). In the specification adding sector and firm size controls, the negative marginal effects for female workers are smaller in magnitude (column 3), suggesting that part of the higher employment effect of Covid-19 for females is explained by the fact that the sectors in which women work were more affected, compared with those of men. The gender marginal effects further decrease when individual fixed effects that control for unobserved individual characteristics are included (column 4), but even if they become significantly smaller, they persist during the first two phases. This suggests that those individuals which were most affected by the crisis are those who have worse unobserved characteristics within each sector.

The overall effect of the pandemic for women's employment ($\gamma + \varphi\tau$) is negative for the first two or three phases, depending on the specification (columns 2 or 3). The biggest overall effects correspond to specification with individual, sector and firm controls (column 3), indicating respective overall declines of 1.8, 1.4, and 1.1 percent during phases 1, 2 and 3.

We obtain negative coefficients for the binary variables reflecting sectors of Retail, restaurants and hotels and Households' services (which includes maids).[11]

Conditional on not being formally employed, the important decline in employment was compensated by a significant increase in the marginal probability of entering the UI program rather than leaving the formal labor market during the first and second phases of Covid-19 when

[10] The constant term in this regression reflects the average male employment rate in phase 0, whereas the sum of the constant term and the coefficient for the female dummy reflects the employment rate of women in our sample in pre= Covid-19 times.
[11] Complete estimations of equation (1) are available upon request.

compared to pre- Covid-19 times (column 5, Table 2). Those out of the formal labor market can be in three possible situations: inactive, unemployed (without UI benefits) or working informally. Our data does not allow us to distinguish the precise situation of those workers who are not contributing to social security nor receiving unemployment benefits. Among workers who are not contributing to the social security system (i.e., not formally employed), women have a lower probability of entering the UI program in the pre-Covid-19 situation (negative coefficient of female variable in columns 6 and 7). Interestingly, during the four phases of Covid-19, the marginal effect has been higher for women than for men when compared to pre-pandemic times, indicating that Uruguay's social protection system has tended to protect female formal workers more than men during Covid-19, although the differences are not of great magnitude. Moreover, the inclusion of sector of activity and firm size controls (column 7) does not lead to relevant changes in the higher female marginal probability of entering the UI program during the pandemic.

The overall gender effect of the Covid-19 on the probability of entering the UI program ($\gamma + \varphi\tau$) is positive during phase 1, with effects ranging between 1 percent and 2.3 percent (columns 6 and 7) depending on the set of controls included in the specification. During phases 3 and 4 this overall effect turns negative (around -2 percent when only individual controls are included, and approximately -0.5 percent with sector and firm controls). Results regarding the overall effect during phase 2 are mixed, ranging from -0.5 percent to 1 percent in the two specifications (columns 6 and 7).

Table 2. Regression Results: Employment and UI vs. out of Formal Labor Market (FLM)

	Employment				UI vs Out of FLM			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Phase 1	-0.0835***	-0.0793***	-0.0436***	-0.0308***	0.123***	0.101***	0.100***	0.0207***
	(0.000272)	(0.000372)	(0.000243)	(0.000230)	(0.000402)	(0.000528)	(0.000523)	(0.000387)
Phase 2	-0.0471***	-0.0453***	-0.0272***	-0.0192***	0.0556***	0.0408***	0.0401***	-0.00444***
	(0.000288)	(0.000394)	(0.000255)	(0.000243)	(0.000373)	(0.000500)	(0.000496)	(0.000385)
Phase 3	-0.00195***	-0.00565***	-0.00284***	0.00323***	-0.0173***	-0.0267***	-0.0273***	-0.0297***
	(0.000301)	(0.000411)	(0.000278)	(0.000271)	(0.000277)	(0.000395)	(0.000393)	(0.000367)
Phase4	0.0338***	0.0232***	0.0141***	0.0187***	-0.0198***	-0.0315***	-0.0323***	-0.0413***
	(0.000346)	(0.000468)	(0.000324)	(0.000323)	(0.000265)	(0.000387)	(0.000387)	(0.000405)
Female*Phase1		-0.0173***	-0.00859***	-0.00580***		0.0367***	0.0355***	0.00935***
		(0.000550)	(0.000360)	(0.000340)		(0.000798)	(0.000788)	(0.000547)
Female*Phase2		-0.0124***	-0.00426***	-0.00133***		0.0238***	0.0232***	0.00708***
		(0.000580)	(0.000379)	(0.000360)		(0.000737)	(0.000729)	(0.000527)
Female*Phase3		-0.00714***	-0.00128***	0.00119***		0.00941***	0.00991***	0.00358***
		(0.000607)	(0.000415)	(0.000401)		(0.000543)	(0.000541)	(0.000494)
Female*Phase4		2.56e-05	0.00561***	0.00857***		0.00657***	0.00831***	0.00185***
		(0.000697)	(0.000488)	(0.000478)		(0.000523)	(0.000523)	(0.000555)
Female		0.00725***	-0.00978***			-0.0288***	-0.0130***	
		(0.000668)	(0.000585)			(0.000401)	(0.000422)	
Constant	0.601***	0.551***	0.934***		0.0655***	0.0602***	0.0450***	
	(0.000354)	(0.000668)	(0.000776)		(0.000206)	(0.000336)	(0.000548)	
Individual controls	NO	YES	YES	YES	NO	YES	YES	YES
Sector and firm size controls	NO	NO	YES	YES	NO	NO	YES	YES
Individual fixed effects	NO	NO	NO	YES	NO	NO	NO	YES
Observations	68,046,650	68,046,650	68,046,650	68,046,650	27,353,093	27,353,093	27,353,093	27,353,093
R-squared	0.005	0.082	0.480	0.831	0.028	0.048	0.060	0.599

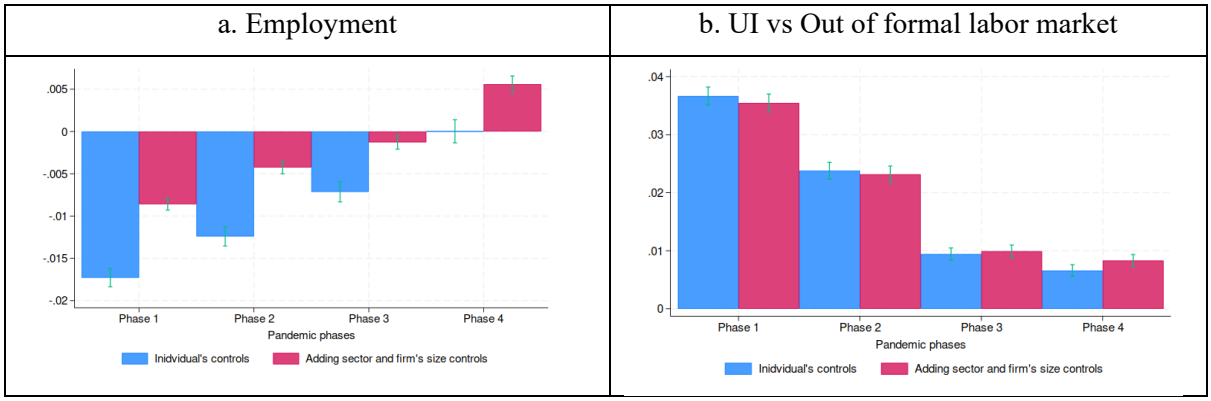
Source: Based on administrative records from Banco de Previsión Social.
Note: For columns (1) to (4), the dependent variable employment takes value 1 if the individual is employed in the formal labor market, 0 otherwise. For columns (5) to (8), the depenent variable unemployment insurance takes the value 1 if the indivdual gets UI benefits and 0 otherwise, and only non employed individuals are considered in this regresssion. Phase 1 corresponds to March to June 2020, Phase 2 from July to November 2020, Phase 3 from December to September 2021 and Phase 4 since October 2021. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

To better visualize the results of these regressions, Figure 4 displays the estimated coefficients for the interaction between the female dummy and each phase of the pandemic, reflecting the marginal effects relative to the pre-Covid19 situation (corresponding to columns 2 and 3, and 6 and 7 in Table 2). These effects indicate that in the first phase of COVID, the decline in the probability of employment for women is 1.7 percent greater than that of men, compared to the pre-COVID situation. The differential gender effect is reduced by almost half (to 0.9 percent) when controlling for sector of activity and firm size, but it remains significant. The patterns are similar for the other two phases, where differential probabilities of employment loss by gender are detected (phases two and three), with effects that are reduced by almost half when controlling for sector of activity and firm size.

Panel b in Figure 4 displays the marginal probabilities for women of entering the UI program during each phase when compared to the pre Covid-19 situation. In this case, these

marginal effects remain almost unchanged when sector and firm size controls are included. Once workers were out of the formal labor force, women's probability of entering the UI program was 3.7 percent higher than men's during the first phase of the pandemic when compared to the pre-Covid-19 situation. It is difficult to disentangle the mechanisms behind these differential effects. Employers may have preferred to opt for female workers as beneficiaries of unemployment insurance to facilitate the caring for children at home due to school closures. Alternatively, female workers may have requested or agreed to it with employers, with the same reasons behind it. In any case, the social protection system has protected formal female workers, and this higher probability for women persists even after controlling for sector and firm size.

Figure 4. Gender Differences in Labor Market States (marginal effects)



Source: Based on administrative records from Banco de Previsión Social.
Note: The figures reflect the coefficients for the interaction between female and the phases (φ_τ in equation 1). In panel a) the dependent variable employment takes value 1 if the individual is employed in the formal labor market, 0 otherwise. In panel b) the dependent variable unemployment insurance takes the value 1 if the indivdual gets UI benefits, and only non employed individuals are considered in this regresssion. Phase 1 corresponds to March to June 2020, Phase 2 from July to November 2020, Phase 3 from December to September 2021 and Phase 4 since October 2021. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

The semi-elasticities resulting from the estimation of equation (1) considering wages and income (defined as wages plus UI benefits) as dependent variables, and applying the inverse hyperbolic sine transformation, are presented in Table 3. The first and, to a lesser extent, second phases of the pandemic were associated with very important declines in wages. By the fourth phase, the effect has vanished. When control variables for sector and firm size, as well as individual fixed effects are included, the declines in real wages during the first two phases become smaller, evidencing the important compositional effects of changes in wages (columns 3 and 4 in Table 3).

The negative size of the female coefficient indicates the gender gap in monthly wages and income in pre-Covid-19 times. In the case of wages, this gap is 9.4 percent when only individual controls are included, and ranges to 25 percent when sector and firm controls are included. The gender gaps in income in pre-Covid-19 times range from 22 percent to almost 30 percent.

The coefficients of the interaction terms indicate that women experienced significantly higher wage losses than men when compared to pre-pandemic times, with a gender differential of 16 percent and 12 percent during the first and second phases, respectively. Similarly to the case of marginal employment losses, these marginal wage losses are reduced by half or more when sector of activity and firm size controls are included.

Unemployment benefits played a crucial role in mitigating the loss of workers' income associated with job losses. Income losses were significantly reduced during the first and second phases, thanks to UI benefits (column 5 in Table 3). For instance, the 16 percent and 12 percent gender differential in terms of higher wage losses for women when compared to pre-pandemic (marginal effect) translates into a 4 percent income loss when the compensating effect of UI benefits is considered (column 6 in Table 3). Even if women still have an income loss compared to men with respect to pre-pandemic situation, this loss is much reduced by UI benefits. These effects turn positive (4.3 percent and 3.8 percent in phases 1 and 2, respectively) when sector and firm size controls are included (column 7 in Table 3).

The overall effect of being female during the pandemic ($\gamma + \varphi\tau$) is negative and sizeable in all four phases of the pandemic for both wages and income but shows a clear decreasing trend. In the specification with individual, sector and firm controls, this overall effect for wages decreases from 34 percent during the first phase to 20 percent during the fourth one. When UI benefits are also included in the output variable, the overall effect decreases to 26 percent during the first phase of pandemic.

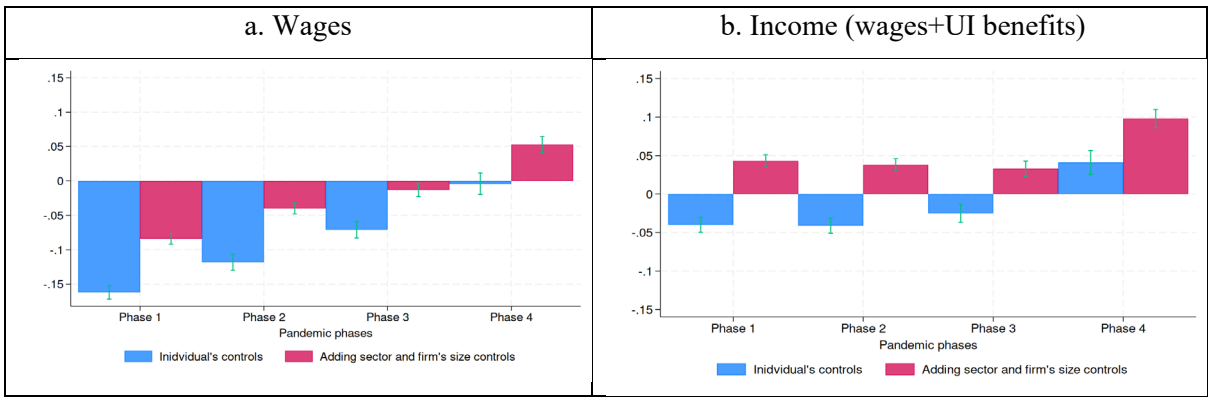
These results highlight the effectiveness of the unemployment insurance program in cushioning the financial impact of the pandemic on workers, particularly women. The semi-elasticities corresponding to the interactions between female and the phases (marginal effects) are presented in Figure 5.

Table 3. Regression Results (semi-elasticities): Wages and Income Losses

	Wages				Income (wages+UI benefits)			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Phase 1	-0.619***	-0.606***	-0.424***	-0.339***	-0.279***	-0.301***	-0.008***	0.093***
	[0.001]	[0.002]	[0.002]	[0.002]	[0.002]	[0.002]	[0.003]	[0.003]
Phase 2	-0.426***	-0.421***	-0.296***	-0.231***	-0.248***	-0.271***	-0.127***	-0.062***
	[0.002]	[0.003]	[0.002]	[0.002]	[0.002]	[0.003]	[0.003]	[0.003]
Phase 3	-0.064***	-0.112***	-0.085***	-0.009***	-0.126***	-0.192***	-0.170***	-0.082***
	[0.003]	[0.004]	[0.003]	[0.003]	[0.003]	[0.004]	[0.003]	[0.003]
Phase4	0.383***	0.217***	0.103***	0.188***	0.261***	0.081***	-0.014***	0.103***
	[0.005]	[0.006]	[0.004]	[0.004]	[0.005]	[0.006]	[0.004]	[0.004]
Female*Phase1		-0.162***	-0.084***	-0.057***		-0.040***	0.043***	0.063***
		[0.005]	[0.004]	[0.004]		[0.005]	[0.004]	[0.004]
Female*Phase2		-0.118***	-0.040***	-0.010		-0.041***	0.038***	0.058***
		[0.006]	[0.004]	[0.004]		[0.005]	[0.004]	[0.004]
Female*Phase3		-0.071***	-0.013***	0.013***		-0.025***	0.033***	0.053***
		[0.006]	[0.005]	[0.005]		[0.006]	[0.005]	[0.005]
Female*Phase4		-0.004	0.053***			0.041***	0.098***	
		[0.008]	[0.006]			[0.008]	[0.006]	
Female			-0.094***	-0.251***			-0.224***	-0.298***
			(0.007)	(0.007)			(0.007)	(0.006)
Individual's controls	NO	YES	YES	YES	NO	YES	YES	YES
Sector and firm size controls	NO	NO	YES	YES	NO	NO	YES	YES
Individual fixed effects	NO	NO	NO	YES	NO	NO	NO	YES
Observations	68,046,650	68,046,650	68,046,650	68,046,650	68,046,650	68,046,650	68,046,650	68,046,650
R-squared	0.005	0.094	0.452	0.837	0.001	0.096	0.414	0.814

Source: based on administrative records from Banco de Previsión Social.
Note: For columns (1) to (4), the dependent variable is the inverse hyperbolic sine transformation of real wages, and workers with 0 wages are included. For columns (5) to (8), the dependent variable is the inverse hyperbolic sine transformation of the sum of real wages and unemployment benefits. Phase 1 corresponds to March to June 2020, Phase 2 from July to November 2020, Phase 3 from December to September 2021 and Phase 4 since October 2021. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Figure 5. Gender Differences in Wages and Income Changes (semi-elasticities) (marginal effects)



Source: Based on administrative records from Banco de Previsión Social.
Note: The figures reflect the semi-elasticities corresponding to the interaction between female and the phases (φ_τ in equation 1). In panel a) the dependent variable is the inverse hyperbolic sine transformation of real wages, and workers with 0 wages are included. In panel b), the dependent variable is the inverse hyperbolic sine transformation of the sum of wages and unemployment benefits. Phase 1 corresponds to March to June 2020, Phase 2 from July to November 2020, Phase 3 from December to September 2021 and Phase 4 since October 2021. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

To gain a better understanding of whether the gender differences in wage declines were linked to reductions in employment or to women remaining employed but receiving lower pay, equation (1) was estimated considering the universe of workers who remained employed throughout the entire period. The results, presented in Table A.3, show that the gender penalization is extremely low in the first two phases and even turns positive thereafter. In any case, as Figure A.4 illustrates, the differential gender effect on wages is primarily driven by women losing their jobs more frequently than men rather than women remaining employed with lower wages.

In summary, male and female workers experienced different formal labor market dynamics, with women bearing higher employment losses, partly explained by their concentration in economic sectors most affected by the Covid-19 crisis. Conditional on leaving formal employment, women also had higher chances of entering the UI program during the pandemic. They experienced greater wage losses compared to men due to their larger employment loss, but the buffering effect of the UI program clearly favored women during Covid-19 times, especially when controlling for sector of activity.

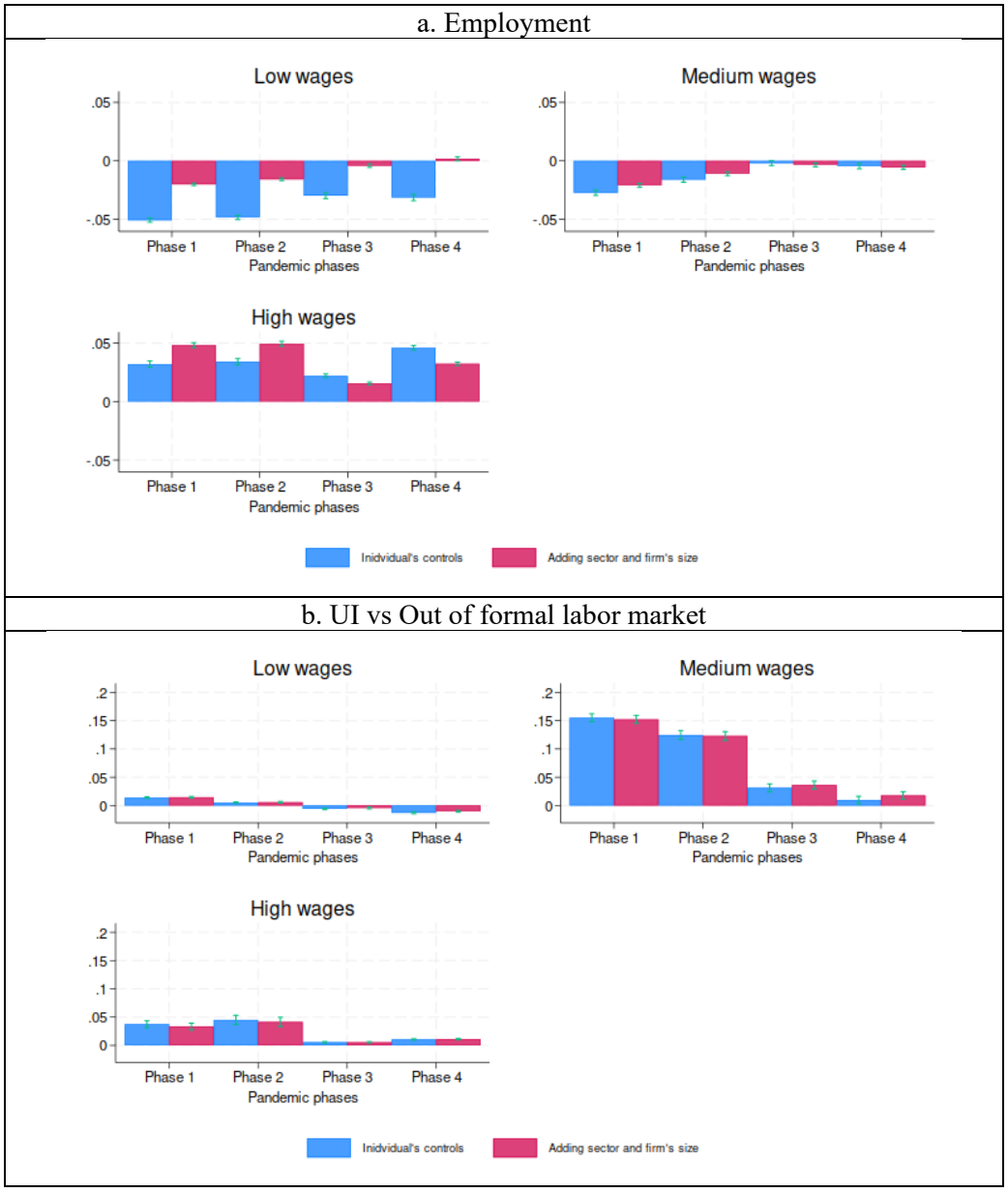
4.3. Gender Heterogeneities in COVID-19 Labor Market Dynamics

We explore heterogeneities in the gender effects of Covid-19 by estimating equation (1) for three groups of workers, based on the wage distribution in pre-pandemic times (wage terciles distinguishing low, medium, and high wages). Figure A.5 presents the heterogeneity of effects for all workers.[12] Low and medium-wage workers experienced employment losses, while the cushioning effects of UI benefits were concentrated among middle and especially high-income workers. Figure 6 presents the estimated coefficients on the interaction between the female indicator and the phases of the pandemic for each group of workers (by wage tercile). Complete estimations for employment losses and UI benefits are presented in Table A.4 and Table A.5, while semi-elasticities of interest for wages and income regressions are presented in Table A.6 and Table A.7. The negative effect of being a woman on the probability of employment is driven by workers with low and medium wages, especially those in the former group. The positive effect related to higher entrance into the UI program for women (once out of employment) is concentrated among women with medium wages and, to a lesser extent, high wages. Among low-wage workers

[12] Complete estimations by wage tercile are available upon request.

displaced from formal employment, there are no relevant gender differences in the (low) probability of entering unemployment insurance.

Figure 6. Gender Differences in Labor Market States for Low, Medium and High-wage Workers



Source: based on administrative records from Banco de Previsión Social
Note: The figures reflect the coefficients for the interaction between female and the phases (φ_τ in equation (1)), for three groups of workers according to their wage level. In panel a) the dependent variable employment takes value 1 if the individual is employed in the formal labor market, 0 otherwise. In panel b) the dependent variable unemployment insurance takes the value 1 if the indivdual gets UI benefits, and only non employed individuals are considered in this regresssion. Phase 1 corresponds to March to June 2020, Phase 2 from July to November 2020, Phase 3 from December to September 2021 and Phase 4 since October 2021. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Figure 7 illustrates the gender differences in wage and income changes for workers of different wage terciles. Differential wage losses for women are concentrated among low and medium wage earners. Interestingly, high-wage earners experienced wage increases during the pandemic (see Figure A.5), with women in this group seeing higher increases than men. The positive gender effect in terms of the buffering role of unemployment insurance benefits is mainly observed among high-wage workers.

Figure 7. Gender Differences in Wage and Labor Income for Low, Medium and High-wage Workers (semi-elasticities)

a. Wages

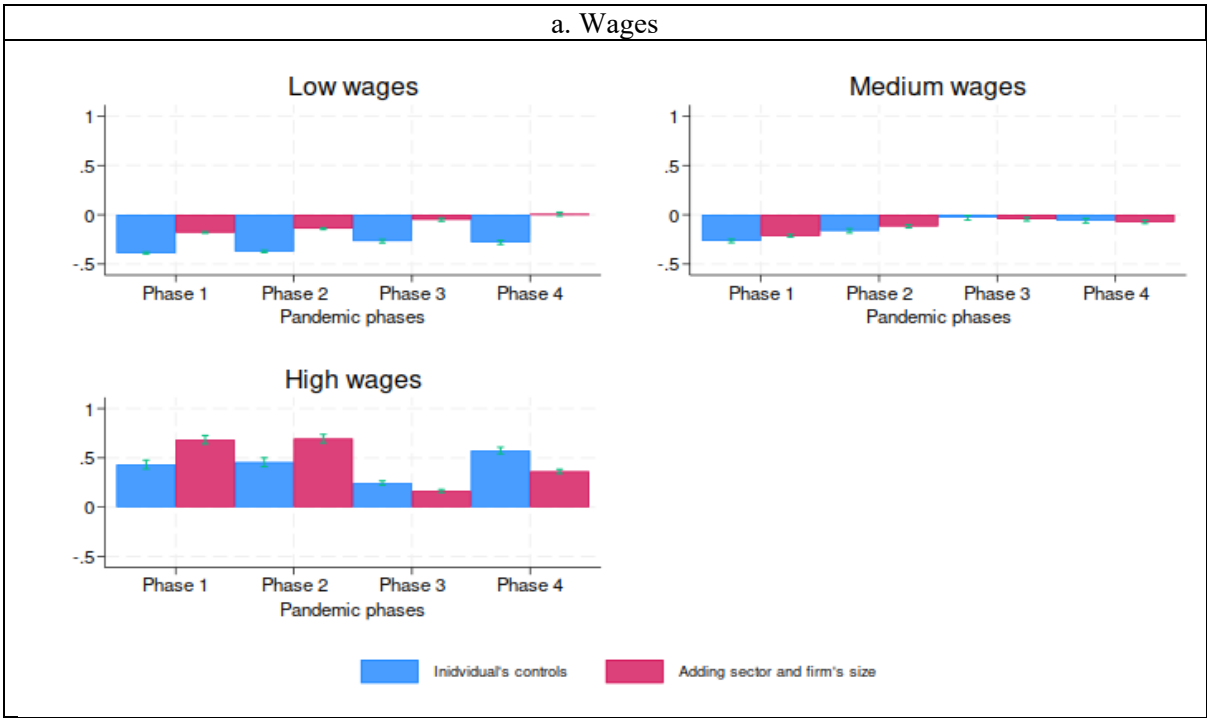
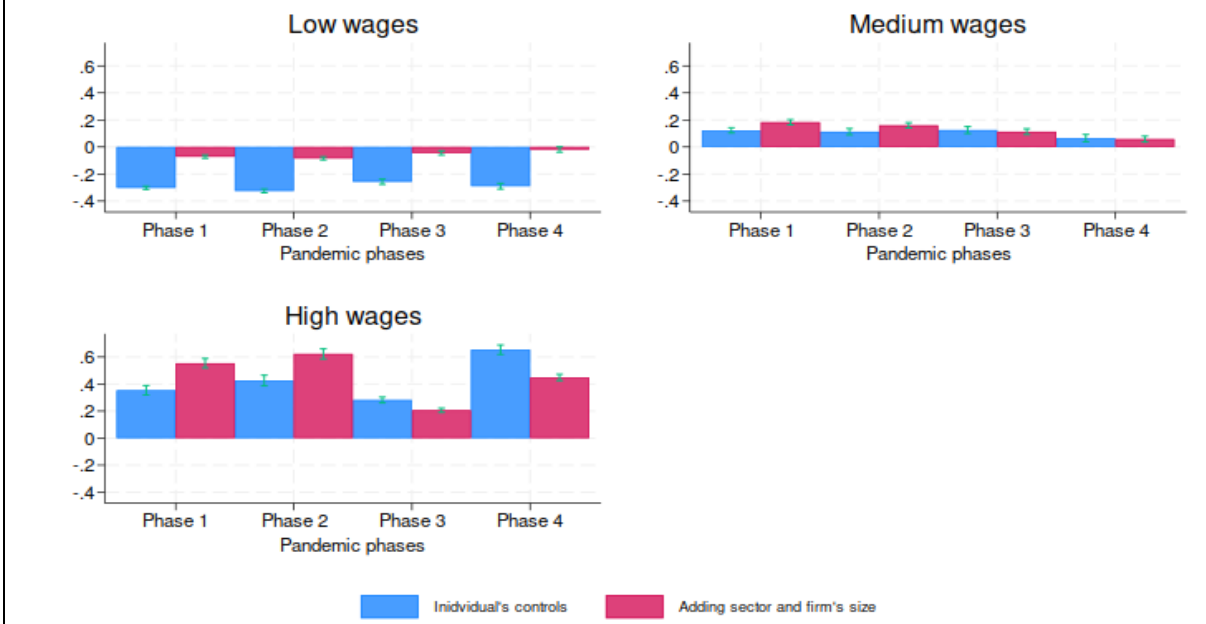


Figure 7, continued

b. Income (wages+UI benefits)



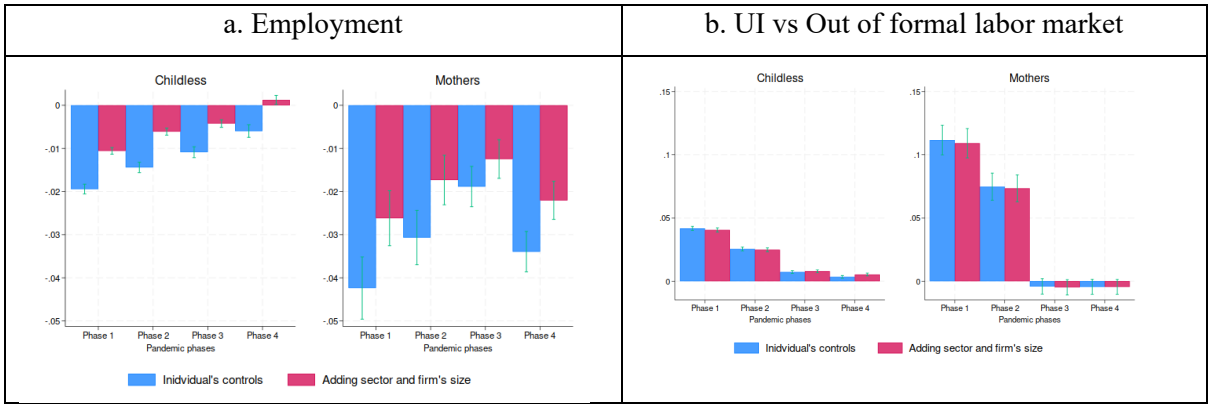
Source: Based on administrative records from Banco de Previsión Social.
Note: The figures reflect the semi-elasticities corresponding to the interaction between female and the phases (φ_τ in equation 1). In panel a) the dependent variable is the inverse hyperbolic sine transformation of real wages, and workers with 0 wages are included. In panel b), the dependent variable is the inverse hyperbolic sine transformation of the sum of wages and unemployment benefits. Phase 1 corresponds to March to June 2020, Phase 2 from July to November 2020, Phase 3 from December to September 2021 and Phase 4 since October 2021. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

To explore heterogeneities between women with and without children, we combine administrative records from the social security system with vital fertility data to identify workers who had a child between 2014 and 2021. A total of 11 percent (164,120) of the workers in our dataset became parents during this period, with 9.5 percent of women and 12 percent of men becoming parents. For this exploration, we run our basic regressions including interactions between, phases, female, and a binary variable indicating if the woman had a child. Complete estimations for employment and UI conditional on being out of employment are presented in Table A.8. Semi-elasticities corresponding to estimations for wages and income are included in Table A.9.

Figure 8 and Figure 9 present the coefficients of these triple interaction variables. Women with children experienced higher employment losses at all phases of Covid-19, including the fourth one (Figure 8). Once out of the formal labor employment, women with children have higher

probabilities of entering the UI program. Again, the social protection system has tended to protect women with children, but we are not able to disentangle the underlying factors driving this observed gender difference.

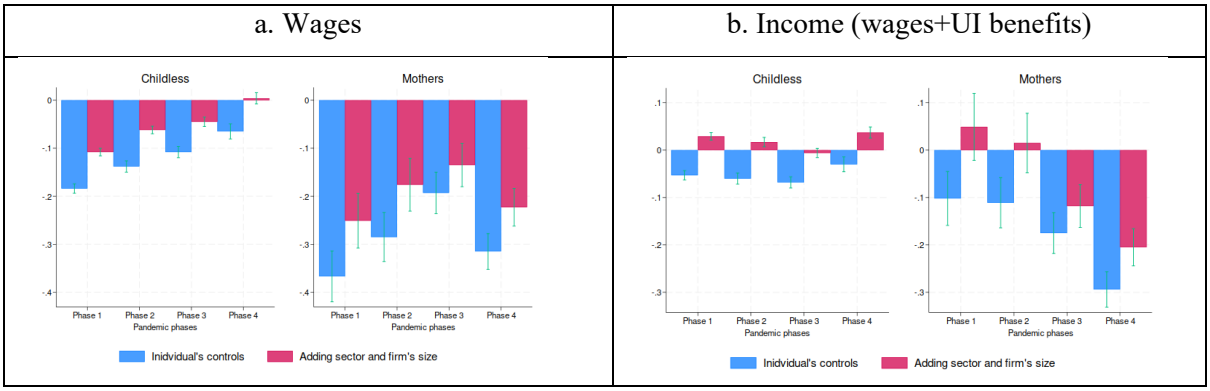
Figure 8. Gender Differences in Labor Market States, Childless and Mothers



Source: Based on administrative records from Banco de Previsión Social.
Note: The figures reflect the coefficients for the interaction between female and the phasesm for mothers and childless women. In panel a) the dependent variable employment takes value 1 if the individual is employed in the formal labor market, 0 otherwise. In panel b) the dependent variable unemployment insurance takes the value 1 if the indivdual gets UI benefits, and only non employed individuals are considered in this regresssion. Phase 1 corresponds to March to June 2020, Phase 2 from July to November 2020, Phase 3 from December to September 2021 and Phase 4 since October 2021. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Regarding wage losses, mothers experienced significantly higher declines compared to women without children. However, these wage losses were substantially mitigated through unemployment insurance benefits during the first three phases of the Covid-19 pandemic (Figure 9). The UI program played a crucial role in cushioning the financial impact of the crisis on mothers.

Figure 9. Gender Differences in Wages and Income Changes (semi-elasticities): Childless and Mothers



Source: Based on administrative records from Banco de Previsión Social.
Note: The figures reflect the coefficients for the interaction between female and the phases for mothers and childless women. In panel a) the dependent variable employment takes value 1 if the individual is employed in the formal labor market, 0 otherwise. In panel b) the dependent variable unemployment insurance takes the value 1 if the indivdual gets UI benefits, and only non employed individuals are considered in this regresssion. Phase 1 corresponds to March to June 2020, Phase 2 from July to November 2020, Phase 3 from December to September 2021 and Phase 4 since October 2021. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

In summary, women with low wages experienced greater employment and income losses compared to their higher-wages counterparts. The Unemployment Insurance (UI) program tended to favor medium and, particularly, high wage female workers. Furthermore, mothers faced more substantial declines in employment and wages compared to women without children. However, the buffering effects of the UI program were more pronounced for mothers, helping to mitigate the adverse financial impacts of the pandemic on this group.

5. Labor Market Dynamics during Covid-19 in Uruguay: A Flow Analysis

5.1 Methodological Aspects: Flow Regressions

The longitudinal nature of our data allows us to consider labor market flows, improving the control for selection bias. We follow the approach of Viollaz et al. (2022), comparing labor market flows before and after the pandemic. The period after the pandemic includes the moment right before the outbreak of the pandemic, February 2020, which defines moment *t.* Moment *t* indicates the beginning of the period affected by the pandemic, τ=1. By conditioning on individuals in a given labor market state in February 2020, we create a dependent variable equal to 1 if the person changes her state in the following periods since the outbreak of the pandemic: t+1, t+2, …., t+δ. To isolate the impact of the pandemic through a control group, we repeat the procedure over a similar time

span but for a period not affected by the pandemic, τ=0, prior to February 2020. We need to pick a t-γ, with γ > δ. Given the span of our data, we must choose γ=13 (which corresponds to January 2019, the starting point of our dataset). We then focus on individuals in a given labor market state at time t-γ (January 2019) and build a dependent variable equal to 1 if the individual changes labor market state in the following periods t-γ+1, t-γ+2, … t-γ+δ (January 2020).

We focus on five labor market flows *(F)*: 1. Formal employment to out of the formal labor force, 2. Formal employment to UI beneficiary, 3. UI beneficiary to formal employment, 4. Out of the formal labor force to formal employment, 5. UI beneficiary to out of the formal labor force.

For each one of these five flow outcomes (d_{iF}), we run the following regression:

$$d_{iF} = \alpha_0 + \alpha_1 I^i(g) + \alpha_2 R_\tau + \alpha_3 I^i(g) R_\tau + \delta X_i + \varepsilon_i \qquad (2)$$

where R_τ is an indicator function for pre and post pandemic, taking the value 1 if τ=1. The coefficient α_3 estimates the relative difference in the impact of the pandemic for women with respect to men. The vector X_i includes control variables: age, sector of activity and size of firm.[13]

5.2. Comparing Labor Market Flows before and after the Outbreak of Covid-19

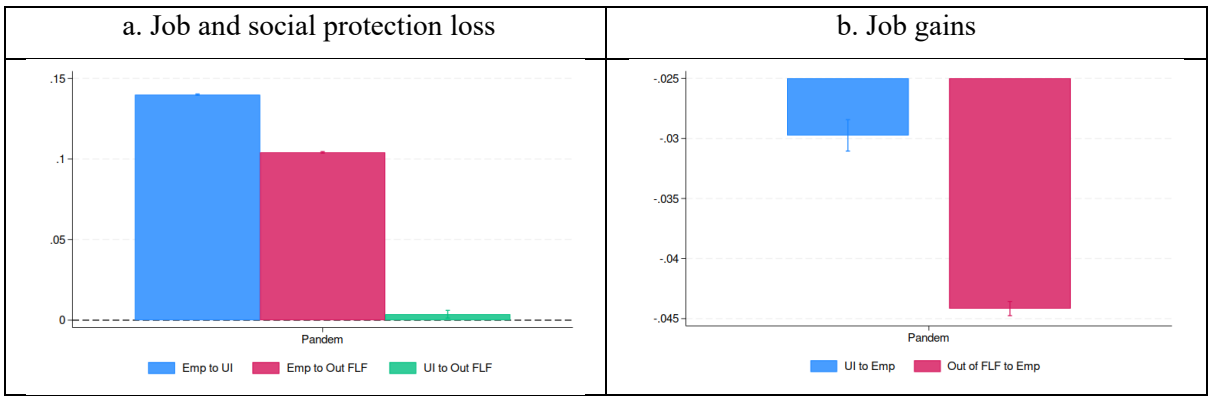
Table A. 10 presents detailed results from the estimations of flow regressions. These flows can be categorized into two groups: job loss and job gain. The job loss group includes three flows: job loss, social protection loss, and transitions from unemployment insurance (UI) to out of the formal labor force. The job gain group consists of two flows, representing workers transitioning into formal employment, from UI or from out of the labor force. In all cases, the initial conditions are set at the beginning of the pre-pandemic (February 2019) and post-pandemic (February 2020) periods.

Before analyzing of gender differentials, Figure 10 compares the flows before and after the pandemic (coefficient R_τ in equation (2)), for job loss and job gain flows. Workers who were employed just before the pandemic, in February 2020, had a higher probability of moving into unemployment or out of the labor force in the subsequent 12 months compared to workers employed in February 2019 (panel a). Transitions from UI to out of the formal labor force were similar when comparing both periods (taking the initial conditions in February of 2019 and

[13] The definition of these control variables is the same as in the regression analysis of the previous section. See footnote 8.

February of 2020 for pre and post pandemic), with the pandemic binary variable not being significant. As anticipated, job gain flows are less likely during the pandemic, particularly concerning transitions from out of the formal labor force into formal employment (panel b).

Figure 10. Flow Regressions: Pandemic vs Previous Year



Source: Based on administrative records from Banco de Previsión Social.
Note: In panel a, the dependent variable is 1 if the worker goes from formally employed to beneficiary of the UI program (blue bar); the dependent variable is 1 if the worker goes from formally employed to out of the formal labor force (red bar); the dependent variable is 1 if and the dependent variable is 1 if the worker goes from the UI program to out of the formal labor force (green bar). In panel b, the dependent variable is 1 if the worker goes from the UI program to formal employment (blue bar) and the dependent variable is 1 if the worker goes from out of the formal labor force to formal employment (red bar). The initial condition is taken in the first month of each period (pre and post pandemic), i.e. the month just prior to the start of the pandemic in Uruguay and the month a year before. The bars show the estimated coefficients for a pandemic dummy, R_τ in equation 2. Complete set of results is available in Table A. 10.

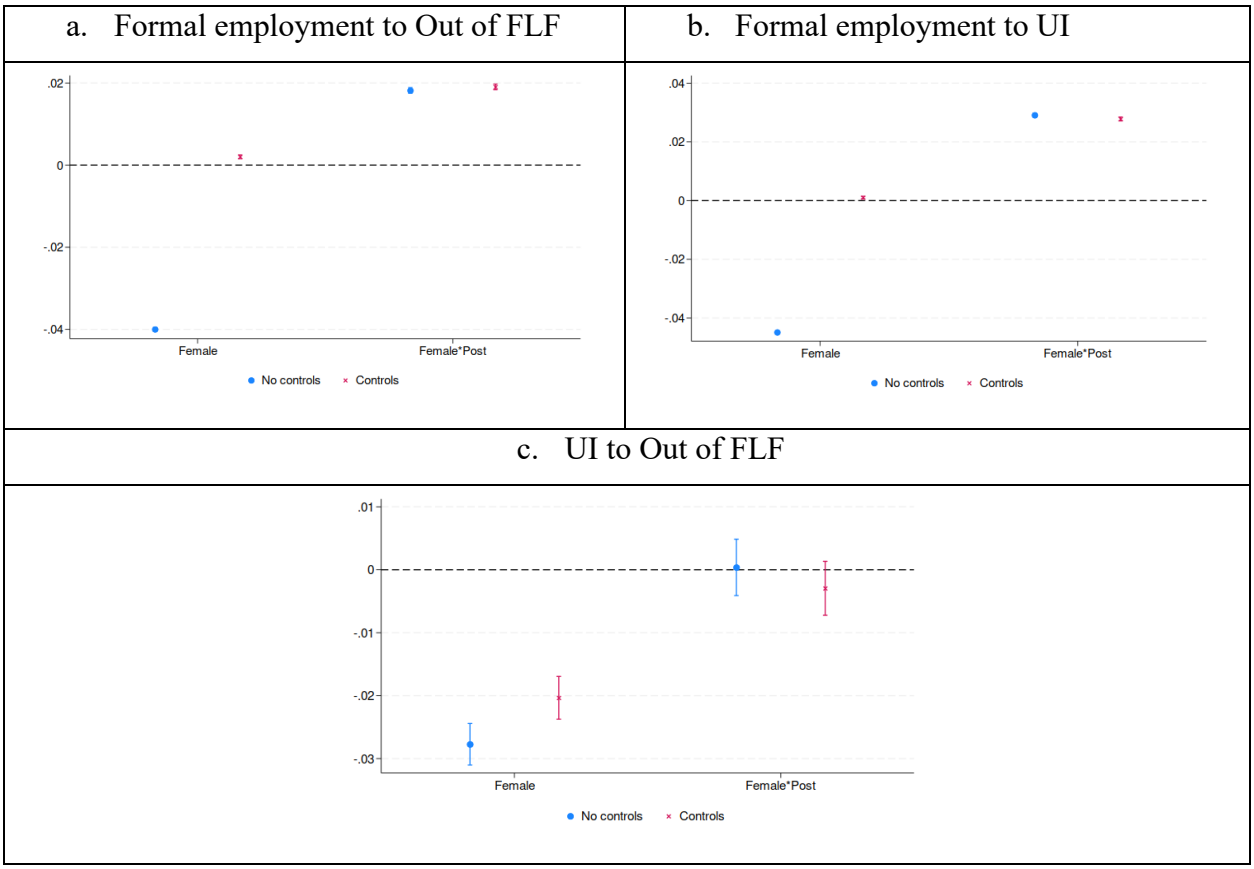
Our main coefficients of interest, as defined in equation (2), are the impact of being female (α_1) and the impact of being female during the pandemic (α_3). These coefficients are presented in for the job and social protection gains. For each flow and coefficient, we report results from specifications with and without controls. The specification with controls includes age, sector of activity and size of firm. Detailed results are presented in Table A.10.

The gender differential in movements from formal employment to out of the formal labor market varies in specifications with and without controls (Figure 11, panel a). When control variables are included, the lower probability of these flows for women compared to men disappears, indicating that women are formally employed in sectors with higher chances of experiencing these flows. The pandemic has increased women's probability of losing their formal job and moving out of the formal labor market compared to men. This gender differential result holds with and without control variables.

The flows from formal employment to unemployment insurance exhibit a similar pattern (Figure 11, panel b). Our results suggest similar probabilities for men and women when control variables are included, and a higher probability for women of losing their formal employment and transitioning to UI compared to men. The higher probability of women losing their jobs has also been found by Viollaz et al. (2022) for various countries in the region, although their data allow them to consider the entire labor market, not just the formal sector as in our case.

Results for the third flow indicate that women have lower probabilities of transitioning from the UI program to out of the labor force, and that the pandemic situation has not implied a gender differential (Figure 11, panel c).

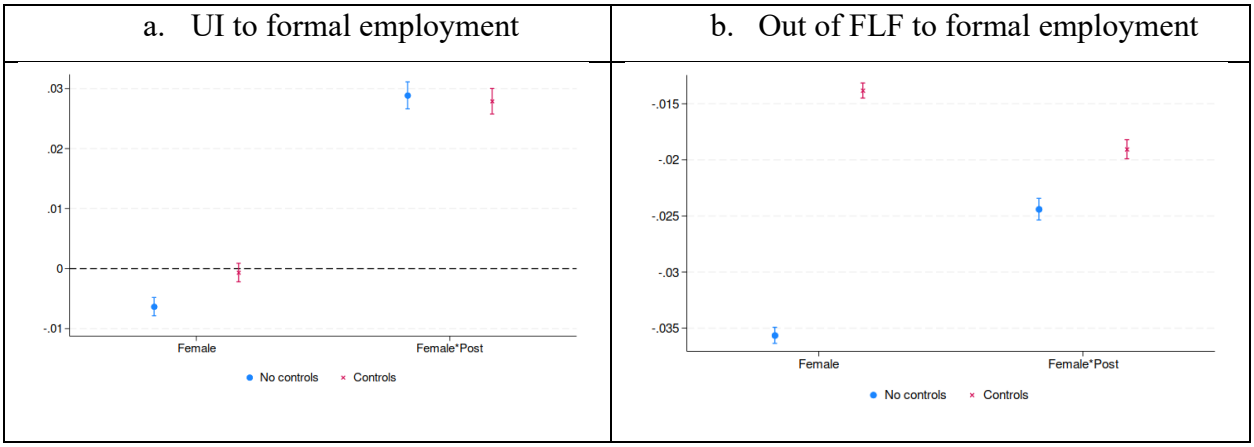
Figure 11. Flow Regressions: Job and Social Protection Loss



Source: Based on administrative records from Banco de Previsión Social.
Note: In panel a, the dependent variable is 1 if the worker experiences a job loss, going from formally employed to out of the formal labor force. In panel b, the dependent variable is 1 if the worker experiences a job loss, going from formally employed to beneficiary of the UI program. In panel c, the dependent variable is 1 if the worker transitions from the UI program to out of the formal labor force. The initial condition is taken in the first month of each period (pre and post pandemic), i.e. the month just prior to the start of the pandemic in Uruguay and the month a year before. Female denotes coefficients for the impact of being female (α_1 in equation (2)); Female*Post denotes the differential impact of the pandemic for women with respect to men (α_3 in equation (2)). Vertical lines denote 95% confidence intervals. Complete set of results is available in Table A. 10.

Regarding job gains, women are less likely than men to transition from the UI program to formal employment. However, when individual control variables are included, this gender difference disappears. Interestingly, during the pandemic, women had a higher chance of transitioning from the UI program to formal employment (Figure 12, panel a). There is a significant gender gap detrimental to women in job transitions from out of the formal labor market into formal employment during the pandemic (Figure 12, panel b).

Figure 12. Flow Regressions: Job Gains



Source: based on administrative records from Banco de Previsión Social.
Note: In panel a, the dependent variable is 1 if the worker experiences a job gain, going from the UI to formal empoyment. In panel b, the dependent variable is 1 if the worker experiences transitions from out of the formal labor force to formal employment. The initial condition is taken in the first month of each period (pre and post pandemic), i.e. the month just prior to the start of the pandemic in Uruguay and the month a year before. Female denotes coefficients for the impact of being female (α_1 in equation (2)); Female*Post denotes the differential impact of the pandemic for women with respect to men (α_3 in equation (2)). Vertical lines denote 95% confidence intervals. Complete set of results is available in Table A. 10.

In summary, the pandemic has disproportionately affected women in the formal labor market. Compared to men, women have a higher probability of losing their formal job and exiting the formal labor force during the pandemic. Moreover, women's chances of transitioning from out of the formal labor force into formal employment are also adversely impacted during this period. However, there are some positive findings: women have higher chances than men of entering the unemployment insurance (UI) program after a formal job loss and higher chances of transitioning into formal employment after participating in the UI program. The flow analysis suggests that the unemployment insurance program operated in a way that differentially benefited women during the pandemic in Uruguay.

6. The Uruguayan UI Program during Covid-19 in Uruguay

The pandemic crisis posed a major challenge to the unemployment insurance (UI) program, as this insurance system became the most important social protection response for the Uruguayan population. The unexpected situation forced the introduction of regulatory changes to expand the temporary layoff and reduction schemes within the program. In this section, we rely on two different empirical strategies to delve into the performance of the UI program during the pandemic

and its potential impacts on workers' trajectories. First, we compare flows out of the UI program before and after the pandemic (Section 6.1). Then, we apply a quasi-experimental design (explained in Section 6.2) to evaluate the program's impacts on certain outcomes in the short, medium, and long run (Section 6.3). In all cases, we analyze gender differentials.

6.1 Flows from UI Program to Employment

We compare flows from the UI program to employment for those who entered the program before and after the pandemic. The strategy is similar to the one developed in Section 5.1, considering flows out of the UI program, but considering a different temporal cut-off. The period after the pandemic now starts in March 2020, instead of February 2020 as in Section 5.1. This allows us to consider the outflows of workers who entered the program immediately after the outbreak of Covid-19.

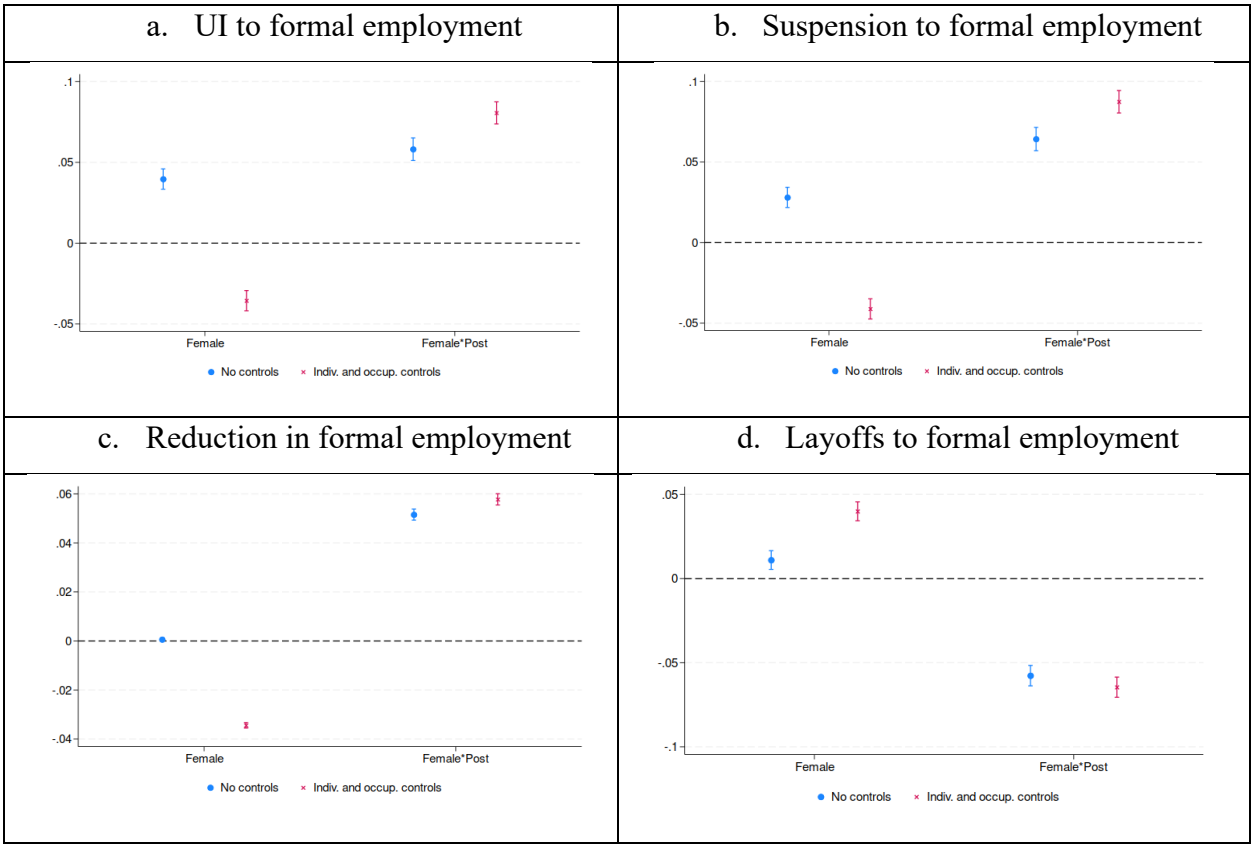
Complete results of these estimations are presented in Table A.11. The binary variable in equation (2), R_τ, compares the chances of transitioning out of the UI program and into formal employment. As shown in Figure 13, those who entered the UI program after March 2020 had higher chances of reentering formal employment than workers who entered the UI program the year before. We estimate these flows separately for the different schemes of the UI program in Uruguay. The positive effect when comparing pre and post-pandemic periods is mainly explained by outflows from temporary layoffs to formal employment. Workers who entered this modality during the pandemic (the majority) had higher chances of returning to formal employment than workers who used this modality the year before. This is therefore an indicator of the program's good performance in its objective of protecting the link between workers and employers. As expected, the probability of transitions from layoffs to employment during pandemic times was lower than the year before.

Figure 13. Labor Market Transitions from UI, pre and post-Covid-19

Source: Based on administrative records from Banco de Previsión Social.
Note: The dependent variable is 1 if the worker goes from the UI program (or each of its modalities) to formal employment. The initial condition is taken in March of each period (pre and post pandemic). The bars show the estimated coefficients for a pandemic dummy, R_τ, in equation (2). Complete set of results is available in Table A.11.

Figure 14 presents the female coefficients and gender differences in transitions from the UI program to employment. When control variables are included, the probability of transitioning to formal employment is lower for women. However, this situation changed during the pandemic: the interaction between the female variable and the variable indicating the pandemic period is significant for women, reflecting higher probabilities of flows from UI to formal employment for women compared to men during the pandemic. This result is primarily driven by the higher probabilities of temporarily laid-off women transitioning to formal employment after the pandemic. A similar result, although smaller in magnitude, is detected for the reduction modality. Conversely, women who are permanently laid off have lower chances than men of returning to formal employment after the pandemic. These findings suggest that the activation of the temporary layoff scheme helped all workers, particularly women, return to formal jobs.

Figure 14. Gender Differences in Labor Market Transitions from UI, pre and post-Covid-19



Source: Based on administrative records from Banco de Previsión Social.
Note: In panel a, the dependent variable is 1 if the worker transitioned from UI to formal empoyment. In panel b, the dependent variable is 1 if the worker transitioned from suspension modality of UI to formal employment. In panel c, the dependent variable is 1 if the worker transitioned from reduction modality of UI to formal employment. In panel b, the dependent variable is 1 if the worker transitioned from layoff modality of UI to formal employment. The initial condition is taken in March of 2019 and March of 2020 (pre and post pandemic). Female denotes coefficients for the impact of being female (α_1 in equation (2)); Female*Post denotes the differential impact of the pandemic for women with respect to men (α_3 in equation (2)). Vertical lines denote 95% confidence intervals. Complete set of results is available in Table A.1.

6.2 Evaluation of the UI Program: Empirical Strategy

The Uruguayan unemployment insurance program requires workers to have contributed for at least 180 days to be entitled to claim benefits. This requirement creates a discontinuity in the probability of becoming a UI beneficiary once workers reach the 180-day threshold, providing a setting for the employment of a regression-discontinuity (RD) design to identify a causal local effect of the program on workers' subsequent labor outcomes.

Our sample consists of private salaried workers who lost their formal jobs in March and April 2020 and had between 30 and 300 days of contribution at that moment. To ensure a clean control group, we exclude workers who left formal employment in the months considered and registered an entry into unemployment insurance in the subsequent 16 months. This approach helps avoid using as controls cases that eventually receive a benefit originating from the reduction of the required contribution days to enter the program, which began in May 2020 as part of the program's flexibilization.

The canonical RD approach proposes comparing treated units slightly above a certain cutoff with control units slightly below (Cattaneo et al., 2020). In our case, this cut-off refers to the 180-day contribution threshold for UI benefit eligibility. Workers with similar score values, i.e., with similar days of contribution within a relatively small window around the threshold, will be similar in terms of observed and unobserved characteristics, and differences in future labor outcomes can be attributed to the treatment (the UI program). If compliance with the treatment assignment is perfect, meaning that all workers with 180 or more contribution days who leave the formal labor force receive the UI benefit, whereas no worker with less than 180 days who leaves the formal labor force enters the program, a sharp RD design is recommended. However, in our case, as discussed in the following section, there are treated and untreated units on both sides of the cut-off, which calls for a fuzzy RD design.

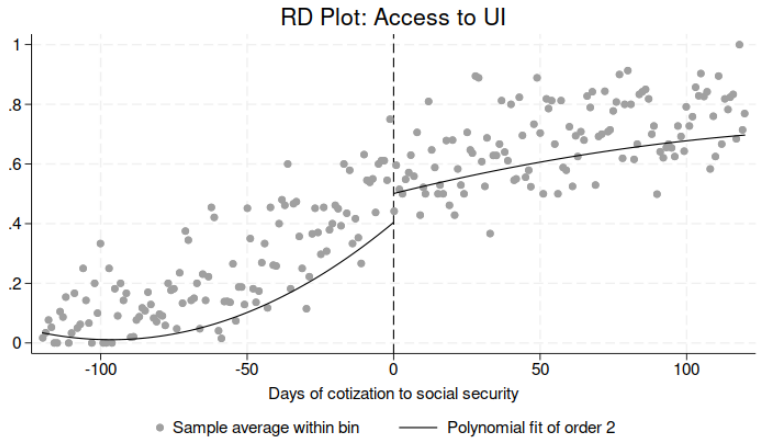
More formally, the most extended framework for sharp RD design based on continuity assumptions can be expressed parametrically as follows:

$$Outcome_i = \beta_0 + \beta_1 D_i + \beta_2 X_i + f(Z_i) + \varepsilon_i$$

where D_i is an indicator function taking value 1 if the worker is assigned to the treatment, Z_i is the assignment variable that defines an observable cut-off point, and $f(.)$ is a flexible function in Z_i. Control variables are included in X_i, and the identification strategy relies on the exogeneity of Z_i at the threshold. This implies that, under the sharp RD design, β_1 reflects the treatment effect.

In our case the data indicate a probabilistic assignment rule, suggesting the use of a fuzzy regression discontinuity design to capture the effect of the eligibility, rather than treatment, on the outcomes of interest (Figure 15).

Figure 15. Participation in UI Program and Days of Contributions



Source: Based on administrative records from Banco de Previsión Social.
Note: The figure plots participation in the UI program against days of contributions to social security. The sample is composed by private salaried workers who lost their formal jobs in March and April 2020, and had between 30 and 300 days of contribution at that moment.The running variable is standarized at zero, with positive values indicating workers eligible for the UI program and negative values indicating ineligible workers. Each dot represents the percentage of workers out of the labor force who participated in the UI program, in eligibility score bins. The solid lines are estimated means from a local linear regression applied to each side of the threshold.

Given this incomplete compliance, we estimate a fuzzy RD in two steps (see Lee and Lemieux, 2010). First, the probability of participating in the UI program (being treated) is instrumented with the running variable Z_i(days of contributions to social security), and including the variable D_i indicating elegibility:

$$Treat_i = \gamma_0 + \gamma_1 D_i + \gamma_2 X_i + f(Z_i) + \varepsilon_i$$

The variable $Treat_i$ takes value 1 if the worker transitioned from employment to the UI program and 0 if she transitioned from employment to out of the formal labor force.

The second stage consists of estimating the outcomes of interest as a function of the predictions of the probability of being treated from the first stage:

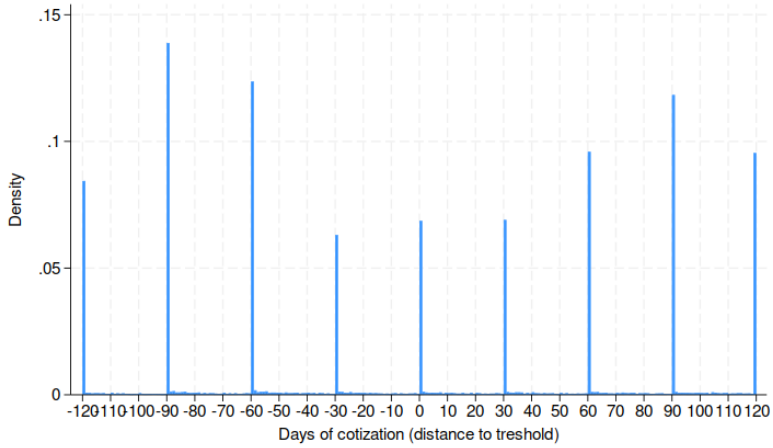
$$Outcome_i = \delta_0 + \delta_1 \hat{Treat}_i + \delta_2 X_i + f(Z_i) + \varepsilon_i$$

The treatment effect is given by δ_1. Different specifications are usually considered for the function $f(.)$ (typically linear and quadratic polynomials).

The fuzzy RD approach in the continuity-based framework requires continuity of the regression functions of the potential outcomes and potential treatment. However, our running

variable, days of contribution to social security before leaving formal employment is discrete, making it difficult to verify the continuity assumption around the threshold. Furthermore, the score presents heavy mass points (i.e., particular points where the observations have the same value) at 30-day intervals, corresponding to a complete month of contributions (see Figure 16). This indicates that the end of contracts usually occurs on the last day of the month. This phenomenon is particularly notable at the cutoff (six months of formal employment), suggesting some type of sorting, which questions the validity of the identification, estimation and inference based on the continuity-based approach to RD (Cattaneo et al., 2020).

Figure 16. Days Contributing to Social Security around the Threshold



Source: Based on administrative records from Banco de Previsión Social.
Note: The sample is composed by private salaried workers who lost their formal jobs in March and April 2020, and had between 30 and 300 days of contribution at that moment. The threshold corresponds to the 180 days of contributions, which is the requirement to be entitled to claim for UI benefits.

To deal with this problem, we follow Cattaneo et al. (2023) and implement a local randomization RD approach (LR-RD). This framework relies on two crucial assumptions, which states that units with score values in a (small) window around the cutoff ($W=[c-w\_1,c+w\_2]$) are comparable to each other, allowing for their study as-if they had been randomly assigned to treatment or control. The first condition is that the joint probability distribution of scores within the selected window is known, which implies that the assignment mechanism of the score is known as in a randomized experiment. The second condition imposes that potential outcomes cannot be affected by the score within the window.

The length of the window considered for the estimation is [-30,30], that is, it comprises those workers who had 30 days less and 30 days more than those required to enter the UI program. This guarantees the inclusion of at least one mass point at each side of the cutoff, as well as fulfilling the requirement of a minimum of 10 observations on each side of the window, to make inference with this method. The balance of covariates at the selected window is presented in Table A.12.

6.3 Evaluation of the UI Program: Results

We first examine the impact of being a beneficiary of the UI program on employment at two points in time: 8 months and 12 months after becoming a beneficiary. The results are presented for men and women, considering the whole UI program and its two main components: permanent layoff and temporary layoff (suspension).

Both men and women have a higher probability of being employed eight months after entering the UI program, an effect completely driven by the suspension scheme. The effects are more pronounced for men compared to women. For men, no effects are found for workers who entered the UI program under the layoff scheme, whereas for women, the effect is negative in this relatively short run. This result may indicate that women use these benefits as a buffer, allowing them to delay their return to the labor market during pandemic times, compared to women who lost their formal jobs but did not receive the benefits. When considering a longer period (12 months after entering the UI), the effects of the suspension scheme remain significant. However, being a beneficiary of the UI program under the layoff modality does not impact the differential chances of being employed compared to those who lost their jobs and did not receive the benefits.

Table 4. Effect of Entering the UI Program on Employment: Local Randomization Regression Discontinuity Design

	Dependent variable: Formally employed 8 months after entering the UI					
	Males			Females		
UI beneficiary	0.231***	-0.149	0.290***	0.136***	-0.436***	0.199***
	(0.0481)	(0.138)	(0.0552)	(0.0424)	(0.112)	(0.0509)
Mean of outcome below the cutoff	0.492	0.454	0.481	0.535	0.494	0.532
Observations	3,883	2,715	3,313	4,792	3,281	4,148
	Dependent variable: Formally employed 12 months after entering the UI					
	Males			Females		
UI beneficiary	0.316***	0.152	0.344***	0.243***	-0.144	0.330***
	(0.0480)	(0.136)	(0.0549)	(0.0420)	(0.109)	(0.0505)
Mean of outcome below the cutoff	0.446	0.401	0.441	0.490	0.444	0.482
Observations	3,883	2,715	3,313	4,792	3,281	4,148
UI scheme	All	Lay-off	Suspension	All	Lay-off	Suspension

Source: Based on administrative records from *Banco de Previsión Social*.
Note: The sample is composed by private salaried workers who lost their formal jobs in March and April 2020. To ensure a clean control group, we exclude those workers who left formal employment in the months considered and register an entry into unemployment insurance in the 16 subsequent months. The window considered for the estimation is [-30,30], that is, comprise those workers who had 30 days less and 30 days more than those required to enter the UI program.

Consistent with the results related to employment, beneficiaries of the UI program under the temporary-layoff scheme have higher wages both 8 and 12 months after entering the program (Table 5). In line with employment findings, no significant effects on wages are found for workers who entered the UI program under the layoff scheme.

Table 5. Effect of Entering the UI Program on Wages: Local Randomization Regression Discontinuity Design

	Dependent variable: Salary 8 months after entering the UI					
	Males			Females		
UI beneficiary	7,375***	-1,853	8,614***	5,346***	-4,793	6,308***
	(1,904)	(4,955)	(2,206)	(1,442)	(3,639)	(1,763)
Mean of outcome below the cutoff	13,057	11,481	12,671	12,312	11,160	12,261
Observations	3,883	2,715	3,313	4,792	3,281	4,148
	Dependent variable: Salary 12 months after entering the UI					
	Males			Females		
UI beneficiary	8,479***	3,426	8,771***	7,637***	2,793	8,319***
	(1,818)	(4,684)	(2,080)	(1,430)	(3,623)	(1,755)
Mean of outcome below the cutoff	11,045	9,638	10,751	10,261	9,462	10,219
Observations	3,883	2,715	3,313	4,792	3,281	4,148
UI scheme	All	Lay-off	Suspension	All	Lay-off	Suspension

Source: Based on administrative records from Banco de Previsión Social.
Note: The sample is composed by private salaried workers who lost their formal jobs in March and April 2020. To ensure a clean control group, we exclude those workers who left formal employment in the months considered and register an entry into unemployment insurance in the 16 subsequent months. The window considered for the estimation is [-30,30], that is, it comprise those workers who had 30 days less and 30 days more than those required to enter the UI program. The dependent variable is expressed in Uruguayan constant pesos of 2010.

7. Final Remarks

The COVID-19 pandemic caused significant disruptions in labor markets globally, and Uruguay was no exception. At the outbreak of the pandemic, women experienced greater losses in formal employment compared to men, though they showed signs of recovery in subsequent periods. These negative employment effects and associated wage losses were particularly pronounced among women with children and those with low wages.

As workers lost their formal employment, the substantial decline in employment was compensated by a significant increase in the probability of entering the UI program rather than exiting the formal labor market altogether. These movements favored women compared to men,

resulting in a better cushioning effect of the UI program for women during the Covid-19 crisis. This positive gender effect in terms of the buffering role of unemployment insurance benefits mainly corresponds to high-wage workers and mothers. However, the targeting of unemployment benefits to middle- and high-income workers raises concerns about the potential regressivity of the main public policy response to address the pandemic.

Disentangling the mechanisms behind this differential probability of entering the UI program that favored women is challenging. Employers may have preferred to opt for female workers as beneficiaries of unemployment insurance to facilitate caring for children at home due to school closures. Alternatively, female workers may have requested or agreed to this arrangement with employers for the same reasons. Regardless of the underlying reasons, the social protection system has protected formal female workers.

The flow analysis confirms that the pandemic has increased women's probability of losing their formal job and exiting the formal labor market compared to men. A detailed analysis of flows out of the UI program indicates that, although women generally have a lower probability of transitioning to formal employment, this trend changed after the pandemic. Women present higher probabilities of transitioning from UI to formal employment during the pandemic, mainly due to the higher probabilities of temporarily laid-off women returning to formal employment after the pandemic. In contrast, women who are permanently laid off have lower chances than men of returning to formal employment after the pandemic. The activation of the temporary layoff scheme helped all workers, especially women, return to formal jobs.

Our analysis of the local effects of the UI program using RD estimations reveals that beneficiaries of the UI suspension program, both men and women, have higher probabilities of being employed and earning higher monthly wages 8 and 12 months after entering the program. In contrast, the UI layoff modality shows no impact on the likelihood of employment or higher wages 8 or 12 months later. The effectiveness of the unemployment insurance (UI) suspension scheme in maintaining employment relationships during the crisis in Uruguay highlights the crucial role such policies can play in economic stabilization. The rapid adaptation of UI programs during the pandemic underscores the importance of flexible social protection systems that can swiftly respond to future crises. However, implementing these policies poses significant challenges. One major issue is the need to accurately target support to firms that are genuinely struggling due to temporary economic shocks, rather than those facing long-term structural

decline. Additionally, there are concerns about lower coverage for low-wage workers and the necessity of ensuring an equitable distribution of resources across the labor market to effectively support all workers during economic downturns.

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Appendix 1. The Unemployment Insurance Program in Uruguay

The Uruguayan unemployment insurance has a long tradition in Uruguay. Its origin dates back to 1958, and the program was later modified in 1962, 1982 and 2009 (Amarante et al., 2008). It covers formal private salaried workers, and there are three possible reasons or causes for entering the program: job loss (being fired or permanently laid off), job suspension (total suspension of activities for a period, temporary lay-off) and job reduction (when days of work or hours of work suffer from a reduction of at least 25 percent, also called partial suspension or reduced work). In the case of job loss, the UI program offers the worker a monetary benefit for six months after the job loss. The total benefit is equivalent to 50 percent of the previous wage multiplied by six. The compensation is offered in a decreasing scheme (the first month the worker gets 66 percent of the previous salary, the last month he or she gets 40 percent), as a way of fostering job search among beneficiaries. For day laborers, the benefit is set in days' wages, ranging from 16 in the first month to 9 days' wages in the sixth month.

In the case of suspended workers, the UI benefit lasts for four months. The amount of the subsidy corresponds to 50 percent of the average of the last six full months prior to the occurrence of the cause (no decreasing scheme) or 12 daily wages per month, calculated based on the last six full months prior to the occurrence of the cause, for day laborers. The job reduction is targeted to day laborers, and the subsidy corresponds to 72 days' wages (12 daily wages per month during six months). If a worker changes from full-time to partial time, she or he is eligible to apply for unemployment insurance. In all cases, benefits are capped. Health care entitlements are maintained during unemployment insurance coverage, being paid for by the program. If the worker is married or has dependents under 21 years of age, he or she receives a supplement of 20 percent of the corresponding benefit. Unemployment benefits do not rely on a specific contribution from companies or employees but are financed through earmarked taxes and contributions from General Revenues.

Appendix 2. Tables and Figures

Table A.1. Formal Workers by Categories and Sex

	2019	2020	2021	2022	2019-2022
Total formal workers	1.417.330	1.379.114	1.400.683	1.439.510	1.409.159
Distribution by category					
Private salaried workers	68%	68%	68%	69%	68%
Public workers	17%	17%	16%	16%	16%
Independent workers (self employed)	15%	15%	16%	16%	15%
Share of women					
Total formal workers	49%	49%	49%	50%	49%
Private salaried workers	49%	49%	49%	49%	49%
Public workers	61%	61%	61%	62%	61%
Independent workers (self employed)	39%	39%	40%	40%	40%

Source: Based on administrative records from Banco de Previsión Social.

Table A.2. Change in Employment, Participation, Unemployment and Informality Rates

Employment rate				
	Q4. 2019	Q4.2022	t test	Significance (*)
Total	57.1	56.8	0.574	No sign.
Women	49.6	49.9	0.760	No sign.
Men	65.2	64.2	0.239	No sign.
Participation rate				
	Q4. 2019	Q4.2022	t test	Significance (*)
Total	62.6	61.9	0.258	No sign.
Women	55.6	55.1	0.508	No sign.
Men	70.2	69.4	0.317	No sign.
Unemployment rate				
	Q4. 2019	Q4.2022	t test	Significance (*)
Total	8.8	8.4	0.339	No sign.
Women	10.8	9.4	0.052	No sign.
Men	7.1	7.5	0.540	No sign.
Informality rate				
	Q4. 2019	Q4.2022	t test	Significance (*)
Total	24.9	22.5	0.000	***
Women	23.2	22.4	0.413	No sign.
Men	26.4	22.6	0.000	***

Source: Based on household surveys.

Table A.3. Regression Results: Wages (only employed workers)

Wages (ln) (employed workers)				
	(1)	(2)	(3)	(4)
Phase 1	-0.0405***	-0.0484***	-0.0500***	-0.0460***
	(0.000636)	(0.000833)	(0.000815)	(0.000760)
Phase 2	-0.0247***	-0.0345***	-0.0355***	-0.0303***
	(0.000631)	(0.000848)	(0.000827)	(0.000760)
Phase 3	-0.0152***	-0.0342***	-0.0401***	-0.0227***
	(0.000661)	(0.000916)	(0.000887)	(0.000824)
Phase4	0.000525	-0.0229***	-0.0335***	-0.00505***
	(0.000732)	(0.00105)	(0.000993)	(0.000929)
Female*Phase1		-0.00444***	-0.0100***	-0.00872***
		(0.00128)	(0.00126)	(0.00120)
Female*Phase2		-0.000239	-0.00418***	-0.00266**
		(0.00127)	(0.00125)	(0.00118)
Female*Phase3		0.00700***	0.00398***	0.00453***
		(0.00134)	(0.00131)	(0.00124)
Female*Phase4		0.00542***	0.000864	0.00266**
		(0.00149)	(0.00144)	(0.00135)
Female		-0.292***	-0.248***	-
		(0.00258)	(0.00229)	
Constant	10.72***	10.74***	9.937***	
	(0.00134)	(0.00278)	(0.00426)	
Individual controls	NO	YES	YES	YES
Sector and firm size controls	NO	NO	YES	YES
Individual fixed effects	NO	NO	NO	YES
Observations	19,101,002	19,101,002	19,101,002	19,101,002
R-squared	0.000	0.078	0.348	0.831

Source: Based on administrative records from Banco de Previsión Social.
Note: For columns (1) to (4), the dependent variable is the log of real wages, and only workers with positive wages during the whole period are included. Phase 1 corresponds to March to June 2020, Phase 2 from July to November 2020, Phase 3 from December to September 2021 and Phase 4 since October 2021. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table A.4. Regression Results for Wage Terciles: Employment

	Low wages			Medium wages			High wages		
	(1)	(2)	(3)	(5)	(6)	(7)	(8)	(9)	(10)
Phase 1	-0.206***	-0.174***	-0.0546***	-0.194***	-0.180***	-0.109***	0.324***	0.221***	0.135***
	(0.000444)	(0.000594)	(0.000339)	(0.000576)	(0.000812)	(0.000560)	(0.000733)	(0.000932)	(0.000686)
Phase 2	-0.173***	-0.142***	-0.0460***	-0.147***	-0.138***	-0.0852***	0.357***	0.253***	0.157***
	(0.000481)	(0.000646)	(0.000362)	(0.000580)	(0.000822)	(0.000571)	(0.000725)	(0.000928)	(0.000690)
Phase 3	0.00416***	0.0151***	0.0147***	-0.122***	-0.120***	-0.0711***	0.0579***	0.0411***	0.0190***
	(0.000616)	(0.000847)	(0.000507)	(0.000565)	(0.000808)	(0.000575)	(0.000393)	(0.000531)	(0.000394)
Phase4	0.0599***	0.0678***	0.0395***	-0.141***	-0.137***	-0.0787***	0.105***	0.0775***	0.0404***
	(0.000709)	(0.000975)	(0.000606)	(0.000596)	(0.000851)	(0.000622)	(0.000472)	(0.000631)	(0.000471)
Female*Phase1		-0.0508***	-0.0201***		-0.0274***	-0.0209***		0.0321***	0.0483***
		(0.000882)	(0.000505)		(0.00115)	(0.000815)		(0.00137)	(0.00107)
Female*Phase2		-0.0484***	-0.0158***		-0.0161***	-0.0110***		0.0341***	0.0496***
		(0.000954)	(0.000547)		(0.00116)	(0.000832)		(0.00135)	(0.00107)
Female*Phase3		-0.0298***	-0.00415***		-0.00193*	-0.00338***		0.0220***	0.0155***
		(0.00123)	(0.000746)		(0.00113)	(0.000834)		(0.000803)	(0.000602)
Female*Phase4		-0.0314***	0.00173**		-0.00450***	-0.00555***		0.0461***	0.0324***
		(0.00141)	(0.000881)		(0.00118)	(0.000897)		(0.000966)	(0.000736)
Female		0.0937***	0.0166***		0.0409***	0.0422***		-0.0592***	-0.0515***
		(0.000969)	(0.000643)		(0.000533)	(0.000757)		(0.000999)	(0.000893)
Constant	0.453***	0.399***	1.003***	0.915***	0.905***	1.061***	0.523***	0.451***	0.812***
	(0.000490)	(0.000926)	(0.000803)	(0.000262)	(0.000696)	(0.00115)	(0.000564)	(0.000970)	(0.00139)
Individual controls	NO	YES	YES	NO	YES	YES	NO	YES	YES
Sector and firm size	NO	NO	YES	NO	NO	YES	NO	NO	YES
Observations	21,176,186	21,176,186	21,176,186	16,917,456	16,917,456	16,917,456	29,953,008	29,953,008	29,953,008
R-squared	0.041	0.065	0.691	0.031	0.047	0.391	0.042	0.174	0.445

Source: Based on administrative records from Banco de Previsión Social.
Note: The dependent variable employment takes value 1 if the individual is employed in the formal labor market, 0 otherwise. Phase 1 corresponds to March to June 2020, Phase 2 from July to November 2020, Phase 3 from December to September 2021 and Phase 4 since October 2021. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table A.5. Regression Results for Wage Terciles: UI and OutLF

	Low wages			Medium wages			High wages		
	(1)	(2)	(3)	(5)	(6)	(7)	(8)	(9)	(10)
Phase 1	-0.0209***	-0.0271***	-0.0268***	0.204***	0.136***	0.134***	0.774***	0.740***	0.734***
	(0.000372)	(0.000496)	(0.000493)	(0.00180)	(0.00234)	(0.00232)	(0.00153)	(0.00196)	(0.00195)
Phase 2	-0.0356***	-0.0377***	-0.0373***	0.00659***	-0.0440***	-0.0444***	0.597***	0.561***	0.556***
	(0.000376)	(0.000512)	(0.000509)	(0.00199)	(0.00254)	(0.00252)	(0.00203)	(0.00252)	(0.00252)
Phase 3	-0.0314***	-0.0305***	-0.0309***	-0.266***	-0.272***	-0.271***	0.00282***	-0.00292***	-0.00340***
	(0.000412)	(0.000574)	(0.000572)	(0.00176)	(0.00224)	(0.00222)	(0.000313)	(0.000467)	(0.000465)
Phase4	-0.0285***	-0.0257***	-0.0263***	-0.312***	-0.307***	-0.305***	0.00451***	-0.00574***	-0.00651***
	(0.000426)	(0.000610)	(0.000608)	(0.00164)	(0.00211)	(0.00209)	(0.000303)	(0.000452)	(0.000450)
Female*Phase1		0.0140***	0.0146***		0.155***	0.152***		0.0374***	0.0333***
		(0.000745)	(0.000742)		(0.00364)	(0.00358)		(0.00313)	(0.00311)
Female*Phase2		0.00496***	0.00577***		0.125***	0.123***		0.0451***	0.0415***
		(0.000750)	(0.000747)		(0.00404)	(0.00397)		(0.00418)	(0.00416)
Female*Phase3		-0.00584***	-0.00424***		0.0312***	0.0363***		0.00550***	0.00538***
		(0.000822)	(0.000820)		(0.00361)	(0.00356)		(0.000602)	(0.000599)
Female*Phase4		-0.0130***	-0.0102***		0.00970***	0.0177***		0.0104***	0.0110***
		(0.000848)	(0.000847)		(0.00339)	(0.00333)		(0.000587)	(0.000585)
Female		-0.00820***	0.00415***		-0.0357***	-0.0180***		-0.0252***	-0.0140***
		(0.000679)	(0.000699)		(0.00322)	(0.00317)		(0.000362)	(0.000379)
Constant	0.0665***	0.0586***	0.0672***	0.401***	0.389***	0.368***	0.0333***	0.0253***	0.00784***
	(0.000341)	(0.000488)	(0.000743)	(0.00156)	(0.00220)	(0.00298)	(0.000194)	(0.000313)	(0.000520)
Individual controls	NO	YES	YES	NO	YES	YES	NO	YES	YES
Sector andfirm size	NO	NO	YES	NO	NO	YES	NO	NO	YES
Observations	12,520,518	12,520,518	12,520,518	3,103,920	3,103,920	3,103,920	11,728,655	11,728,655	11,728,655
R-squared	0.004	0.014	0.022	0.186	0.198	0.212	0.303	0.317	0.324

Note: The depenent variable unemployment insurance takes the value 1 if the indivdual gets UI benefits and 0 otherwise, and only non employed individuals are considered in this regresssion. Phase 1 corresponds to March to June 2020, Phase 2 from July to November 2020, Phase 3 from December to September 2021 and Phase 4 since October 2021. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table A.6. Regression Results for Wage Terciles (semi-elasticities): Wages

	Low wages				Medium wages				High wages			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Phase 1	-0.868***	-0.820***	-0.402***	-0.032***	-0.888***	-0.869***	-0.720***	-0.583***	44.237***	11.554***	3.699***	-0.346***
	[0.001]	[0.001]	[0.002]	[0.004]	[0.001]	[0.001]	[0.002]	[0.002]	[0.397]	[0.140]	[0.039]	[0.004]
Phase 2	-0.811***	-0.746***	-0.333***	0.065***	-0.805***	-0.787***	-0.624***	-0.498***	65.431***	17.310***	5.172***	-0.181***
	[0.001]	[0.002]	[0.003]	[0.004]	[0.001]	[0.002]	[0.002]	[0.003]	[0.577]	[0.203]	[0.052]	[0.004]
Phase 3	0.203***	0.358***	0.338***	0.251***	-0.749***	-0.742***	-0.567***	-0.447***	0.599***	0.320***	0.050***	0.128***
	[0.008]	[0.012]	[0.007]	[0.007]	[0.002]	[0.002]	[0.003]	[0.004]	[0.007]	[0.008]	[0.005]	[0.005]
Phase4	1.279***	1.504***	0.848***	0.496***	-0.790***	-0.778***	-0.588***	-0.458***	1.502***	0.866***	0.267***	0.460***
	[0.017]	[0.026]	[0.012]	[0.010]	[0.001]	[0.002]	[0.003]	[0.004]	[0.013]	[0.013]	[0.007]	[0.008]
Female*Phase1		-0.389***	-0.180***	-0.102***		-0.266***	-0.214***	-0.181***		0.433***	0.684***	0.201***
		[0.005]	[0.004]	[0.005]		[0.009]	[0.007]	[0.007]		[0.023]	[0.022]	[0.010]
Female*Phase2		-0.373***	-0.141***	-0.063***		-0.164***	-0.118***	-0.089***		0.456***	0.695***	0.218***
		[0.006]	[0.005]	[0.006]		[0.011]	[0.008]	[0.008]		[0.023]	[0.022]	[0.010]
Female*Phase3		-0.268***	-0.050***	-0.060***		-0.030	-0.045***	-0.067***		0.245***	0.164***	0.159***
		[0.009]	[0.008]	[0.007]		[0.012]	[0.009]	[0.008]		[0.011]	[0.008]	[0.007]
Female*Phase4		-0.280***	0.006			-0.060***	-0.072***			0.575***	0.363***	
		[0.011]	[0.010]			[0.012]	[0.009]			[0.017]	[0.011]	
Individual controls	NO	YES	YES	YES	NO	YES	YES	YES	NO	YES	YES	YES
Sector and firm size	NO	NO	YES	YES	NO	NO	YES	YES	NO	NO	YES	YES
Individual fixed effects	NO	NO	NO	YES	NO	NO	NO	YES	NO	NO	NO	YES
Observations	21,176,186	21,176,186	21,176,186	21,176,186	16,917,456	16,917,456	16,917,456	16,917,456	29,953,008	29,953,008	29,953,008	29,953,008
R-squared	0.043	0.066	0.668	0.823	0.032	0.048	0.372	0.737	0.042	0.191	0.442	0.852

Source: Based on administrative records from Banco de Previsión Social.
Note: The dependent variable is the inverse hyperbolic sine transformation of real wages, and workers with 0 wages are included. Phase 1 corresponds to March to June 2020, Phase 2 from July to November 2020, Phase 3 from December to September 2021 and Phase 4 since October 2021. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table A.7. Regression Results for Wage Terciles (semi-elasticities): Income (Wages + UI benefits)

	Low wages				Medium wages				High wages			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Phase 1	-0.871***	-0.835***	-0.480***	-0.054***	-0.585***	-0.607***	-0.296***	-0.106***	134.153***	37.109***	14.241***	0.969***
	[0.001]	[0.001]	[0.002]	[0.005]	[0.002]	[0.003]	[0.004]	[0.006]	[1.000]	[0.354]	[0.112]	[0.010]
Phase 2	-0.835***	-0.787***	-0.465***	-0.028***	-0.656***	-0.672***	-0.493***	-0.394***	120.965***	32.665***	11.226***	0.532***
	[0.001]	[0.001]	[0.003]	[0.005]	[0.002]	[0.003]	[0.003]	[0.004]	[0.935]	[0.325]	[0.093]	[0.007]
Phase 3	0.015	0.133***	0.116***	0.043***	-0.764***	-0.775***	-0.665***	-0.616***	0.587***	0.289***	0.043***	0.182***
	[0.007]	[0.010]	[0.007]	[0.006]	[0.001]	[0.002]	[0.002]	[0.003]	[0.007]	[0.008]	[0.005]	[0.005]
Phase4	0.917***	1.109***	0.575***	0.244***	-0.817***	-0.817***	-0.707***	-0.662***	1.455***	0.786***	0.248***	0.569***
	[0.014]	[0.022]	[0.011]	[0.009]	[0.001]	[0.002]	[0.002]	[0.002]	[0.013]	[0.013]	[0.007]	[0.009]
Female*Phase1		-0.302***	-0.072***	0.050***		0.123***	0.183***	0.201***		0.354***	0.554***	0.126***
		[0.006]	[0.006]	[0.008]		[0.010]	[0.010]	[0.010]		[0.018]	[0.018]	[0.008]
Female*Phase2		-0.325***	-0.084***	0.030***		0.113***	0.160***	0.171***		0.426***	0.623***	0.184***
		[0.007]	[0.006]	[0.008]		[0.012]	[0.010]	[0.010]		[0.020]	[0.019]	[0.008]
Female*Phase3		-0.257***	-0.044***	-0.070***		0.125***	0.113***	0.097***		0.282***	0.206***	0.210***
		[0.010]	[0.008]	[0.008]		[0.013]	[0.011]	[0.010]		[0.011]	[0.008]	[0.008]
Female*Phase4		-0.290***	-0.019			0.065***	0.058***			0.654***	0.449***	
		[0.011]	[0.010]			[0.014]	[0.011]			[0.018]	[0.012]	
Individual controls	NO	YES	YES	YES	NO	YES	YES	YES	NO	YES	YES	YES
Sector and firm size	NO	NO	YES	YES	NO	NO	YES	YES	NO	NO	YES	YES
Individual fixed effects	NO	NO	NO	YES	NO	NO	NO	YES	NO	NO	NO	YES
Observations	21,176,186	21,176,186	21,176,186	21,176,186	16,917,456	16,917,456	16,917,456	16,917,456	29,953,008	29,953,008	29,953,008	29,953,008
R-squared	0.040	0.062	0.605	0.785	0.034	0.051	0.291	0.653	0.064	0.217	0.440	0.848

Source: Based on administrative records from Banco de Previsión Social.
Note: The dependent variable is the inverse hyperbolic sine transformation of the sum of real wages and unemployment benefits. Phase 1 corresponds to March to June 2020, Phase 2 from July to November 2020, Phase 3 from December to September 2021 and Phase 4 since October 2021. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table A.8. Regression Results: Childless and Mothers, Employment and UI+Out FLF

	Employment				UI + Out of FLM			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Phase 1	-0.0828***	-0.0740***	-0.0768***	-0.0454***	0.120***	0.101***	0.0967***	0.0956***
	(0.000288)	(0.000394)	(0.000396)	(0.000268)	(0.000419)	(0.000553)	(0.000545)	(0.000541)
Phase 2	-0.0468***	-0.0406***	-0.0433***	-0.0276***	0.0544***	0.0428***	0.0390***	0.0384***
	(0.000305)	(0.000420)	(0.000421)	(0.000281)	(0.000388)	(0.000522)	(0.000515)	(0.000513)
Phase 3	-0.00252***	0.00177***	-0.00319***	-0.00152***	-0.0161***	-0.0194***	-0.0245***	-0.0251***
	(0.000320)	(0.000441)	(0.000443)	(0.000306)	(0.000287)	(0.000406)	(0.000408)	(0.000406)
Phase4	0.0341***	0.0358***	0.0283***	0.0184***	-0.0187***	-0.0208***	-0.0290***	-0.0299***
	(0.000371)	(0.000506)	(0.000508)	(0.000358)	(0.000276)	(0.000392)	(0.000404)	(0.000403)
Phase 1*Children	-0.0146***	-0.00846***	-0.0122***	-0.00587**	0.0634***	0.0477***	0.0468***	0.0467***
	(0.00244)	(0.00293)	(0.00269)	(0.00261)	(0.00368)	(0.00368)	(0.00370)	(0.00367)
Phase 2*Children	-0.0107***	-0.00716***	-0.0123***	-0.00558**	0.0365***	0.0174***	0.0164***	0.0168***
	(0.00219)	(0.00278)	(0.00252)	(0.00243)	(0.00343)	(0.00373)	(0.00367)	(0.00365)
Phase 3*Children	-0.000119	-0.000650	-0.00937***	-0.00111	-0.00842***	-0.00920**	-0.0104**	-0.00981**
	(0.00176)	(0.00249)	(0.00244)	(0.00248)	(0.00274)	(0.00441)	(0.00433)	(0.00433)
Phase4*Children	0.0673***	0.0852***	0.0410***	0.0468***	0.0201***	0.00106	-0.00778**	-0.00864**
	(0.00178)	(0.00206)	(0.00202)	(0.00172)	(0.00290)	(0.00344)	(0.00340)	(0.00338)
Female*Phase1		-0.0185***	-0.0194***	-0.0106***		0.0432***	0.0417***	0.0405***
		(0.000577)	(0.000580)	(0.000390)		(0.000846)	(0.000833)	(0.000824)
Female*Phase2		-0.0130***	-0.0144***	-0.00612***		0.0264***	0.0255***	0.0248***
		(0.000611)	(0.000614)	(0.000412)		(0.000780)	(0.000768)	(0.000761)
Female*Phase3		-0.00904***	-0.0109***	-0.00423***		0.00784***	0.00719***	0.00785***
		(0.000642)	(0.000644)	(0.000448)		(0.000569)	(0.000565)	(0.000563)
Female*Phase4		-0.00348***	-0.00597***	0.00125**		0.00473***	0.00340***	0.00528***
		(0.000743)	(0.000743)	(0.000529)		(0.000544)	(0.000545)	(0.000546)
Female*Children*Phase1		-0.00983**	-0.0107**	-0.00975**		0.0254***	0.0232***	0.0220***
		(0.00482)	(0.00456)	(0.00417)		(0.00719)	(0.00707)	(0.00698)
Female*Children*Phase2		-0.00528	-0.00397	-0.00564		0.0343***	0.0329***	0.0318***
		(0.00433)	(0.00409)	(0.00381)		(0.00677)	(0.00660)	(0.00655)

Female*Children*Phase3		0.00246	0.00139	-0.00711**		-0.000530	-0.000893	-0.00290
		(0.00352)	(0.00341)	(0.00338)		(0.00542)	(0.00533)	(0.00531)
Female*Children*Phase4		-0.0994***	-0.0690***	-0.0701***		-0.00759*	-0.000110	-0.00115
		(0.00322)	(0.00314)	(0.00284)		(0.00459)	(0.00453)	(0.00450)
Children	0.121***	0.135***	0.120***	0.0722***	0.0389***	0.0565***	0.0564***	0.0544***
	(0.00132)	(0.00174)	(0.00167)	(0.00142)	(0.00152)	(0.00208)	(0.00205)	(0.00205)
Children*Female		-0.0327***	-0.0158***	0.00840***		-0.0317***	-0.0209***	-0.0210***
		(0.00261)	(0.00246)	(0.00230)		(0.00304)	(0.00300)	(0.00298)
Female		0.0583***	0.0230***	-0.00521***		-0.0227***	-0.0250***	-0.00976***
		(0.000754)	(0.000719)	(0.000660)		(0.000421)	(0.000430)	(0.000583)
Constant	0.594***	0.567***	0.537***		0.0628***	0.0727***	0.0548***	
	(0.000377)	(0.000520)	(0.000801)		(0.000214)	(0.000305)	(0.000512)	
Individual controls	NO	NO	YES	YES	NO	NO	YES	YES
Sector and firm size	NO	NO	NO	YES	NO	NO	NO	YES
Observations	86,246,238	86,246,238	86,246,238	86,246,238	30,338,097	30,338,097	30,338,097	30,338,097
R-squared	0.042	0.044	0.111	0.462	0.030	0.032	0.048	0.059

Source: based on administrative records from Banco de Previsión Social.
Note: For columns (1) to (4), the dependent variable employment takes value 1 if the individual is employed in the formal labor market, 0 otherwise. For columns (5) to (8), the depenent variable unemployment insurance takes the value 1 if the indivdual gets UI benefits and 0 otherwise, and only non employed individuals are considered in this regresssion. Phase 1 corresponds to March to June 2020, Phase 2 from July to November 2020, Phase 3 from December to September 2021 and Phase 4 since October 2021. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table A.9. Regression Results (semi-elasticities): Childless and Mothers, Wages and Income

	Wages				Income (wages+UI benefits)			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Phase 1	-0.616***	-0.579***	-0.594***	-0.435***	-0.280***	-0.264***	-0.292***	-0.040***
	[0.001]	[0.002]	[0.002]	[0.002]	[0.002]	[0.003]	[0.003]	[0.003]
Phase 2	-0.424***	-0.386***	-0.407***	-0.299***	-0.247***	-0.231***	-0.259***	-0.135***
	[0.002]	[0.003]	[0.003]	[0.002]	[0.002]	[0.003]	[0.003]	[0.003]
Phase 3	-0.070***	-0.029***	-0.089***	-0.072***	-0.128***	-0.108***	-0.165***	-0.151***
	[0.003]	[0.005]	[0.004]	[0.003]	[0.003]	[0.004]	[0.004]	[0.003]
Phase4	0.388***	0.413***	0.283***	0.155***	0.270***	0.271***	0.149***	0.042***
	[0.006]	[0.008]	[0.007]	[0.005]	[0.005]	[0.007]	[0.006]	[0.004]
Phase 1*Children	-0.154***	-0.108***	-0.147***	-0.090***	-0,004	-0,009	-0,054	0,003
	[0.024]	[0.031]	[0.027]	[0.028]	[0.023]	[0.030]	[0.026]	[0.028]
Phase 2*Children	-0.106***	-0.063	-0.120***	-0.057	-0.017	-0.022	-0.083***	-0.023
	[0.024]	[0.033]	[0.028]	[0.030]	[0.022]	[0.031]	[0.024]	[0.028]
Phase 3*Children	-0.003	-0.010	-0.108***	-0.030	-0.008	-0.010	-0.111***	-0.042
	[0.021]	[0.031]	[0.027]	[0.030]	[0.020]	[0.028]	[0.024]	[0.028]
Phase4*Children	1.844***	2.416***	0.986***	1.006***	1.824***	2.154***	0.813***	0.827***
	[0.060]	[0.083]	[0.046]	[0.041]	[0.057]	[0.073]	[0.040]	[0.037]
Female*Phase1		-0.175***	-0.184***	-0.108***		-0.042***	-0.053***	0.029***
		[0.005]	[0.005]	[0.004]		[0.005]	[0.005]	[0.004]
Female*Phase2		-0.124***	-0.138***	-0.062***		-0.045***	-0.060***	0.017***
		[0.006]	[0.006]	[0.004]		[0.006]	[0.006]	[0.005]
Female*Phase3		-0.088***	-0.108***	-0.045***		-0.048***	-0.068***	-0.006
		[0.006]	[0.006]	[0.005]		[0.007]	[0.006]	[0.005]
Female*Phase4		-0.037***	-0.065***	0.004		-0.001	-0.030***	0.037***
		[0.008]	[0.008]	[0.006]		[0.008]	[0.008]	[0.006]
Female*Children*Phase1		-0.080***	-0.090***	-0.077***		0.013***	0.003***	0.017***
		[0.052]	[0.049]	[0.046]		[0.047]	[0.042]	[0.045]
Female*Children*Phase2		-0.074***	-0.058***	-0.069***		0.014***	0.031***	0.021***
		[0.049]	[0.046]	[0.044]		[0.046]	[0.042]	[0.044]

Female*Children*Phase3		0.026***	0.013***	-0.066***		0.007***	-0.004***	-0.073
		[0.044]	[0.041]	[0.038]		[0.040]	[0.037]	[0.036]
Female*Children*Phase4		-0.747***	-0.631***			-0.727	-0.599***	
		[0.010]	[0.013]			[0.010]	[0.014]	
Individual controls	NO	NO	YES	YES	NO	NO	YES	YES
Sector and firm size	NO	NO	NO	YES	NO	NO	NO	YES
Observations	86,246,238	86,246,238	86,246,238	86,246,238	86,246,238	86,246,238	86,246,238	86,246,238
R-squared	0.051	0.053	0.132	0.438	0.047	0.049	0.132	0.404

Source: Based on administrative records from Banco de Previsión Social.

Note: For columns (1) to (4), the dependent variable is the inverse hyperbolic sine transformation of real wages, and workers with 0 wages are included. For columns (5) to (8), the dependent variable is the inverse hyperbolic sine transformation of the sum of real wages and unemployment benefits. Phase 1 corresponds to March to June 2020, Phase 2 from July to November 2020, Phase 3 from December to September 2021 and Phase 4 since October 2021. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table A.10. Flow Regressions: Job and Social Protection Losses, Job Gains

	Job & Social protection loss						Job Gain			
	Formal Employment to Out FLF		Formal Employment to UI		UI to Out FLF		UI to Formal Employment		Out FLF to Formal Employment	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Pandemic	0.102***	0.104***	0.141***	0.140***	-0.000244	0.00368***	-0.0333***	-0.0297***	-0.0553***	-0.0442***
	(0.000256)	(0.000244)	(0.000249)	(0.000241)	(0.00129)	(0.00121)	(0.000701)	(0.000666)	(0.000338)	(0.000300)
Female	-0.0400***	0.00203***	-0.0448***	0.00104***	-0.0277***	-0.0203***	-0.00634***	0.000657	-0.0356***	-0.0138***
	(0.000234)	(0.000237)	(0.000215)	(0.000225)	(0.00168)	(0.00173)	(0.000778)	(0.000788)	(0.000365)	(0.000342)
Female*Pandemic	0.0182***	0.0190***	0.0291***	0.0278***	0.000377	-0.00294	0.0289***	0.0279***	-0.0244***	-0.0191***
	(0.000359)	(0.000344)	(0.000347)	(0.000336)	(0.00228)	(0.00219)	(0.00115)	(0.00109)	(0.000490)	(0.000433)
Constant	0.203***	0.142***	0.162***	0.0856***	0.742***	0.753***	0.951***	1.074***	0.340***	1.040***
	(0.000169)	(0.000395)	(0.000159)	(0.000391)	(0.000957)	(0.00213)	(0.000452)	(0.00108)	(0.000249)	(0.000482)
Indiv. controls	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES
Sector&firm size	NO	YES	NO	YES	NO	YES	NO	NO	NO	NO
Observations	22,074,220	22,074,220	21,522,776	21,522,776	697,643	697,643	751,316	751,316	13,651,772	13,651,772
R-squared	0.018	0.103	0.036	0.099	0.001	0.102	0.003	0.088	0.008	0.227

Source: Based on administrative records from Banco de Previsión Social.
Note: In columns 1 and 2, the dependent variable is 1 if the worker goes from formally employed to out of the formal labor force. In columns 3 and 4, the dependent variable is 1 if the worker goes from formally employed to beneficiary of the UI program. In columns 5 and 6, the dependent variable is 1 if the worker goes from the UI program to out of the formal labor force. In columns 7 and 8, the dependent variable is 1 if the worker goes from the UI program to formal employment, and in columns 9 and 10, the dependent variable is 1 if the worker goes from out of the formal labor force to formal employment. The initial condition is taken in the first month of each period (pre and post pandemic).

Table A.11. Flow Regressions: Transitions out of the UI Program

	UI to Formal Employment		Suspension to Formal Employment		Reduction in Formal Employment		Lay-offs to Formal Employment	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Pandem	0.160***	0.126***	0.195***	0.161***	0.0887***	0.0691***	-0.123***	-0.103***
	(0.00221)	(0.00213)	(0.00227)	(0.00216)	(0.000774)	(0.000692)	(0.00184)	(0.00186)
Female	0.0397***	-0.0358***	0.0281***	-0.0369***	0.000625**	-0.0365***	0.0110***	0.0375***
	(0.00320)	(0.00321)	(0.00320)	(0.00322)	(0.000266)	(0.000608)	(0.00283)	(0.00286)
Female*Pandem	0.0417***	0.0780***	0.0392***	0.0748***	0.0534***	0.0622***	-0.0508***	-0.0590***
	(0.00357)	(0.00349)	(0.00375)	(0.00364)	(0.00132)	(0.00133)	(0.00306)	(0.00303)
Constant	0.596***	0.619***	0.358***	0.130***	0.00121***	0.0346***	0.237***	0.454***
	(0.00189)	(0.00356)	(0.00185)	(0.00366)	(0.000134)	(0.00120)	(0.00164)	(0.00341)
Individual controls	NO	YES	NO	YES	NO	YES	NO	YES
Sector and firm size	NO	YES	NO	YES	NO	YES	NO	YES
Observations	354,766	354,766	354,766	354,766			354,766	354,766
R-squared	0.042	0.128	0.041	0.125			0.039	0.083

Source: Based on administrative records from Banco de Previsión Social.
Note: In columns 1 and 2, the dependent variable is 1 if the worker goes from the UI program to the formal labor force. In columns 3 and 4, the dependent variable is 1 if the worker goes from the suspension modality of UI program to the formal labor force. In columns 5 and 6, the dependent variable is 1 if the worker goes from the reduction modality of the UI program to the formal labor force. In columns 7 and 8, the dependent variable is 1 if the worker goes from the layoff modality of the UI program to formal employment. The initial condition is taken in March 2020 or 2019 (post and pre pandemic).

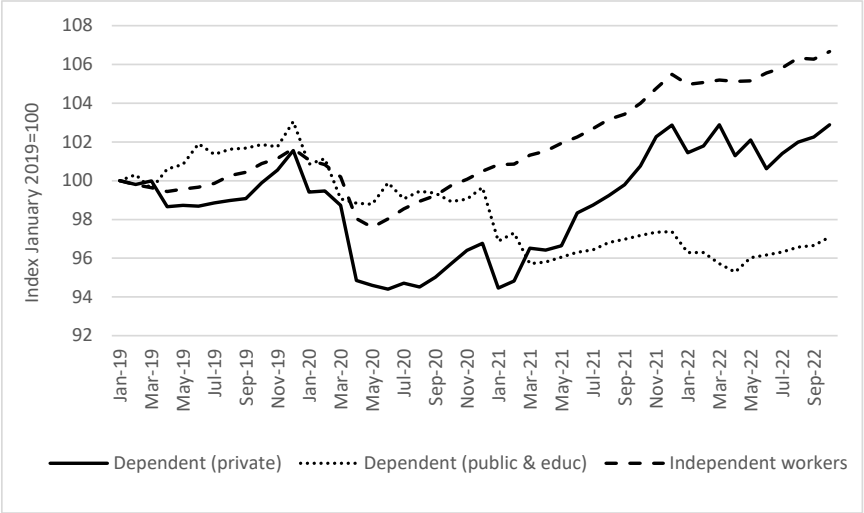
Table A.12. Balance of Covariates in the Selected RD Window

Covariate	Obs below threshold	Obs above threshold	Mean below threshold	Mean above threshold	Diff in means	SE of Diff	p-value
Female							
Age	3106	1686	31.79	33.12	-1.33	0.314	0.000
Agriculture	3106	1686	0.021	0.017	0.004	0.004	0.373
Industry	3106	1686	0.080	0.086	-0.005	0.009	0.528
Electricity. Gas and Water	3106	1686	0.002	0.002	0.000	0.001	0.891
Construction	3106	1686	0.007	0.009	-0.002	0.003	0.579
Commerce. Rest. & hotels	3106	1686	0.449	0.436	0.013	0.015	0.381
Transport and Communication	3106	1686	0.033	0.026	0.007	0.005	0.175
Finance and Insurance	3106	1686	0.148	0.117	0.032	0.011	0.002
Administration Activities	3106	1686	0.045	0.045	-0.001	0.007	0.924
Public Administration	3106	1686	0.034	0.052	-0.018	0.006	0.004
Education	3106	1686	0.026	0.044	-0.018	0.005	0.001
Health	3106	1686	0.040	0.034	0.005	0.005	0.341
Arts	3106	1686	0.050	0.058	-0.007	0.007	0.280
Domestic Service	3106	1686	0.067	0.076	-0.010	0.007	0.186
Male							
Age	2386	1497	31.30	31.85	-0.542	0.351	0.121
Agriculture	2386	1497	0.038	0.041	-0.002	0.007	0.733
Industry	2386	1497	0.069	0.090	-0.021	0.009	0.017
Electricity. Gas and Water	2386	1497	0.005	0.004	0.002	0.002	0.547
Construction	2386	1497	0.015	0.021	-0.005	0.005	0.229
Commerce. Rest. & hotels	2386	1497	0.491	0.477	0.014	0.017	0.388
Transport and Communication	2386	1497	0.059	0.068	-0.009	0.008	0.236
Finance and Insurance	2386	1497	0.107	0.096	0.011	0.010	0.257
Administration Activities	2386	1497	0.098	0.073	0.025	0.009	0.008
Public Administration	2386	1497	0.027	0.030	-0.004	0.005	0.526

Education	2386	1497	0.015	0.012	0.003	0.004	0.489
Health	2386	1497	0.013	0.018	-0.005	0.004	0.270
Arts	2386	1497	0.053	0.068	-0.014	0.008	0.075
Domestic Service	2386	1497	0.009	0.004	0.005	0.003	0.061

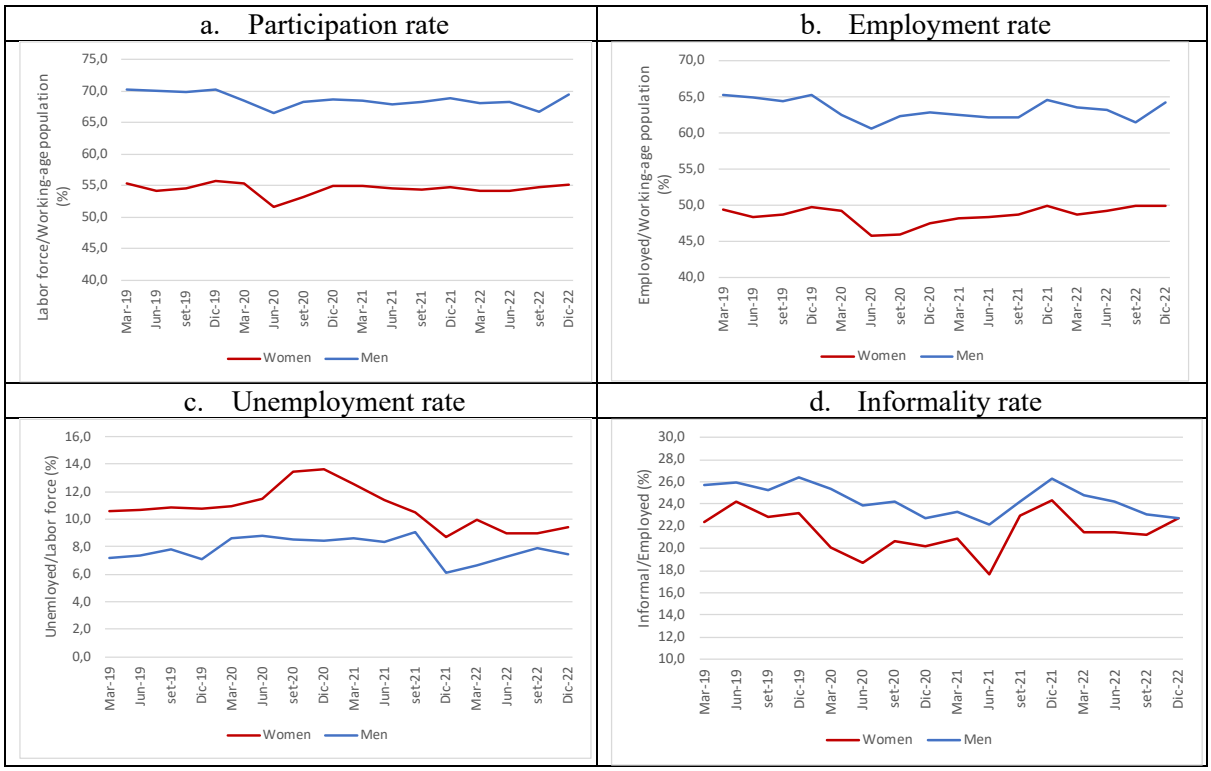
Source: Based on administrative records from Banco de Previsión Social.
Note: The table shows the mean values of the covariates at each side of the cut-off within the selected window, and the T-test for significant differences in the means.

Figure A.1. Evolution of Formal Jobs by Categories (Index January 2019=100): 2019-2022



Source: Based on administrative records from Banco de Previsión Social.

Figure A.2. Participation, Employment and Unemployment Rates by Sex



Source: Based on household surveys.

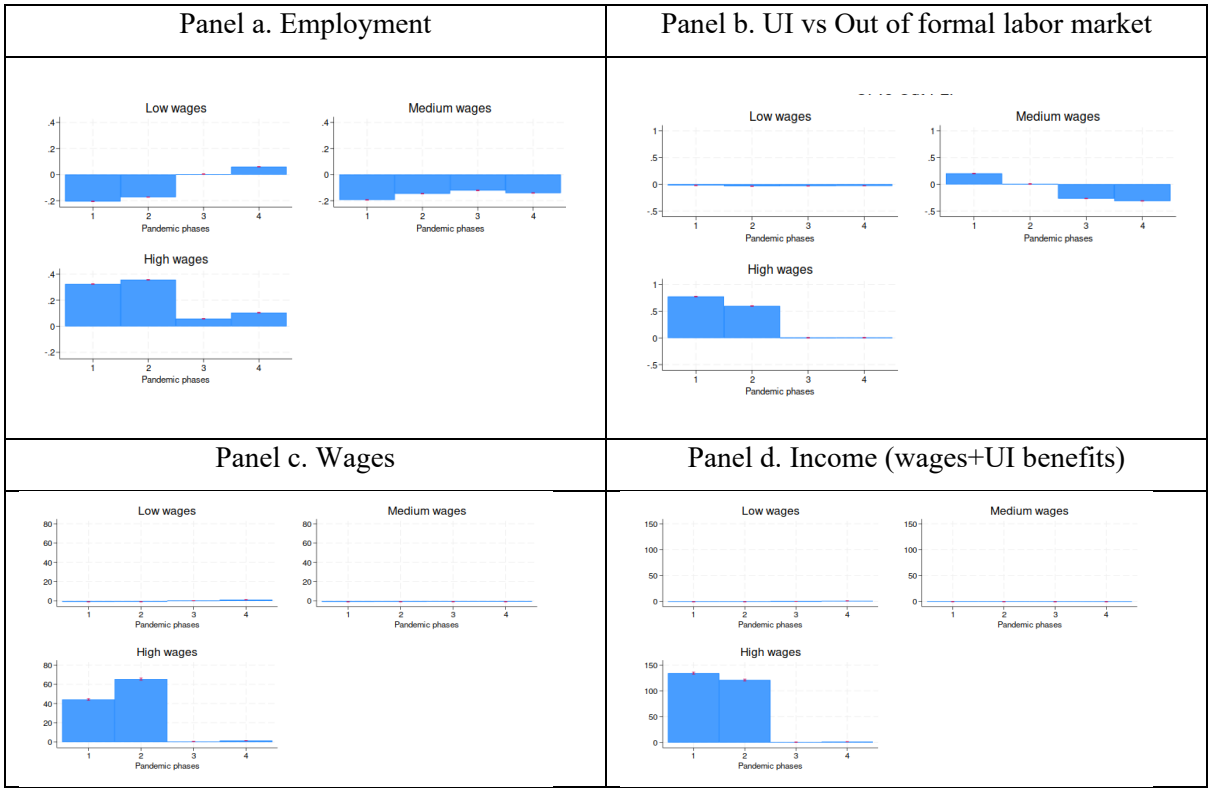
Figure A.3. The Phases of the Pandemic (β_τ)

Source: Based on administrative records from Banco de Previsión Social.
Note: The bars in panels a. and b. show the estimated coefficients of the four phases of the pandemic (columns 1 and 5 in Table 2, with no control variables or fixed effects). The bars in panels c. and d. show the semi-elasticities corresponding to the four phases of the pandemic (columns 1 and 5 in Table 3). Phase 1 corresponds to March to June 2020, Phase 2 from July to November 2020, Phase 3 from December to September 2021 and Phase 4 since October 2021. The pre-Covid period between January 2019 and February 2020 is the omitted one.

Figure A.4. Gender Differences in Wages (all workers and only employed workers)

Source: Based on administrative records from Banco de Previsión Social.
Note: The figures reflect the coefficients for the interaction between female and the phases (φ_τ in equation 1). The dependent variables is the log of real wages. In panel a) workers with 0 wages are included, in panel b) only workers with positive wages during all the period are considered. Phase 1 corresponds to March to June 2020, Phase 2 from July to November 2020, Phase 3 from December to September 2021 and Phase 4 since October 2021. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Figure A.5. The Phases of the Pandemic (β_τ) for Low, Medium and High-wage Workers



Source: Based on administrative records from Banco de Previsión Social.
Note: The bars in panels a and b show the estimated coefficients of the four phases of the pandemic, and in panels c and d they show the semi-elasticities corresponding to the four phases of the pandemic, in all cases splitting the sample between workers with low, medium and high wages. Phase 1 corresponds to March to June 2020, Phase 2 from July to November 2020, Phase 3 from December to September 2021 and Phase 4 since October 2021. The pre-Covid period between January 2019 and February 2020 is the omitted one.